

## COIL



# ABOUT PDC

## Milestone 歷史沿革



|      |                                                                                                                                   |
|------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1990 | PDC former parent company, Taiwan Cement, merged with Mei Da Mei and founded PDC in Nantou.<br>台泥集團購買美大美電子公司，信昌電子陶瓷正式成立。          |
| 1995 | PDC merged with Taiwan Precision Material Corporation.<br>信昌電子陶瓷併購台灣精密材料公司。                                                       |
| 2002 | Public Listed in OTC.<br>信昌電子陶瓷正式上櫃。                                                                                              |
| 2005 | PDC was strategically allied with Wasin Tech.<br>與華新科技(股)公司策略聯盟。                                                                  |
| 2007 | To be strategically allied with Frontier, and setting up new production lines, Magnetic components.<br>與弘電電子工業(股)公司策略聯盟，生產磁性材料元件。 |
| 2008 | Positioned as Specialty and Material BG in PSA Group.<br>集團推動 PSA 被動系統聯盟企業識別，信昌電子陶瓷定位為特殊品及材料事業群。                                  |

## Core Technology 關鍵技術



|      |                                                                                                                                                                        |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1988 | Manufacturing and developing ceramic dielectric materials.<br>生產製造圓板電容粉末、開發。                                                                                           |
| 1990 | Manufacturing Multilayer Ceramic Capacitors.<br>生產製造積層陶瓷晶片電容。                                                                                                          |
| 1995 | Manufacturing Ceramic Chip Resistors and Ceramic Chip Coil<br>生產陶瓷晶片電阻、陶瓷晶片電感。                                                                                         |
| 2001 | As the 1 <sup>st</sup> manufacturer and provider in Taiwan for ceramic dielectric powders and multilayer ceramic chip capacitors (MLCC).<br>臺灣第一家自行供給晶片電容器介電瓷粉之被動元件廠商。 |
| 2001 | With self-made conducting dielectric powder, controlling the complete key technology from material to manufacture.<br>自製半導體介電瓷粉，掌握由材料至製程的完整關鍵性技術。                      |
| 2007 | Manufacturing magnetic components.<br>生產磁性材料元件。                                                                                                                        |

## Brand Value 品牌價值



|      |                                                                                                                                                                |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001 | The first supplier in Asia to get SEMKO product safety certificate.<br>亞洲第一家獲得 SEMKO 安全規格認證之供應商。                                                               |
| 2003 | ISO 9001 certificated.<br>獲 ISO 9001 驗證通過。                                                                                                                     |
| 2004 | Industrial Sustainable Excellence Award.<br>榮獲經濟部工業局工業精銳獎。                                                                                                     |
| 2004 | TS16949、ISO 14000 and OHSAS 18000 certificated.<br>獲 TS16949、ISO 14000 及 OHSAS 18000 驗證。                                                                       |
| 2007 | Common Wealth Magazine Top 1000 Manufacturers in Taiwan Ranked in No. 705.<br>天下雜誌 1000 大製造業排名第 705 名。                                                         |
| 2008 | IECQ QC080000 HSF certificated.<br>獲 IECQ QC080000 HSF 驗證。                                                                                                     |
| 2008 | Common Wealth Magazine Top 1000 Manufacturers in Taiwan Ranked in No. 682.<br>天下雜誌 1000 大製造業排名第 682 名。                                                         |
| 2009 | Common Wealth Magazine Top 1000 Manufacturers in Taiwan Ranked in No. 677.<br>天下雜誌 1000 大製造業排名第 677 名。                                                         |
| 2012 | Recognition of Winning the Silver Invention Award for Copper or Its Alloy Cofirable Dielectric Ceramics.<br>榮獲國家發明創作獎 - 發明獎銀牌「可與銅及其合金進行共燒製作的介電陶瓷組成物」           |
| 2013 | SMD High Voltage Chip Resistor passed UL Safety certification in 2013<br>電阻產品取得安規認證證書                                                                          |
| 2015 | MLCC product have obtained the IECQ certificate & the certificate of AS9100 management system for the aerospace industry.<br>通過 IECQ 第三方認證及 AS9100 航太工業管理系統驗證。 |
| 2016 | Aerospace Quality Management Systems AS 9100 certificated.<br>晶片電容取得車規第三方認證                                                                                    |
| 2019 | PDC was selected fastest growing Top 100 companies in 2019 by commonwealth magazine<br>PDC 榮獲天下雜誌 2019 年成長 100 強企業                                             |

## Market Performance 市場表現



The only local manufacturer in Taiwan with the capability in specialty products includes multiple-layer ceramic capacitors, chip resistors, and coils.  
國內唯一可全數提供特殊電容、電感、電阻之被動元件供應商。  
The only local manufacturer in Taiwan entered the supply chain of Japan market.  
國內唯一打入日本供應鏈之廠商。

## Introduction

Prosperity Dielectrics Co., Ltd. (PDC) was founded in 1990 as the 1st local manufacturer and exporter in Taiwan for ceramic dielectric powders and multiple-layer ceramic chip capacitors (MLCCs). PDC joined to Walsin Technology Corporation (WTC) as an allied company in September 2005, and incorporated Frontier to create solid synergy in 2008. Our product lines expand to SMD magnetic chips, power chokes, coils and transformers.

信昌電子陶瓷成立於 1990 年，為國內少數能自行供給瓷粉原料並同時銷售積層陶瓷電容的被動元件廠商，更是唯一有能力由上游初發原料，向下垂直整合至被動晶片元件的廠商。2005 年信昌電陶與華新集團進行策略聯盟、2008 年正式合併弘電電子，將銷售範圍從介電瓷粉、半導體陶瓷電容器瓷片、積層陶瓷電容、晶片電阻延伸到線圈，成為國內唯一可全數提供特殊電容、電感、電阻之被動元件供應商。

## Support You Forward

With niche technology of key materials, PDC can meet the market requirements. The integration of researching and developing from materials to the customer-required components can shorten the time of mass production. To progressively make plans for each product to be with high added value functions, such as Mid and high voltage, high precision, large size capacitors, and high power, high precision, low resistance resistors or other high added value products. In the future, combine with core material technology and advance high frequency and high capacitance further.

由於掌握關鍵性材料的技術利基，信昌電陶可配合市場需求，由材料研發著手，向下整合開發客戶所需要的電子元件，縮短量產時效，並積極規劃各項產品朝高附加價值的零件功能領域邁進，如：中高壓、高精度、大尺寸之晶片電容器及高功率、高精度與低阻值之晶片電阻器等高附加價值產品。未來更將結合材料核心技術，進軍高頻及高容領域。

At present, PDC has developed ceramic dielectric powder used by NME and BME manufacturing process. Self-applied mass production and external sale are simultaneously carried out to improve the proportion to the supply of internal high-level MLCC materials. By the strategy of vertical production capability from ceramic dielectric powder material to MLCC finished goods, bring the high performance of vertical integration.

目前信昌電陶貴金屬製程及卑金屬製程（BME）使用的晶片電容器介電瓷粉已陸續開發完成，量產自用與對外銷售並行展開，提升國內高階積層陶瓷電容原料自主供應比率。藉由原料往下游整合至晶片電容器成品的延伸策略，發揮上下垂直整合的高度營運績效。

For the past few years, to extend the production capability of magnetic components series, PDC gradually set up the manufacturing equipments for coil and transformer in Yongzhou and Shenzhen Plant. The improvement of the production capability is able to increase the sales performance.

近年來，為了擴展磁性元件系列產品的產能，信昌電陶陸續在中國永州廠、深圳廠增置電感、變壓器相關製造設備，藉由產能提升，大幅拉升業績。

## Vertical integration & Complete key technology:

- Material (Ceramic Dielectric Powder)
- Semi-finished good (Semiconducting Ceramic Chip Capacitor)
- Finished goods (Chip Capacitor, Chip resistor, Coil)

## 上下游垂直整合，掌握完整關鍵性技術：

- 原料（介電瓷粉）
- 半成品（半導體陶瓷電容瓷片）
- 成品（晶片電容、晶片電阻、線圈）

## Business Operation 經營模式分析

- Vertical integration to improve competitiveness.
- Building strategic alliances to strengthen competitiveness.
- Expanding Western and Japanese markets, cultivation high-end products.
- Moving into Chinese market to expand market share.
- 垂直整合發展，擺脫同業競爭
- 運用策略聯盟，產品水平延伸
- 拓展歐美日市場，深耕高階產品
- 跨足中國市場，擴大市佔率

## Branding Strategy 品牌經營策略

- Developing specialized products market.
- Enhancing brand value with continuing innovation and R&D ability.
- Improving competitiveness through vertical integration.
- Satisfying customer's need through extending product lines.
- 深耕被動元件特殊品市場及其上游材料產業高階產品
- 持續創新研發能力，提升品牌價值
- 產品垂直整合，強化競爭優勢
- 產品水平延伸，滿足客戶一次購足

## Keystothe Success 關鍵成功因素

- The only local manufacturer with vertical production capability from ceramic dielectric powder material to multiple-layer ceramic chip capacitors.
- Differentiating marketing strategy with niche product.
- Diversifying product lines to expand customer base.
- Continuing innovation and R&D ability.
- Focusing core competence with PSA group support.
- 國內唯一有能力由上游初發原料，向下垂直整合至被動晶片元件的廠商，掌握材料與製程的完整關鍵性技術
- 利基產品差異化與行銷差異化策略
- 產品線多元發展，擴大客戶群
- 持續創新與研發，開發新產品與導入新製程
- 共享集團資源，聚焦核心競爭力

## Characteristics 企業特色

- PDC is the domestic manufacturer devoting to ceramic dielectric materials.
- 為國內廠商對介電瓷粉材料研發投注最深者

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|            | Product  | Product Classification  | Photo                                                                               | Series         | Main Dimensions (mm) |       |       | Inductance    | Rated Current | Page |
|------------|----------|-------------------------|-------------------------------------------------------------------------------------|----------------|----------------------|-------|-------|---------------|---------------|------|
|            |          |                         |                                                                                     |                | L                    | W     | H     |               |               |      |
| SMD Signal | Inductor | Air Wound Coil          |    | 291A           | 2.92                 | 3.05  | 3.18  | 2.5nH~18.5nH  | 4.0A          | 84   |
|            |          |                         |                                                                                     | 291B           | 5.84                 | 3.05  | 3.18  | 17.5nH~43.0nH | 4.0A          |      |
|            |          |                         |                                                                                     | 292AR          | 1.83                 | 1.42  | 1.37  | 1.65nH~5.45nH | 1.6A          |      |
|            |          |                         |                                                                                     | 292BR          | 3.66                 | 1.42  | 1.37  | 5.6nH~12.55nH | 1.6A          |      |
|            |          |                         |                                                                                     | 293A           | 4.83                 | 3.81  | 4.20  | 22nH~120nH    | 3.5A~1.5A     |      |
|            |          |                         |                                                                                     | 294A           | 7.98                 | 6.35  | 5.90  | 90nH~538nH    | 3.5A~2.0A     |      |
|            |          |                         |                                                                                     | 29B            | 5.59                 | 5.84  | 4.95  | 3.7nH~17.5nH  | 7A            |      |
|            |          |                         |                                                                                     | 29CAR          | 3.94                 | 4.19  | 2.01  | 5.5nH~13nH    | 4A            |      |
|            |          |                         |                                                                                     | 29CBR          | 6.22                 | 3.43  | 2.01  | 16nH~27nH     | 4A            |      |
|            |          | LSQ Series              |    | LSQ0806A       | 2.591                | 1.829 | 1.397 | 5.5nH~19.4nH  | 2.9A          | 85   |
|            |          |                         |                                                                                     | LSQ0807A       | 2.591                | 1.829 | 1.524 | 6.9nH~22nH    | 2.7A          |      |
|            |          |                         |                                                                                     | LSQ0908A       | 2.972                | 2.134 | 1.829 | 8.1nH~27.3nH  | 4.4A          |      |
|            |          |                         |                                                                                     | LSQ1111A       | 3.300                | 2.670 | 2.790 | 27nH~47nH     | 5.5A~4.4A     |      |
|            |          |                         |                                                                                     | LSQ1515A       | 6.094                | 3.738 | 3.908 | 47nH~82nH     | 5.6A~4.9A     |      |
|            |          |                         |                                                                                     | LSQ2222A       | 11.940               | 5.590 | 5.690 | 90nH~300nH    | 5A~3.7A       |      |
|            |          |                         |                                                                                     | LSQ2929A       | 14.000               | 7.490 | 7.240 | 330nH~500nH   | 4.7A~4.3A     |      |
|            |          | Ceramic Chip            |    | 0402CP         | 1.19                 | 0.64  | 0.66  | 1.0nH~120nH   | 1360mA~50mA   | 86   |
|            |          |                         |                                                                                     | FEC0603CP      | 1.80                 | 1.12  | 1.02  | 1.6nH~390nH   | 700mA~100mA   |      |
|            |          |                         |                                                                                     | FEC0805CP      | 2.29                 | 1.73  | 1.52  | 2.2nH~820nH   | 800mA~180mA   |      |
|            |          |                         |                                                                                     | FEC1008CP      | 2.92                 | 2.79  | 2.03  | 10nH~4700nH   | 1000mA~260mA  | 87   |
|            |          |                         |                                                                                     | 1210C          | 3.42                 | 2.80  | 2.30  | 4.7nH~3300nH  | 1000mA~50mA   |      |
|            |          |                         |                                                                                     | 1812CP         | 4.95                 | 3.80  | 3.43  | 82nH~1200nH   | 1500mA~480mA  |      |
|            |          |                         |                                                                                     | 0603HQ         | 1.70                 | 1.02  | 0.92  | 1.8nH~390nH   | 2100mA~170mA  |      |
|            |          |                         |                                                                                     | 0805HQ         | 2.40                 | 1.65  | 1.45  | 6.2nH~51nH    | 1600mA~1000mA |      |
|            |          |                         |                                                                                     | 1008HQ         | 2.92                 | 2.79  | 2.03  | 3nH~100nH     | 1600mA~1000mA |      |
|            |          | Ferrite Chip            |  | 0603F-DLRH     | 1.60                 | 1.00  | 1.00  | 2.2uH~22uH    | 580mA~200mA   | 88   |
|            |          |                         |                                                                                     | 0603F-TLRH     | 1.65                 | 1.15  | 1.05  | 0.047uH~10uH  | 1500mA~270mA  |      |
|            |          |                         |                                                                                     | 0805F-DLRH     | 2.20                 | 1.40  | 1.30  | 1uH~22uH      | 1300mA~340mA  |      |
|            |          |                         |                                                                                     | 0805F-TLRH     | 2.40                 | 1.60  | 1.40  | 0.47uH~33uH   | 750mA~145mA   |      |
|            |          |                         |                                                                                     | 1008F-TLRH     | 2.70                 | 2.30  | 1.90  | 1uH~33uH      | 1000mA~236mA  |      |
|            |          |                         |                                                                                     | 1210F-TLRH     | 3.60                 | 2.80  | 2.60  | 1uH~680uH     | 1200mA~76mA   |      |
|            | Balun    | Balun Transformer       |  | BIH2012OB      | 2.20                 | 1.40  | 1.40  | -             | -             | 89   |
|            |          |                         |  | BIY3520UM-001H | 5.80                 | 4.60  | 3.50  | -             | -             |      |
|            |          |                         |                                                                                     | BIY3520UM-002H | 5.80                 | 4.60  | 3.50  | -             | -             |      |
|            | Choke    | Common Mode Choke       |  | SCM2012F       | 2.20                 | 1.22  | 1.22  | 67Ω~600Ω      | 400mA~240mA   | 90   |
|            |          |                         |                                                                                     | SCM2012FH      | 2.20                 | 1.22  | 1.22  | 67Ω~120Ω      | 400mA~330mA   |      |
|            |          |                         |                                                                                     | SCM3216F       | 3.20                 | 1.60  | 1.90  | 90Ω~2200Ω     | 400mA~200mA   |      |
|            |          |                         |  | SCM7038F       | 7.50                 | 6.50  | 3.80  | 225Ω~800Ω     | 5.0A~3.0A     |      |
| SMD Power  | Inductor | Shielded Power Inductor |  | MCS20FC-xxxMMP | 2.2                  | 1.8   | 1.0   | 0.24uH~2.2uH  | 4.5A~1.5A     | 90   |
|            |          |                         |                                                                                     | MCS20FC-xxxMHC | 2.2                  | 1.8   | 1.0   | 0.33uH~2.2uH  | 4.0A~2.0A     |      |
|            |          |                         |                                                                                     | MCS25GC-xxxMMP | 2.7                  | 2.2   | 1.0   | 0.22uH~4.7uH  | 5.3A~1.22A    |      |
|            |          |                         |                                                                                     | MCS25GC-xxxMHC | 2.7                  | 2.2   | 1.0   | 0.33uH~4.7uH  | 4.8A~1.4A     |      |
|            |          |                         |                                                                                     | MCS25GD-xxxMMP | 2.7                  | 2.2   | 1.2   | 0.47uH~4.7uH  | 4.18A~1.4A    |      |
|            |          |                         |                                                                                     | MCS25GD-xxxMHC | 2.7                  | 2.2   | 1.2   | 0.47uH~2.2uH  | 4.9A~2.2A     |      |
|            |          |                         |  | MCS0412-xxxME1 | 4.75                 | 4.45  | 1.2   | 0.15uH~4.7uH  | 7.5A~1.8A     | 91   |
|            |          |                         |                                                                                     | MCS0420-xxxMN2 | 4.70                 | 4.3   | 2.0   | 0.10uH~10uH   | 12A~1.2A      |      |
|            |          |                         |                                                                                     | MCS0420-xxxME1 | 4.75                 | 4.45  | 2.0   | 0.10uH~22uH   | 13A~1.2A      |      |
|            |          |                         |                                                                                     | MCS0515-xxxME1 | 5.70                 | 5.4   | 1.5   | 0.47uH~4.7uH  | 9A~3.5A       |      |
|            |          |                         |                                                                                     | MCS0518-xxxME1 | 5.70                 | 5.4   | 1.8   | 0.47uH~10uH   | 10.5A~2.5A    |      |
|            |          |                         |                                                                                     | MCS0518-xxxMN1 | 5.70                 | 5.5   | 1.8   | 0.47uH~1.0uH  | 11A~8.5A      |      |
|            |          |                         |                                                                                     | MCS0530-xxxMN2 | 5.70                 | 5.5   | 3.0   | 0.20uH~10uH   | 18A~2.5A      |      |
|            |          |                         |                                                                                     | MCS0530-xxxME1 | 5.70                 | 5.4   | 3.0   | 0.10uH~10uH   | 25A~3.2A      |      |
|            |          |                         |                                                                                     | MCS0618-xxxME1 | 7.30                 | 6.8   | 1.8   | 0.10uH~22uH   | 25A~1.8A      |      |
|            |          |                         |                                                                                     | MCS0618-xxxMN1 | 7.40                 | 6.9   | 1.8   | 0.10uH~4.7uH  | 18.0A~3.0A    |      |
|            |          |                         |  | MCS0624-xxxMN1 | 7.30                 | 6.8   | 2.4   | 0.22uH~10uH   | 21A~2.5A      | 92   |
|            |          |                         |                                                                                     | MCS0624-xxxME1 | 7.30                 | 6.8   | 2.4   | 0.22uH~22uH   | 21A~2.0A      |      |
|            |          |                         |                                                                                     | MCS0630-xxxMNx | 7.30                 | 6.8   | 3.0   | 0.22uH~15uH   | 23A~3.0A      |      |
|            |          |                         |                                                                                     | MCS0630-xxxME1 | 7.30                 | 6.8   | 3.0   | 0.1uH~33uH    | 32A~2A        |      |
|            |          |                         |                                                                                     | MCS1040-xxxMNx | 11.50                | 10.3  | 4.0   | 0.22uH~68uH   | 35A~3.5A      |      |
|            |          |                         |                                                                                     | MCS1070-xxxMN1 | 11.50                | 7.2   | 5.0   | 0.3uH~0.33uH  | 36A           |      |
|            |          |                         |                                                                                     | MCS1250-xxxMN1 | 14.00                | 13.1  | 5.0   | 0.10uH~47uH   | 55A~2A        |      |
|            |          |                         |                                                                                     | MCS1265-xxxMN1 | 14.00                | 13.1  | 6.5   | 0.10uH~68uH   | 60A~2.0A      |      |
|            |          |                         |                                                                                     | MCS1770-xxxMN1 | 18.30                | 17.10 | 7.0   | 0.82uH~100uH  | 56.5A~5.0A    |      |

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# COIL-CONTENTS

| Product            |          | Product Classification                | Photo                                                                               | Series         | Main Dimensions (mm) |       |             | Inductance    | Rated Current | Page       |
|--------------------|----------|---------------------------------------|-------------------------------------------------------------------------------------|----------------|----------------------|-------|-------------|---------------|---------------|------------|
|                    |          |                                       |                                                                                     |                | L                    | W     | H           |               |               |            |
| SMD Power Inductor | Inductor | Shielded Power Inductor               |    | MCS0312-XXXMT1 | 3.70                 | 3.4   | 1.2         | 0.47uH~10uH   | 4.5A~0.8A     | 92         |
|                    |          |                                       |                                                                                     | MCS0320-XXXMT1 | 3.70                 | 3.4   | 2.0         | 0.10uH~10uH   | 9.5A~1.1A     |            |
|                    |          |                                       |                                                                                     | MCS0412-XXXxT1 | 4.70                 | 4.31  | 1.2         | 0.10uH~22uH   | 10A~0.6A      |            |
|                    |          |                                       |                                                                                     | MCS0418-XXXxT1 | 4.70                 | 4.31  | 1.8         | 0.56uH~10uH   | 5.0A~1.4A     |            |
|                    |          |                                       |                                                                                     | MCS0420-XXXxT1 | 4.70                 | 4.31  | 2.0         | 0.10uH~22uH   | 10A~1.0A      |            |
|                    |          |                                       |                                                                                     | MCS0512-XXXxT1 | 6.00                 | 5.40  | 1.2         | 0.10uH~15uH   | 13A~1.2A      |            |
|                    |          |                                       |                                                                                     | MCS0515-XXXxT1 | 6.00                 | 5.40  | 1.5         | 0.15uH~22uH   | 14A~1.0A      |            |
|                    |          |                                       |                                                                                     | MCS0518-XXXMT1 | 6.00                 | 5.40  | 1.8         | 0.22uH~10uH   | 11A~1.9A      |            |
|                    |          |                                       |                                                                                     | MCS0520-XXXxT1 | 6.00                 | 5.40  | 2.0         | 0.10uH~22uH   | 16A~1.2A      | 93         |
|                    |          |                                       |                                                                                     | MCS0530-XXXxT1 | 6.00                 | 5.40  | 3.0         | 0.10uH~33uH   | 20A~1.5A      |            |
|                    |          |                                       |                                                                                     | MCS0612-XXXxT1 | 7.30                 | 6.90  | 1.2         | 0.15uH~22uH   | 13A~1.0       |            |
|                    |          |                                       |                                                                                     | MCS0615-XXXxT1 | 7.30                 | 6.90  | 1.5         | 0.10uH~22uH   | 15A~1.2A      |            |
|                    |          |                                       |                                                                                     | MCS0618-XXXMT1 | 7.30                 | 6.90  | 1.8         | 0.10uH~10uH   | 16A~2.0A      |            |
|                    |          |                                       |                                                                                     | MCS0620-XXXxT1 | 7.30                 | 6.90  | 2.0         | 0.10uH~22uH   | 18A~1.2A      |            |
|                    |          |                                       |                                                                                     | MCS0624-XXXxT1 | 7.60                 | 6.90  | 2.4         | 0.10uH~22uH   | 26A~1.4A      |            |
|                    |          |                                       |                                                                                     | MCS0630-XXXxT1 | 7.60                 | 6.90  | 3.0         | 0.10uH~47uH   | 28A~2.0A      | 94         |
|                    |          |                                       |                                                                                     | MCS0640-XXXxT1 | 7.60                 | 6.90  | 4.0         | 0.12uH~33uH   | 30A~1.8A      |            |
|                    |          |                                       |                                                                                     | MCS0650-XXXMT1 | 7.60                 | 6.90  | 5.0         | 0.33uH~68uH   | 22A~1.1A      |            |
|                    |          |                                       |                                                                                     | MCS1040-XXXxT1 | 11.50                | 10.30 | 4.0         | 0.15uH~82uH   | 40A~1.2A      |            |
|                    |          |                                       |                                                                                     | MCS1050-XXXxT1 | 11.50                | 10.30 | 5.0         | 0.22uH~100uH  | 40A~1.7A      |            |
|                    |          | Multilayer Power Inductor             |    | FH160810       | 1.60                 | 0.80  | 0.95        | 0.33uH~2.2uH  | 0.35A~0.65A   | 94         |
|                    |          |                                       |                                                                                     | FH201610       | 2.00                 | 1.60  | 1.00        | 0.47uH~4.7uH  | 1.6A~0.9A     |            |
|                    |          |                                       |                                                                                     | FH201210       | 2.00                 | 1.25  | 1.00        | 0.47uH~4.7uH  | 1.2A~0.7A     |            |
|                    |          |                                       |                                                                                     | FH252010       | 2.50                 | 2.00  | 1.00        | 0.47uH~4.7uH  | 1.8A~1.1A     |            |
|                    |          | Ferrite Resin Shielded Power Inductor |   | CSM0310D       | 3.10                 | 3.10  | 1.00        | 1.0uH~47uH    | 1.525A~0.27A  | 95         |
|                    |          |                                       |                                                                                     | CSM0315D       | 3.10                 | 3.10  | 1.50        | 1.0uH ~ 100uH | 2.10A~0.25A   |            |
|                    |          |                                       |                                                                                     | CSM0645D       | 6.20                 | 6.10  | 4.50        | 1.0uH~100uH   | 6.0A~0.8A     |            |
|                    |          |                                       |                                                                                     | CSM0840D       | 8.20                 | 8.20  | 4.20        | 0.9uH~100uH   | 8.0A~1.10A    |            |
|                    |          |                                       |  | CSMV2012D      | 2.10                 | 2.10  | 1.20        | 1.0uH~4.7uH   | 1.65A~0.75A   | 95         |
|                    |          |                                       |                                                                                     | CSMS2012D      | 2.10                 | 2.10  | 1.20        | 1.0uH~4.7uH   | 1.7A~0.91A    |            |
|                    |          |                                       |                                                                                     | CSMH2410D      | 2.50                 | 2.50  | 1.00        | 0.68uH~22uH   | 1.57A~0.3A    |            |
|                    |          |                                       |                                                                                     | CSMH2412D      | 2.50                 | 2.50  | 1.20        | 0.47uH~10uH   | 2.1A~0.45A    |            |
|                    |          |                                       |                                                                                     | CSMH0310D      | 3.10                 | 3.10  | 1.00        | 1.2uH~22uH    | 1.48A~0.41A   |            |
|                    |          |                                       |                                                                                     | CSMH0312D      | 3.10                 | 3.10  | 1.20        | 1.0uH~22uH    | 1.71A~0.5A    |            |
|                    |          |                                       |                                                                                     | CSMS0315D      | 3.10                 | 3.10  | 1.50        | 1.0uH~22uH    | 2.1A~0.47A    |            |
|                    |          |                                       |                                                                                     | CSMS0410D      | 4.20                 | 4.20  | 1.00        | 1.0uH~22uH    | 1.9A~0.5A     |            |
|                    |          |                                       |                                                                                     | CSMS0412D      | 4.20                 | 4.20  | 1.20        | 1.0uH~22uH    | 2.2A~0.62A    | 96         |
|                    |          |                                       |                                                                                     | CSMS0418D      | 4.20                 | 4.20  | 1.80        | 1.0uH~100uH   | 3.2A~0.28A    |            |
|                    |          |                                       |                                                                                     | CSMS0510D      | 5.10                 | 5.10  | 1.00        | 1.0uH~22uH    | 1.75A~0.45A   |            |
|                    |          |                                       |                                                                                     | CSMS0512D      | 5.10                 | 5.10  | 1.20        | 1.0uH~15uH    | 2.3A~0.64A    |            |
|                    |          |                                       |                                                                                     | CSMS0514D      | 5.10                 | 5.10  | 1.40        | 0.47uH~22uH   | 3.3A~0.55A    |            |
|                    |          |                                       |                                                                                     | CSMS0520D      | 5.10                 | 5.10  | 2.00        | 1.0uH~22uH    | 3.6A~1.0A     |            |
|                    |          |                                       |                                                                                     | CSMS0540D      | 5.10                 | 5.10  | 4.00        | 1.5uH~47uH    | 4.5A~0.9A     |            |
|                    |          |                                       |                                                                                     | CSMS0610D      | 6.20                 | 6.20  | 1.00        | 1.5uH~22uH    | 1.9A~0.7A     |            |
|                    |          |                                       | CSMS0612D                                                                           | 6.20           | 6.20                 | 1.20  | 2.5uH~100uH | 1.8A~0.32A    | 97            |            |
|                    |          |                                       | CSMS0620D                                                                           | 6.20           | 6.20                 | 2.00  | 0.8uH~22uH  | 4.1A~0.95A    |               |            |
|                    |          |                                       | CSMS0628D                                                                           | 6.20           | 6.20                 | 2.80  | 0.9uH~100uH | 4.6A~0.66A    |               |            |
|                    |          |                                       | CSMS0645D                                                                           | 6.20           | 6.20                 | 4.50  | 1.0uH~100uH | 4.5A~0.75A    |               |            |
|                    |          |                                       | CSMS0840D                                                                           | 8.20           | 8.20                 | 4.20  | 0.9uH~22uH  | 7.8A~2.2A     | 97            |            |
|                    |          |                                       |  | CSCA2016D      | 2.10                 | 1.70  | 1.00        | 0.24uH~4.7uH  |               | 3.0A~0.95A |
|                    |          |                                       |                                                                                     | CSCA2510D      | 2.50                 | 2.00  | 1.00        | 0.47uH~4.7uH  |               | 3.2A~1.1A  |
|                    |          |                                       |                                                                                     | CSCA2520D      | 2.70                 | 2.20  | 1.20        | 0.47uH~4.7uH  | 3.4A~1.3A     |            |
|                    |          |                                       |  | CSME0315D      | 3.00                 | 3.00  | 1.50        | 1uH~22uH      | 2.1A~0.47A    | 97         |
|                    |          |                                       |                                                                                     | CSME0412D      | 4.00                 | 4.00  | 1.20        | 10            | 1.1           |            |
|                    |          |                                       |                                                                                     | CSME0418D      | 4.00                 | 4.00  | 1.85        | 1uH~100uH     | 3.2A~0.28A    |            |
|                    |          |                                       |                                                                                     | CSME0430D      | 4.00                 | 4.00  | 3.00        | 0.47uH~180uH  | 3.5A~0.35A    |            |
|                    |          |                                       |                                                                                     | CSME0520D      | 5.00                 | 5.00  | 2.20        | 1uH~68uH      | 3.6A~0.53A    |            |
|                    |          |                                       |                                                                                     | CSME0540D      | 5.00                 | 5.00  | 4.00        | 1uH~100uH     | 4.9A~0.7A     |            |
|                    |          |                                       |                                                                                     | CSMW0315D      | 3.00                 | 3.00  | 1.50        | 1uH~47uH      | 2.35A~0.35A   |            |
|                    |          |                                       |                                                                                     | CSMW0418D      | 4.00                 | 4.00  | 1.85        | 1uH~220uH     | 2A~0.17A      |            |
|                    |          |                                       |                                                                                     | CSMW0430D      | 4.00                 | 4.00  | 3.00        | 1uH~470uH     | 4.15A~0.2A    | 98         |
|                    |          |                                       |                                                                                     | CSMW0520D      | 5.20                 | 5.20  | 2.00        | 1uH~33uH      | 3.8A~0.8A     |            |
|                    |          |                                       |                                                                                     | CSMW0540D      | 5.00                 | 5.00  | 4.00        | 1.5uH~47uH    | 4.3A~1A       |            |
|                    |          |                                       |                                                                                     | CSMW0840D      | 8.00                 | 8.00  | 4.20        | 1.5uH         | 7.8           |            |

TAPE AND REEL SPECIFICATIONS

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TAPE AND REEL SPECIFICATIONS

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## ■ SMD Air Wound Coil

## ELECTRICAL SPECIFICATION

| Size               | 291A |             | 291B |             | 292AR |             | 292BR |             | 293A |             | 294A |             | 29B |             | 29CAR |             | 29CBR |             |
|--------------------|------|-------------|------|-------------|-------|-------------|-------|-------------|------|-------------|------|-------------|-----|-------------|-------|-------------|-------|-------------|
| Inductance<br>(nH) | Q    | DCR<br>(mΩ) | Q    | DCR<br>(mΩ) | Q     | DCR<br>(mΩ) | Q     | DCR<br>(mΩ) | Q    | DCR<br>(mΩ) | Q    | DCR<br>(mΩ) | Q   | DCR<br>(mΩ) | Q     | DCR<br>(mΩ) | Q     | DCR<br>(mΩ) |
| 1.65               |      |             |      |             | 100   | 4           |       |             |      |             |      |             |     |             |       |             |       |             |
| 2.5                | 145  | 1.1         |      |             |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 2.55               |      |             |      |             | 100   | 5           |       |             |      |             |      |             |     |             |       |             |       |             |
| 3.7                |      |             |      |             |       |             |       |             |      |             |      |             | 100 | 2           |       |             |       |             |
| 3.85               |      |             |      |             | 100   | 6           |       |             |      |             |      |             |     |             |       |             |       |             |
| 5                  | 140  | 1.8         |      |             |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 5.45               |      |             |      |             | 100   | 8           |       |             |      |             |      |             |     |             |       |             |       |             |
| 5.5                |      |             |      |             |       |             |       |             |      |             |      |             |     |             | 115   | 2.6         |       |             |
| 5.6                |      |             |      |             |       |             | 100   | 9           |      |             |      |             |     |             |       |             |       |             |
| 6.6                |      |             |      |             |       |             |       |             |      |             |      |             | 100 | 2           |       |             |       |             |
| 7.15               |      |             |      |             |       |             | 100   | 10          |      |             |      |             |     |             |       |             |       |             |
| 8                  | 140  | 2.6         |      |             |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 8.8                |      |             |      |             |       |             | 100   | 12          |      |             |      |             |     |             |       |             |       |             |
| 9                  |      |             |      |             |       |             |       |             |      |             |      |             |     |             | 120   | 3.4         |       |             |
| 9.85               |      |             |      |             |       |             | 100   | 13          |      |             |      |             |     |             |       |             |       |             |
| 12                 |      |             |      |             |       |             |       |             |      |             |      |             | 140 | 2           |       |             |       |             |
| 12.5               | 137  | 3.4         |      |             |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 12.55              |      |             |      |             |       |             | 100   | 14          |      |             |      |             |     |             |       |             |       |             |
| 13                 |      |             |      |             |       |             |       |             |      |             |      |             |     |             | 100   | 3.9         |       |             |
| 16                 |      |             |      |             |       |             |       |             |      |             |      |             |     |             |       |             | 110   | 5.2         |
| 17.5               |      |             | 112  | 4.5         |       |             |       |             |      |             |      |             | 140 | 2           |       |             |       |             |
| 18                 |      |             |      |             |       |             |       |             |      |             |      |             |     |             |       |             | 110   | 6           |
| 18.5               | 132  | 3.9         |      |             |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 22                 |      |             | 112  | 5.2         |       |             |       |             | 100  | 4.2         |      |             |     |             |       |             |       |             |
| 23                 |      |             |      |             |       |             |       |             |      |             |      |             |     |             |       |             | 110   | 6.8         |
| 27                 |      |             |      |             |       |             |       |             | 100  | 4           |      |             |     |             |       |             | 110   | 7.9         |
| 28                 |      |             | 112  | 6           |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 33                 |      |             |      |             |       |             |       |             | 100  | 4.8         |      |             |     |             |       |             |       |             |
| 35.5               |      |             | 112  | 6.8         |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 39                 |      |             |      |             |       |             |       |             | 100  | 4.4         |      |             |     |             |       |             |       |             |
| 43                 |      |             | 112  | 7.9         |       |             |       |             |      |             |      |             |     |             |       |             |       |             |
| 47                 |      |             |      |             |       |             |       |             | 100  | 5.6         |      |             |     |             |       |             |       |             |
| 56                 |      |             |      |             |       |             |       |             | 100  | 6.2         |      |             |     |             |       |             |       |             |
| 68                 |      |             |      |             |       |             |       |             | 100  | 8.2         |      |             |     |             |       |             |       |             |
| 82                 |      |             |      |             |       |             |       |             | 100  | 9.4         |      |             |     |             |       |             |       |             |
| 90                 |      |             |      |             |       |             |       |             |      |             | 95   | 15          |     |             |       |             |       |             |
| 100                |      |             |      |             |       |             |       |             | 100  | 12.3        |      |             |     |             |       |             |       |             |
| 111                |      |             |      |             |       |             |       |             |      |             | 87   | 15          |     |             |       |             |       |             |
| 120                |      |             |      |             |       |             |       |             | 100  | 17.3        |      |             |     |             |       |             |       |             |
| 130                |      |             |      |             |       |             |       |             |      |             | 87   | 20          |     |             |       |             |       |             |
| 169                |      |             |      |             |       |             |       |             |      |             | 95   | 25          |     |             |       |             |       |             |
| 206                |      |             |      |             |       |             |       |             |      |             | 95   | 30          |     |             |       |             |       |             |
| 222                |      |             |      |             |       |             |       |             |      |             | 92   | 35          |     |             |       |             |       |             |
| 246                |      |             |      |             |       |             |       |             |      |             | 95   | 35          |     |             |       |             |       |             |
| 307                |      |             |      |             |       |             |       |             |      |             | 95   | 35          |     |             |       |             |       |             |
| 380                |      |             |      |             |       |             |       |             |      |             | 95   | 50          |     |             |       |             |       |             |
| 422                |      |             |      |             |       |             |       |             |      |             | 95   | 60          |     |             |       |             |       |             |
| 491                |      |             |      |             |       |             |       |             |      |             | 95   | 65          |     |             |       |             |       |             |
| 538                |      |             |      |             |       |             |       |             |      |             | 87   | 90          |     |             |       |             |       |             |

MLCC

Chip R

Coil

## ■ SMD Square Air Wound Coil

### ELECTRICAL SPECIFICATION

| Size               | LSQ0806A |         | LSQ0807A |         | LSQ0908A |         | LSQ1111A |         | LSQ1515A |         | LSQ2222A |         | LSQ2929A |         |
|--------------------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| Inductance<br>(nH) | Q        | DCR(mΩ) | Q        | DCR(mΩ) | Q        | DCR(mΩ) | Q        | DCR(mΩ) | Q        | DCR(mΩ) | Q        | DCR(mΩ) | Q        | DCR(mΩ) |
| 5.5                | 60       | 3.4     |          |         |          |         |          |         |          |         |          |         |          |         |
| 6                  | 64       | 6       |          |         |          |         |          |         |          |         |          |         |          |         |
| 6.9                |          |         | 100      | 6       |          |         |          |         |          |         |          |         |          |         |
| 8.1                |          |         |          |         | 130      | 6       |          |         |          |         |          |         |          |         |
| 8.9                | 90       | 7       |          |         |          |         |          |         |          |         |          |         |          |         |
| 10.2               |          |         | 100      | 7       |          |         |          |         |          |         |          |         |          |         |
| 11.2               |          |         | 90       | 6.3     |          |         |          |         |          |         |          |         |          |         |
| 12.1               |          |         |          |         | 130      | 7       |          |         |          |         |          |         |          |         |
| 12.3               | 90       | 8       |          |         |          |         |          |         |          |         |          |         |          |         |
| 13.7               |          |         | 100      | 8       |          |         |          |         |          |         |          |         |          |         |
| 14.7               |          |         |          |         | 90       | 7.2     |          |         |          |         |          |         |          |         |
| 15.7               | 90       | 9       |          |         |          |         |          |         |          |         |          |         |          |         |
| 16.6               |          |         |          |         | 130      | 8       |          |         |          |         |          |         |          |         |
| 17                 |          |         | 100      | 9       |          |         |          |         |          |         |          |         |          |         |
| 19.4               | 90       | 10      |          |         |          |         |          |         |          |         |          |         |          |         |
| 21.5               |          |         |          |         | 130      | 9       |          |         |          |         |          |         |          |         |
| 22                 |          |         | 100      | 10      |          |         |          |         |          |         |          |         |          |         |
| 23                 |          |         |          |         | 130      | 10      |          |         |          |         |          |         |          |         |
| 25                 |          |         |          |         | 130      | 10      |          |         |          |         |          |         |          |         |
| 27                 |          |         |          |         |          |         | 200      | 8.1     |          |         |          |         |          |         |
| 27.3               |          |         |          |         | 130      | 10      |          |         |          |         |          |         |          |         |
| 30                 |          |         |          |         |          |         | 200      | 8.3     |          |         |          |         |          |         |
| 33                 |          |         |          |         | 100      | 12      | 200      | 9.5     |          |         |          |         |          |         |
| 36                 |          |         |          |         |          |         | 200      | 9.8     |          |         |          |         |          |         |
| 39                 |          |         |          |         |          |         | 200      | 10      |          |         |          |         |          |         |
| 43                 |          |         |          |         |          |         | 200      | 10.8    |          |         |          |         |          |         |
| 47                 |          |         |          |         |          |         | 200      | 11.3    | 230      | 6.35    |          |         |          |         |
| 68                 |          |         |          |         |          |         |          |         | 230      | 8.6     |          |         |          |         |
| 82                 |          |         |          |         |          |         |          |         | 230      | 9.4     |          |         |          |         |
| 90                 |          |         |          |         |          |         |          |         |          |         | 140      | 5.5     |          |         |
| 110                |          |         |          |         |          |         |          |         |          |         | 140      | 6.5     |          |         |
| 130                |          |         |          |         |          |         |          |         |          |         | 140      | 7.5     |          |         |
| 160                |          |         |          |         |          |         |          |         |          |         | 140      | 8.25    |          |         |
| 180                |          |         |          |         |          |         |          |         |          |         | 140      | 9.5     |          |         |
| 220                |          |         |          |         |          |         |          |         |          |         | 140      | 11      |          |         |
| 270                |          |         |          |         |          |         |          |         |          |         | 140      | 12.5    |          |         |
| 300                |          |         |          |         |          |         |          |         |          |         | 150      | 13.8    |          |         |
| 330                |          |         |          |         |          |         |          |         |          |         |          |         | 180      | 12.5    |
| 360                |          |         |          |         |          |         |          |         |          |         |          |         | 180      | 13.5    |
| 390                |          |         |          |         |          |         |          |         |          |         |          |         | 180      | 14.5    |
| 430                |          |         |          |         |          |         |          |         |          |         |          |         | 180      | 15.5    |
| 500                |          |         |          |         |          |         |          |         |          |         |          |         | 180      | 16.5    |

MLCC

Chip R

Coil

# FECxxxxCP

## ■ SMD Wire Wound Ceramic Chip Inductors

### ELECTRICAL SPECIFICATION

| Size            | 0402CP |                       | FEC0603CP |                       | FEC0805CP |                       |
|-----------------|--------|-----------------------|-----------|-----------------------|-----------|-----------------------|
| Inductance (nH) | Q      | I <sub>rms</sub> (mA) | Q         | I <sub>rms</sub> (mA) | Q         | I <sub>rms</sub> (mA) |
| 1               | 16     | 1360                  |           |                       |           |                       |
| 1.2             | 16     | 740                   |           |                       |           |                       |
| 1.6             |        |                       | 24        | 700                   |           |                       |
| 1.8             | 16     | 1040                  | 16        | 700                   |           |                       |
| 1.9             | 16     | 1040                  |           |                       |           |                       |
| 2               | 16     | 1040                  |           |                       |           |                       |
| 2.1             |        |                       | 20        | 700                   |           |                       |
| 2.2             | 19     | 960                   | 20        | 700                   | 35        | 600                   |
| 2.4             | 15     | 790                   |           |                       |           |                       |
| 2.7             | 16     | 640                   |           |                       | 80        | 600                   |
| 2.8             |        |                       |           |                       | 80        | 800                   |
| 2.9             |        |                       |           |                       | 50        | 600                   |
| 3               |        |                       |           |                       | 65        | 800                   |
| 3.3             | 19     | 840                   | 20        | 700                   | 35        | 600                   |
| 3.6             | 19     | 840                   | 22        | 700                   |           |                       |
| 3.9             | 19     | 840                   | 22        | 700                   |           |                       |
| 4.1             | 18     | 700                   |           |                       |           |                       |
| 4.3             | 18     | 700                   | 22        | 700                   |           |                       |
| 4.7             | 15     | 640                   | 20        | 700                   |           |                       |
| 5.1             | 20     | 800                   | 20        | 700                   |           |                       |
| 5.6             | 20     | 760                   | 15        | 700                   | 65        | 600                   |
| 6.1             |        |                       | 25        | 700                   |           |                       |
| 6.2             | 20     | 760                   |           |                       |           |                       |
| 6.8             | 20     | 680                   | 27        | 700                   | 50        | 600                   |
| 7.3             | 20     | 680                   |           |                       |           |                       |
| 7.5             | 22     | 680                   | 28        | 700                   | 50        | 600                   |
| 8.2             | 22     | 680                   | 25        | 700                   | 50        | 600                   |
| 8.4             |        |                       | 28        | 700                   |           |                       |
| 8.5             |        |                       | 28        | 700                   |           |                       |
| 8.7             | 18     | 480                   | 28        | 700                   | 50        | 400                   |
| 9               | 22     | 680                   |           |                       |           |                       |
| 9.1             | 22     | 680                   |           |                       |           |                       |
| 9.5             | 18     | 480                   | 28        | 700                   |           |                       |
| 10              | 21     | 480                   | 31        | 700                   | 60        | 600                   |
| 11              | 24     | 640                   | 33        | 700                   |           |                       |
| 12              | 24     | 640                   | 35        | 700                   | 50        | 600                   |
| 13              | 24     | 440                   |           |                       |           |                       |
| 14              |        |                       | 35        | 700                   |           |                       |
| 15              | 24     | 560                   | 35        | 700                   | 50        | 600                   |
| 16              | 24     | 560                   | 34        | 700                   |           |                       |
| 18              | 25     | 420                   | 35        | 700                   | 50        | 600                   |
| 19              | 24     | 480                   |           |                       |           |                       |
| 20              | 25     | 420                   | 40        | 700                   |           |                       |
| 22              | 25     | 400                   | 38        | 700                   | 55        | 500                   |
| 23              | 22     | 400                   |           |                       |           |                       |
| 24              | 25     | 400                   | 37        | 700                   | 50        | 500                   |
| 27              | 24     | 400                   | 40        | 600                   | 55        | 500                   |
| 30              | 25     | 400                   | 37        | 600                   |           |                       |
| 33              | 24     | 400                   | 40        | 600                   | 60        | 500                   |
| 36              | 24     | 320                   | 38        | 600                   | 55        | 500                   |
| 39              | 25     | 200                   | 40        | 600                   | 60        | 500                   |
| 40              | 24     | 320                   |           |                       |           |                       |
| 43              | 25     | 100                   | 39        | 600                   | 60        | 500                   |
| 47              | 20     | 150                   | 38        | 600                   | 60        | 500                   |
| 51              | 25     | 100                   |           |                       |           |                       |
| 56              | 22     | 100                   | 38        | 600                   | 60        | 500                   |
| 57              | 22     | 100                   |           |                       |           |                       |
| 62              | 22     | 100                   | 37        | 600                   |           |                       |
| 68              | 22     | 100                   | 37        | 600                   | 60        | 500                   |
| 72              |        |                       | 34        | 400                   |           |                       |
| 75              | 20     | 50                    |           |                       |           |                       |
| 82              | 20     | 50                    | 34        | 400                   | 65        | 400                   |
| 91              | 22     | 50                    | 30        | 400                   | 65        | 400                   |
| 100             | 20     | 30                    | 34        | 400                   | 65        | 400                   |

| Size            | 0402CP |                       | FEC0603CP |                       | FEC0805CP |                       |
|-----------------|--------|-----------------------|-----------|-----------------------|-----------|-----------------------|
| Inductance (nH) | Q      | I <sub>rms</sub> (mA) | Q         | I <sub>rms</sub> (mA) | Q         | I <sub>rms</sub> (mA) |
| 110             |        |                       | 32        | 300                   | 50        | 400                   |
| 120             | 20     | 50                    | 32        | 300                   | 50        | 400                   |
| 130             |        |                       | 30        | 300                   |           |                       |
| 150             |        |                       | 28        | 280                   | 50        | 400                   |
| 160             |        |                       |           |                       | 50        | 400                   |
| 180             |        |                       | 25        | 240                   | 50        | 400                   |
| 200             |        |                       | 25        | 200                   | 50        | 400                   |
| 220             |        |                       | 25        | 200                   | 50        | 400                   |
| 240             |        |                       |           |                       | 44        | 350                   |
| 250             |        |                       |           |                       | 50        | 350                   |
| 260             |        |                       | 25        | 200                   |           |                       |
| 270             |        |                       | 24        | 170                   | 48        | 350                   |
| 300             |        |                       |           |                       | 48        | 300                   |
| 330             |        |                       | 24        | 185                   | 48        | 300                   |
| 360             |        |                       |           |                       | 35        | 300                   |
| 390             |        |                       | 25        | 100                   | 48        | 300                   |
| 430             |        |                       | 25        | 100                   | 33        | 190                   |
| 470             |        |                       | 25        | 80                    | 33        | 250                   |
| 560             |        |                       |           |                       | 23        | 230                   |
| 620             |        |                       |           |                       | 23        | 190                   |
| 680             |        |                       | 25        | 60                    | 23        | 190                   |
| 820             |        |                       |           |                       | 23        | 190                   |
| 910             |        |                       |           |                       | 24        | 170                   |
| 1000            |        |                       |           |                       | 23        | 170                   |

MLCC

Chip R

Coil



## ■ SMD Wire Wound Ceramic Chip Inductors

### ELECTRICAL SPECIFICATION

| Size               | FEC1008CP |                          | 1210C |                          | 1812CP |                          | 0603HQ |                          | 0805HQ |                          | 1008HQ |                          |
|--------------------|-----------|--------------------------|-------|--------------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|--------|--------------------------|
| Inductance<br>(nH) | Q         | I <sub>rms</sub><br>(mA) | Q     | I <sub>rms</sub><br>(mA) | Q      | I <sub>rms</sub><br>(mA) | Q      | I <sub>rms</sub><br>(mA) | Q      | I <sub>rms</sub><br>(mA) | Q      | I <sub>rms</sub><br>(mA) |
| 1.8                |           |                          |       |                          |        |                          | 23     | 2100                     |        |                          |        |                          |
| 2.2                |           |                          |       |                          |        |                          | 13     | 900                      |        |                          |        |                          |
| 3                  |           |                          |       |                          |        |                          |        |                          |        |                          | 70     | 1600                     |
| 3.3                |           |                          |       |                          |        |                          | 32     | 1900                     |        |                          |        |                          |
| 3.6                |           |                          |       |                          |        |                          | 40     | 1900                     |        |                          |        |                          |
| 3.9                |           |                          |       |                          |        |                          | 35     | 1600                     |        |                          |        |                          |
| 4.1                |           |                          |       |                          |        |                          |        |                          |        |                          | 75     | 1600                     |
| 4.3                |           |                          |       |                          |        |                          | 30     | 1300                     |        |                          |        |                          |
| 4.7                |           |                          | 50    | 600                      |        |                          |        |                          |        |                          |        |                          |
| 5.6                |           |                          | 50    | 600                      |        |                          | 48     | 1700                     |        |                          |        |                          |
| 6                  |           |                          |       |                          |        |                          | 49     | 1700                     |        |                          |        |                          |
| 6.2                |           |                          |       |                          |        |                          |        |                          | 88     | 1600                     |        |                          |
| 6.8                |           |                          |       |                          |        |                          | 42     | 1400                     |        |                          |        |                          |
| 7.2                |           |                          |       |                          |        |                          | 48     | 1400                     |        |                          |        |                          |
| 7.5                |           |                          |       |                          |        |                          | 41     | 1300                     |        |                          |        |                          |
| 7.8                |           |                          |       |                          |        |                          |        |                          |        |                          | 75     | 1600                     |
| 8.2                | 50        | 1000                     |       |                          |        |                          | 46     | 1400                     |        |                          |        |                          |
| 8.7                |           |                          |       |                          |        |                          | 46     | 1400                     |        |                          |        |                          |
| 9.1                |           |                          |       |                          |        |                          | 40     | 1400                     |        |                          |        |                          |
| 9.5                |           |                          |       |                          |        |                          | 49     | 1400                     |        |                          |        |                          |
| 10                 | 50        | 1000                     | 60    | 600                      |        |                          | 49     | 1400                     |        |                          | 60     | 1600                     |
| 11                 |           |                          |       |                          |        |                          | 41     | 1400                     |        |                          |        |                          |
| 12                 | 50        | 1000                     | 60    | 600                      |        |                          | 37     | 1100                     | 80     | 1600                     | 70     | 1500                     |
| 15                 | 50        | 1000                     | 60    | 600                      |        |                          | 48     | 1200                     |        |                          |        |                          |
| 16                 |           |                          |       |                          |        |                          | 45     | 1100                     | 72     | 1500                     |        |                          |
| 18                 | 50        | 1000                     | 60    | 600                      |        |                          | 41     | 1200                     | 75     | 1400                     | 62     | 1400                     |
| 20                 |           |                          |       |                          |        |                          |        |                          | 70     | 1400                     |        |                          |
| 22                 | 55        | 1000                     | 60    | 600                      |        |                          | 44     | 850                      |        |                          | 62     | 1400                     |
| 23                 |           |                          |       |                          |        |                          | 40     | 850                      |        |                          |        |                          |
| 24                 | 50        | 1000                     |       |                          |        |                          | 42     | 1100                     |        |                          |        |                          |
| 27                 | 55        | 1000                     | 60    | 600                      |        |                          | 44     | 780                      | 75     | 1300                     |        |                          |
| 30                 |           |                          |       |                          |        |                          | 49     | 920                      | 65     | 1200                     |        |                          |
| 33                 | 60        | 1000                     | 60    | 600                      |        |                          | 45     | 680                      |        |                          | 75     | 1300                     |
| 36                 | 60        | 1000                     |       |                          |        |                          | 44     | 720                      |        |                          | 65     | 1300                     |
| 39                 | 60        | 1000                     | 60    | 600                      |        |                          | 48     | 680                      | 65     | 1100                     | 75     | 1300                     |
| 43                 |           |                          |       |                          |        |                          | 45     | 810                      |        |                          |        |                          |
| 47                 | 65        | 1000                     | 60    | 600                      |        |                          | 47     | 680                      |        |                          | 75     | 1200                     |
| 48                 |           |                          |       |                          |        |                          |        |                          | 65     | 1200                     |        |                          |
| 51                 |           |                          |       |                          |        |                          | 49     | 660                      | 65     | 1000                     |        |                          |
| 56                 | 65        | 1000                     | 60    | 600                      |        |                          | 50     | 610                      |        |                          | 75     | 1200                     |
| 68                 | 65        | 1000                     | 60    | 600                      |        |                          | 46     | 600                      |        |                          | 80     | 1100                     |
| 72                 |           |                          |       |                          |        |                          | 46     | 550                      |        |                          |        |                          |
| 75                 |           |                          |       |                          |        |                          | 46     | 500                      |        |                          |        |                          |
| 82                 | 60        | 1000                     | 60    | 600                      | 70     | 1500                     | 45     | 510                      |        |                          | 80     | 1100                     |
| 91                 |           |                          | 60    | 1000                     |        |                          | 45     | 440                      |        |                          |        |                          |
| 100                | 60        | 650                      | 60    | 1000                     | 70     | 1150                     | 49     | 470                      |        |                          | 62     | 1000                     |
| 110                |           |                          |       |                          |        |                          | 47     | 440                      |        |                          |        |                          |
| 120                | 60        | 650                      | 60    | 500                      | 70     | 1150                     | 47     | 420                      |        |                          |        |                          |
| 150                | 45        | 580                      | 60    | 500                      | 75     | 1150                     |        |                          |        |                          |        |                          |
| 180                | 45        | 620                      | 60    | 500                      | 80     | 1150                     | 48     | 310                      |        |                          |        |                          |
| 200                | 50        | 500                      |       |                          |        |                          | 47     | 280                      |        |                          |        |                          |
| 210                |           |                          |       |                          |        |                          | 48     | 280                      |        |                          |        |                          |
| 220                | 45        | 500                      | 60    | 500                      | 80     | 940                      | 47     | 280                      |        |                          |        |                          |
| 240                | 50        | 500                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 250                |           |                          |       |                          |        |                          | 45     | 240                      |        |                          |        |                          |
| 270                | 45        | 500                      | 50    | 500                      | 85     | 940                      | 46     | 260                      |        |                          |        |                          |
| 300                | 45        | 660                      |       |                          |        |                          | 47     | 220                      |        |                          |        |                          |
| 330                | 45        | 450                      | 50    | 500                      | 80     | 850                      | 46     | 180                      |        |                          |        |                          |
| 360                | 45        | 660                      | 50    | 600                      |        |                          | 47     | 170                      |        |                          |        |                          |
| 390                | 45        | 470                      | 50    | 500                      | 80     | 850                      | 47     | 170                      |        |                          |        |                          |
| 430                | 45        | 600                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 470                | 45        | 470                      | 50    | 400                      |        |                          |        |                          |        |                          |        |                          |
| 560                | 45        | 400                      | 50    | 400                      |        |                          |        |                          |        |                          |        |                          |
| 620                | 45        | 300                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 680                | 45        | 400                      | 50    | 400                      |        |                          |        |                          |        |                          |        |                          |
| 750                | 45        | 360                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 820                | 45        | 400                      | 50    | 350                      |        |                          |        |                          |        |                          |        |                          |
| 910                | 35        | 380                      | 50    | 350                      |        |                          |        |                          |        |                          |        |                          |
| 1000               | 35        | 370                      | 45    | 280                      |        |                          |        |                          |        |                          |        |                          |
| 1200               | 35        | 310                      | 45    | 250                      | 62     | 480                      |        |                          |        |                          |        |                          |
| 1500               | 28        | 330                      | 45    | 220                      |        |                          |        |                          |        |                          |        |                          |
| 1800               | 28        | 300                      | 45    | 180                      |        |                          |        |                          |        |                          |        |                          |
| 2000               | 25        | 280                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 2200               | 28        | 280                      | 45    | 150                      |        |                          |        |                          |        |                          |        |                          |
| 2700               | 22        | 290                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 3300               | 22        | 290                      | 25    | 150                      |        |                          |        |                          |        |                          |        |                          |
| 3900               | 20        | 260                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 4700               | 20        | 260                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 5600               | 16        | 240                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 8200               | 15        | 170                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 10000              | 15        | 150                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 12000              | 15        | 130                      |       |                          |        |                          |        |                          |        |                          |        |                          |
| 15000              | 15        | 120                      |       |                          |        |                          |        |                          |        |                          |        |                          |

MLCC

Chip R

Coil

# 0603F / 0805F

## ■ SMD Wire Wound Ferrite Chip Inductors

### ELECTRICAL SPECIFICATION

| Size  | 0603F-DLRH      |     | 0603F-TLRH      |      |
|-------|-----------------|-----|-----------------|------|
|       | Inductance (nH) | Q   | Inductance (nH) | Q    |
| 0.047 |                 |     | 17              | 1500 |
| 0.072 |                 |     | 17              | 1500 |
| 0.1   |                 |     | 17              | 1500 |
| 0.15  |                 |     | 17              | 1450 |
| 0.18  |                 |     | 17              | 1400 |
| 0.33  |                 |     | 17              | 900  |
| 0.39  |                 |     | 17              | 1100 |
| 0.47  |                 |     | 17              | 1050 |
| 0.56  |                 |     | 17              | 850  |
| 0.68  |                 |     | 17              | 850  |
| 0.82  |                 |     | 17              | 750  |
| 0.91  |                 |     | 17              | 670  |
| 1     |                 |     | 17              | 600  |
| 1.2   |                 |     | 17              | 550  |
| 1.5   |                 |     | 17              | 540  |
| 1.8   |                 |     | 17              | 520  |
| 2.2   | 16              | 580 | 17              | 500  |
| 2.7   |                 |     | 17              | 480  |
| 3.3   |                 |     | 17              | 440  |
| 3.9   |                 |     | 17              | 430  |
| 4.7   | 16              | 420 | 18              | 420  |
| 5.6   |                 |     | 18              | 350  |
| 6.8   | 16              | 340 | 19              | 330  |
| 7.8   |                 |     | 17              | 320  |
| 8.2   |                 |     | 17              | 300  |
| 10    | 14              | 280 | 19              | 270  |
| 15    | 14              | 240 |                 |      |
| 22    | 14              | 200 |                 |      |

| Size | 0805F-DLRH      |      | 0805F-TLRH      |     |
|------|-----------------|------|-----------------|-----|
|      | Inductance (nH) | Q    | Inductance (nH) | Q   |
| 0.47 |                 |      | 10              | 750 |
| 0.56 |                 |      | 10              | 730 |
| 0.68 |                 |      | 10              | 670 |
| 0.82 |                 |      | 10              | 650 |
| 1    | 14              | 1300 | 10              | 615 |
| 1.2  |                 |      | 10              | 550 |
| 1.5  |                 |      | 10              | 520 |
| 1.8  |                 |      | 10              | 500 |
| 2.2  | 13              | 1040 | 10              | 420 |
| 2.7  |                 |      | 10              | 410 |
| 3.3  |                 |      | 10              | 385 |
| 3.9  |                 |      | 10              | 372 |
| 4.7  | 14              | 840  | 10              | 345 |
| 5.6  |                 |      | 10              | 335 |
| 6.8  |                 |      | 10              | 315 |
| 8.2  |                 |      | 10              | 295 |
| 10   | 14              | 560  | 10              | 260 |
| 12   |                 |      | 10              | 250 |
| 15   | 15              | 380  | 10              | 215 |
| 18   |                 |      | 10              | 195 |
| 22   | 15              | 340  | 10              | 180 |
| 27   |                 |      | 10              | 170 |
| 33   |                 |      | 10              | 145 |

MLCC

Chip R

Coil

# 1008F / 1210F

## ■ SMD Wire Wound Ferrite Chip Inductors

### ELECTRICAL SPECIFICATION

| Size | 1008F           |    | 1210F           |      |
|------|-----------------|----|-----------------|------|
|      | Inductance (nH) | Q  | Inductance (nH) | Q    |
| 1    |                 | 12 | 10              | 1200 |
| 1.5  |                 | 12 | 10              | 1000 |
| 2.2  |                 | 12 | 10              | 880  |
| 2.7  |                 |    | 10              | 830  |
| 3.3  |                 | 12 | 10              | 775  |
| 4.7  |                 | 12 | 10              | 710  |
| 6.8  |                 | 12 | 10              | 660  |
| 8.2  |                 | 12 |                 |      |
| 10   |                 | 12 | 10              | 570  |
| 15   |                 | 12 | 10              | 440  |
| 22   |                 | 12 | 10              | 400  |
| 33   |                 | 12 | 10              | 285  |
| 39   |                 |    | 10              | 270  |
| 47   |                 |    | 10              | 260  |
| 68   |                 |    | 10              | 235  |
| 100  |                 |    | 10              | 190  |
| 150  |                 |    | 10              | 140  |
| 220  |                 |    | 10              | 115  |
| 330  |                 |    | 10              | 98   |
| 470  |                 |    | 10              | 86   |
| 680  |                 |    | 10              | 76   |

# BIH2012OB

## ■ SMD Balun Transformer

### ELECTRICAL SPECIFICATION

| BIH2012OB      |               |                  |                    |
|----------------|---------------|------------------|--------------------|
| Part Number    | Impedance (Ω) | Frequency Range  | Insertion Loss(dB) |
| BIH2012OB-001H | 50/50         | 40MHz to 0.86GHz | 2.5                |
| BIH2012OB-002H | 75/75         | 50MHz to 1.2GHz  | 1.2                |
| BIH2012OB-003H | 75/75         | 1.0GHz to 1.5GHz | 1.4                |
| BIH2012OB-004H | 75/75         | 50MHz to 1.2GHz  | 1.2                |
| BIH2012OB-005H | 50/50         | 400MHz to 1.8GHz | 2.2                |
| BIH2012OB-006H | 75/75         | 400MHz to 1.8GHz | 2                  |
| BIH2012OB-007H | 75/75         | 50MHz to 1.2GHz  | 1.2                |

# BIY3520UM

## ■ SMD Balun Transformer

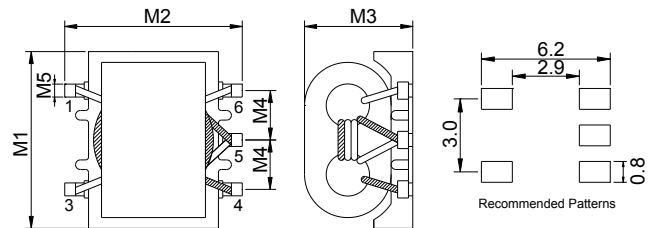
### ELECTRICAL SPECIFICATION

#### BIY3520UM-001H

| Size                           | BIY3520UM-001H      |
|--------------------------------|---------------------|
| INSERTION LOSS (Pin 1 – Pin 6) | 0.7dB MAX. 5~85MHz  |
| INSERTION LOSS (Pin 1 – Pin 4) | 0.7dB MAX. 5~85MHz  |
| AMPLITUDE BALANCE              | ±0.3dB MAX. 5~85MHz |
| PHASE BALANCE                  | ±3.0° MAX. 5~85MHz  |
| INPUT RETURN LOSS (Pin 1)      | 15.0dB MIN. 5~85MHz |

### DIMENSIONS (Unit: mm)

| M1      | M2      | M3      | M4      | M5      |
|---------|---------|---------|---------|---------|
| 4.3±0.3 | 5.5±0.3 | 3.2±0.3 | 1.5±0.2 | 0.5±0.2 |



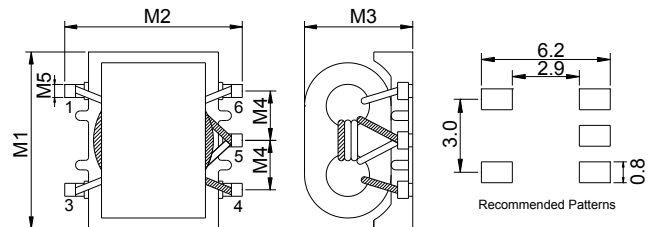
### ELECTRICAL SPECIFICATION

#### BIY3520UM-002H

| Size                            | BIY3520UM-002H       |
|---------------------------------|----------------------|
| INSERTION LOSS                  | 1.0dB MAX. 5~200MHz  |
| AMPLITUDE BALANCE (Nominal 0dB) | ±0.4dB MAX. 5~200MHz |
| PHASE BALANCE (Nominal 180°)    | ±4.0° MAX. 5~200MHz  |
| INPUT RETURN LOSS               | 14.0dB MIN. 5~200MHz |

### DIMENSIONS (Unit: mm)

| M1      | M2      | M3      | M4      | M5      |
|---------|---------|---------|---------|---------|
| 4.3±0.3 | 5.5±0.3 | 3.2±0.3 | 1.5±0.2 | 0.5±0.2 |



MLCC

Chip R

Coil

## ■ SMD Common Mode Choke

## ELECTRICAL SPECIFICATION

| Size           | SCM2012F |                      | SCM2012FH |                       | SCM2012FH |                       | SCM7038F |                       |
|----------------|----------|----------------------|-----------|-----------------------|-----------|-----------------------|----------|-----------------------|
| Inductance (Ω) | DCR (Ω)  | I <sub>rm</sub> (mA) | DCR (Ω)   | I <sub>rms</sub> (mA) | DCR (Ω)   | I <sub>rms</sub> (mA) | DCR (Ω)  | I <sub>rms</sub> (mA) |
| 67             | 0.25     | 400                  | 0.25      | 400                   |           |                       |          |                       |
| 75             | 0.3      | 400                  |           |                       |           |                       |          |                       |
| 90             | 0.35     | 330                  | 0.3       | 370                   | 0.3       | 400                   |          |                       |
| 100            | 0.35     | 330                  |           |                       |           |                       |          |                       |
| 120            | 0.3      | 370                  | 0.35      | 330                   |           |                       |          |                       |
| 160            | 0.35     | 350                  |           |                       | 0.4       | 340                   |          |                       |
| 180            | 0.35     | 330                  |           |                       |           |                       |          |                       |
| 200            | 0.4      | 300                  |           |                       |           |                       |          |                       |
| 220            | 0.4      | 300                  |           |                       |           |                       |          |                       |
| 260            | 0.4      | 300                  |           |                       | 0.5       | 310                   |          |                       |
| 300            |          |                      |           |                       |           |                       | 0.01     | 5000                  |
| 360            | 0.5      | 300                  |           |                       |           |                       |          |                       |
| 370            | 0.45     | 280                  |           |                       |           |                       |          |                       |
| 430            | 0.55     | 280                  |           |                       |           |                       |          |                       |
| 500            |          |                      |           |                       |           |                       | 0.013    | 4000                  |
| 600            | 0.6      | 240                  |           |                       | 0.8       | 260                   |          |                       |
| 700            |          |                      |           |                       |           |                       | 0.015    | 4000                  |
| 750            | 0.9      | 220                  |           |                       |           |                       |          |                       |
| 1000           |          |                      |           |                       | 1         | 230                   |          |                       |
| 1020           |          |                      |           |                       |           |                       | 0.017    | 3000                  |
| 2200           |          |                      |           |                       | 1.2       | 200                   |          |                       |

## MCS (MOLDING)

## ■ High Current Molding Power Chokes

## ELECTRICAL SPECIFICATION

| Size            | MCS20FC-xxxMMP       |      |                      |      |          |      | MCS25GC-xxxMMP       |      |                      |      |          |      | MCS25GD-xxxMMP       |      |                      |      |          |      |
|-----------------|----------------------|------|----------------------|------|----------|------|----------------------|------|----------------------|------|----------|------|----------------------|------|----------------------|------|----------|------|
| Inductance (μH) | I <sub>sat</sub> (A) |      | I <sub>rms</sub> (A) |      | DCR (mΩ) |      | I <sub>sat</sub> (A) |      | I <sub>rms</sub> (A) |      | DCR (mΩ) |      | I <sub>sat</sub> (A) |      | I <sub>rms</sub> (A) |      | DCR (mΩ) |      |
|                 | Typ.                 | Max. | Typ.                 | Max. | Typ.     | Max. | Typ.                 | Max. | Typ.                 | Max. | Typ.     | Max. | Typ.                 | Max. | Typ.                 | Max. | Typ.     | Max. |
| 0.22            |                      |      |                      |      |          |      | 7.90                 | 7.20 | 5.90                 | 5.30 | 9        | 12.5 |                      |      |                      |      |          |      |
| 0.24            | 5.60                 | 5.05 | 5.00                 | 4.50 | 17       | 21   |                      |      |                      |      |          |      |                      |      |                      |      |          |      |
| 0.33            | 5.00                 | 4.50 | 4.10                 | 3.69 | 24       | 29   | 6.60                 | 6.00 | 4.40                 | 4.00 | 21       | 26   |                      |      |                      |      |          |      |
| 0.47            | 4.40                 | 4.00 | 3.50                 | 3.15 | 33       | 40   | 5.00                 | 4.50 | 3.90                 | 3.51 | 27       | 32   | 5.30                 | 4.95 | 4.60                 | 4.18 | 21       | 25   |
| 0.68            | 3.70                 | 3.33 | 3.40                 | 3.06 | 41       | 49   | 4.30                 | 3.87 | 3.40                 | 3.06 | 37       | 44   | 5.00                 | 4.63 | 3.70                 | 3.36 | 29       | 35   |
| 1.00            | 2.90                 | 2.61 | 2.60                 | 2.26 | 60       | 69   | 3.50                 | 3.15 | 3.00                 | 2.70 | 45       | 54   | 4.40                 | 4.04 | 3.50                 | 3.18 | 41       | 49   |
| 1.50            | 2.50                 | 2.25 | 2.00                 | 1.81 | 114      | 129  | 2.60                 | 2.34 | 2.50                 | 2.25 | 76       | 91   | 3.20                 | 2.91 | 2.50                 | 2.27 | 64       | 77   |
| 2.20            | 1.90                 | 1.71 | 1.70                 | 1.50 | 135      | 150  | 2.40                 | 2.16 | 2.30                 | 2.07 | 99       | 119  | 3.00                 | 2.73 | 2.27                 | 2.06 | 85       | 98   |
| 3.30            |                      |      |                      |      |          |      |                      |      |                      |      |          |      | 2.10                 | 1.80 | 2.00                 | 1.80 | 125      | 150  |
| 4.70            |                      |      |                      |      |          |      | 1.80                 | 1.62 | 1.36                 | 1.22 | 220      | 262  | 1.90                 | 1.58 | 1.61                 | 1.40 | 196      | 235  |

| Size            | MCS20FC-xxxMHC       |      |                      |      |          |      | MCS25GC-xxxMHC       |      |                      |      |          |      | MCS25GD-xxxMHC       |      |                      |      |          |      |
|-----------------|----------------------|------|----------------------|------|----------|------|----------------------|------|----------------------|------|----------|------|----------------------|------|----------------------|------|----------|------|
| Inductance (μH) | I <sub>sat</sub> (A) |      | I <sub>rms</sub> (A) |      | DCR (mΩ) |      | I <sub>sat</sub> (A) |      | I <sub>rms</sub> (A) |      | DCR (mΩ) |      | I <sub>sat</sub> (A) |      | I <sub>rms</sub> (A) |      | DCR (mΩ) |      |
|                 | Typ.                 | Max. | Typ.                 | Max. | Typ.     | Max. | Typ.                 | Max. | Typ.                 | Max. | Typ.     | Max. | Typ.                 | Max. | Typ.                 | Max. | Typ.     | Max. |
| 0.22            |                      |      |                      |      |          |      |                      |      |                      |      |          |      |                      |      |                      |      |          |      |
| 0.24            |                      |      |                      |      |          |      |                      |      |                      |      |          |      |                      |      |                      |      |          |      |
| 0.33            | 6.70                 | 6.10 | 4.70                 | 4.00 | 21       | 26   | 7.80                 | 7.00 | 5.60                 | 4.80 | 17       | 22   |                      |      |                      |      |          |      |
| 0.47            | 6.10                 | 5.30 | 4.50                 | 4.05 | 23       | 30   | 6.60                 | 6.00 | 5.20                 | 4.40 | 23       | 29   | 6.80                 | 6.20 | 5.80                 | 4.90 | 16       | 22   |
| 1.00            | 3.90                 | 3.30 | 3.20                 | 3.00 | 48       | 60   | 4.40                 | 4.00 | 3.40                 | 3.10 | 41       | 52   | 4.80                 | 4.30 | 3.90                 | 3.30 | 36       | 44   |
| 1.50            | 3.40                 | 3.10 | 2.40                 | 2.20 | 86       | 99   |                      |      |                      |      |          |      |                      |      |                      |      |          |      |
| 2.20            | 2.60                 | 2.45 | 2.20                 | 2.00 | 117      | 140  | 3.30                 | 3.00 | 2.40                 | 2.10 | 88       | 110  | 3.50                 | 3.20 | 2.50                 | 2.20 | 74       | 89   |
| 4.70            |                      |      |                      |      |          |      | 2.20                 | 1.90 | 1.60                 | 1.40 | 200      | 240  |                      |      |                      |      |          |      |

## ■ High Current Molding Power Chokes

### ELECTRICAL SPECIFICATION

| Size | MCS0412-xxxME1 |      |              |       | MCS0420-xxxMN2 |      |                    |       | MCS0420-xxxME1 |      |              |       | MCS0515-xxxME1 |      |                    |       | MCS0518-xxxME1 |      |              |       |
|------|----------------|------|--------------|-------|----------------|------|--------------------|-------|----------------|------|--------------|-------|----------------|------|--------------------|-------|----------------|------|--------------|-------|
|      | I sat<br>(A)   |      | I rms<br>(A) |       | DCR<br>(mΩ)    |      | Inductance<br>(μH) |       | I sat<br>(A)   |      | I rms<br>(A) |       | DCR<br>(mΩ)    |      | Inductance<br>(μH) |       | I sat<br>(A)   |      | I rms<br>(A) |       |
|      | Typ.           | Max. | Typ.         | Max.  | Typ.           | Max. | Typ.               | Max.  | Typ.           | Max. | Typ.         | Max.  | Typ.           | Max. | Typ.               | Max.  | Typ.           | Max. | Typ.         | Max.  |
| 0.10 |                |      |              |       | 22.0           | 12.0 | 3.5                | 4.0   | 22.0           | 13.0 | 3.5          | 4.0   |                |      |                    |       |                |      |              |       |
| 0.15 | 15.0           | 7.5  | 8.0          | 9.0   | 13.0           | 9.0  | 6.0                | 6.6   |                |      |              |       |                |      |                    |       |                |      |              |       |
| 0.22 | 11.0           | 7.0  | 9.5          | 11.0  | 12.5           | 9.0  | 6.0                | 6.6   | 12.5           | 9.5  | 6.0          | 6.6   |                |      |                    |       |                |      |              |       |
| 0.33 | 8.4            | 6.5  | 17.0         | 19.0  |                |      |                    |       | 12.0           | 10.0 | 9.0          | 11.0  |                |      |                    |       |                |      |              |       |
| 0.47 | 6.8            | 6.0  | 19.0         | 21.0  | 9.5            | 7.0  | 12.5               | 14.0  | 9.5            | 7.5  | 12.5         | 14.0  | 13.0           | 9.0  | 11.0               | 13.0  | 15.5           | 10.5 | 7.7          | 9.0   |
| 0.56 |                |      |              |       | 10.0           | 6.5  | 14.0               | 16.0  | 10.0           | 7.0  | 14.0         | 16.0  |                |      |                    |       | 15.0           | 9.5  | 8.0          | 10.0  |
| 0.68 | 6.0            | 4.7  | 32.0         | 36.0  | 9.0            | 6.0  | 16.0               | 18.0  | 9.0            | 7.0  | 16.0         | 18.0  |                |      |                    |       |                |      |              |       |
| 1.0  | 5.5            | 4.5  | 43.0         | 47.0  | 7.0            | 4.5  | 24.0               | 27.0  | 7.0            | 6.0  | 24.0         | 27.0  | 9.5            | 7.0  | 19.0               | 23.0  | 9.0            | 8.0  | 15.0         | 17.0  |
| 1.2  |                |      |              |       | 7.0            | 4.5  | 24.0               | 27.0  | 7.0            | 6.0  | 24.0         | 27.0  |                |      |                    |       |                |      |              |       |
| 1.5  | 4.0            | 3.25 | 68.0         | 75.0  | 6.0            | 4.0  | 38.0               | 46.0  | 6.0            | 5.0  | 38.0         | 46.0  |                |      |                    |       | 9.0            | 7.5  | 21.0         | 26.0  |
| 2.2  | 3.5            | 2.75 | 79.4         | 83.5  | 5.0            | 3.0  | 52.0               | 58.0  | 5.0            | 4.5  | 52.0         | 58.0  | 6.0            | 4.5  | 57.0               | 64.0  | 6.5            | 5.0  | 30.0         | 35.0  |
| 3.3  |                |      |              |       | 4.0            | 2.5  | 74.0               | 87.0  | 4.0            | 3.3  | 74.0         | 87.0  |                |      |                    |       | 5.0            | 4.5  | 52.0         | 58.0  |
| 4.7  | 2.8            | 1.8  | 175.0        | 195.0 | 3.5            | 2.2  | 98.0               | 110.0 | 3.0            | 2.8  | 92.0         | 105.0 | 4.5            | 3.5  | 93.0               | 103.0 | 4.0            | 3.5  | 78.0         | 85.0  |
| 5.6  |                |      |              |       | 3.5            | 1.8  | 105.0              | 115.0 |                |      |              |       |                |      |                    |       |                |      |              |       |
| 6.8  |                |      |              |       | 2.5            | 1.5  | 160.0              | 175.0 | 2.5            | 2.4  | 160.0        | 175.0 |                |      |                    |       | 3.4            | 2.8  | 107.0        | 120.0 |
| 10   |                |      |              |       | 2.2            | 1.2  | 256.0              | 282.0 | 2.2            | 1.6  | 256.0        | 282.0 |                |      |                    |       | 3.0            | 2.5  | 140.0        | 155.0 |
| 22   |                |      |              |       |                |      |                    |       | 1.65           | 1.2  | 330.0        | 363.0 |                |      |                    |       |                |      |              |       |

| Size | MCS0518-xxxMN1 |      |              |      | MCS0530-xxxMN2 |      |                    |       | MCS0530-xxxME1 |      |              |       | MCS0618-xxxME1 |      |                    |       | MCS0618-xxxMN1 |      |              |      |
|------|----------------|------|--------------|------|----------------|------|--------------------|-------|----------------|------|--------------|-------|----------------|------|--------------------|-------|----------------|------|--------------|------|
|      | I sat<br>(A)   |      | I rms<br>(A) |      | DCR<br>(mΩ)    |      | Inductance<br>(μH) |       | I sat<br>(A)   |      | I rms<br>(A) |       | DCR<br>(mΩ)    |      | Inductance<br>(μH) |       | I sat<br>(A)   |      | I rms<br>(A) |      |
|      | Typ.           | Max. | Typ.         | Max. | Typ.           | Max. | Typ.               | Max.  | Typ.           | Max. | Typ.         | Max.  | Typ.           | Max. | Typ.               | Max.  | Typ.           | Max. | Typ.         | Max. |
| 0.10 |                |      |              |      |                |      |                    |       | 33.0           | 25.0 | 2.4          | 3.0   | 38.0           | 25.0 | 2.0                | 2.3   | 40.0           | 18.0 | 3.0          | 3.5  |
| 0.20 |                |      |              |      | 14.5           | 18.0 | 3.5                | 3.9   | 14.5           | 14.0 | 3.5          | 3.9   |                |      |                    |       |                |      |              |      |
| 0.22 |                |      |              |      |                |      |                    |       |                |      |              |       | 24.0           | 22.0 | 3.0                | 3.5   | 26.0           | 14.0 | 5.3          | 5.7  |
| 0.33 |                |      |              |      |                |      |                    |       | 18.0           | 14.0 | 4.5          | 5.5   |                |      |                    |       |                |      |              |      |
| 0.47 | 16.0           | 11.0 | 7.6          | 8.5  | 12.0           | 13.5 | 7.4                | 8.5   | 12.0           | 11.0 | 7.4          | 8.5   | 18.0           | 11.5 | 8.0                | 8.4   | 18.0           | 11.0 | 8.4          | 9.3  |
| 0.56 | 15.5           | 10.0 | 8.0          | 10.0 |                |      |                    |       |                |      |              |       |                |      |                    |       |                |      |              |      |
| 0.68 |                |      |              |      | 14.0           | 8.5  | 11.0               | 12.0  | 11.5           | 9.0  | 11.0         | 12.0  | 17.0           | 9.5  | 10.0               | 12.0  | 17.0           | 9.0  | 12.7         | 13.9 |
| 0.82 |                |      |              |      |                |      |                    |       |                |      |              |       |                |      |                    |       | 17.0           | 8.0  | 13.8         | 15.9 |
| 1.0  | 10.0           | 8.5  | 15.0         | 18.0 | 11.0           | 7.0  | 13.0               | 14.0  | 11.0           | 8.5  | 13.0         | 14.0  | 14.0           | 8.5  | 13.0               | 16.0  | 14.0           | 7.0  | 17.5         | 18.3 |
| 1.2  |                |      |              |      | 11.0           | 6.5  | 15.0               | 16.0  | 11.0           | 8.5  | 15.0         | 16.0  |                |      |                    |       |                |      |              |      |
| 1.5  |                |      |              |      | 8.5            | 6.0  | 20.0               | 25.0  | 8.5            | 8.2  | 20.0         | 25.0  | 9.2            | 8.0  | 20.0               | 26.0  |                |      |              |      |
| 2.2  |                |      |              |      | 7.5            | 5.5  | 25.0               | 29.0  | 7.5            | 7.0  | 25.0         | 29.0  | 8.0            | 7.0  | 28.0               | 35.0  | 11.0           | 3.75 | 40.3         | 46.0 |
| 3.3  |                |      |              |      | 6.0            | 5.0  | 32.0               | 38.0  | 6.0            | 5.5  | 32.0         | 38.0  | 6.5            | 4.5  | 43.0               | 50.0  |                |      |              |      |
| 4.7  |                |      |              |      | 5.0            | 3.5  | 50.0               | 60.0  | 5.0            | 4.5  | 50.0         | 60.0  | 5.0            | 4.0  | 56.0               | 62.0  | 8.0            | 3.0  | 76.6         | 78.0 |
| 6.8  |                |      |              |      | 4.0            | 3.0  | 75.0               | 90.0  | 4.0            | 3.5  | 75.0         | 90.0  | 4.5            | 3.0  | 101.0              | 110.0 |                |      |              |      |
| 10   |                |      |              |      | 3.5            | 2.5  | 110.0              | 125.0 | 3.5            | 3.2  | 110.0        | 125.0 | 2.5            | 2.3  | 140.0              | 155.0 |                |      |              |      |
| 22   |                |      |              |      |                |      |                    |       |                |      |              |       | 2.3            | 1.8  | 310.0              | 350.0 |                |      |              |      |

| Size | MCS0624-xxxMN1 |      |              |       | MCS0624-xxxME1 |      |                    |       | MCS0630-xxxMNx |      |              |       | MCS0630-xxxME1 |      |                    |       |
|------|----------------|------|--------------|-------|----------------|------|--------------------|-------|----------------|------|--------------|-------|----------------|------|--------------------|-------|
|      | I sat<br>(A)   |      | I rms<br>(A) |       | DCR<br>(mΩ)    |      | Inductance<br>(μH) |       | I sat<br>(A)   |      | I rms<br>(A) |       | DCR<br>(mΩ)    |      | Inductance<br>(μH) |       |
|      | Typ.           | Max. | Typ.         | Max.  | Typ.           | Max. | Typ.               | Max.  | Typ.           | Max. | Typ.         | Max.  | Typ.           | Max. | Typ.               | Max.  |
| 0.10 |                |      |              |       |                |      |                    |       |                |      |              |       |                |      | 56.0               | 32.0  |
| 0.22 | 34.0           | 21.0 | 2.9          | 3.2   | 34.0           | 21.0 | 2.5                | 3.0   | 40.0           | 23.0 | 2.5          | 2.8   | 34.0           | 24.0 | 2.5                | 3.0   |
| 0.24 |                |      |              |       |                |      |                    |       |                |      |              |       |                |      | 26.0               | 23.0  |
| 0.33 | 22.0           | 18.0 | 3.7          | 4.1   | 24.5           | 18.0 | 3.5                | 4.1   | 30.0           | 20.0 | 3.5          | 3.9   | 25.0           | 21.0 | 3.0                | 3.5   |
| 0.47 | 21.0           | 13.5 | 6.0          | 6.5   | 22.0           | 15.0 | 4.5                | 5.1   | 26.0           | 17.5 | 4.0          | 4.2   | 20.0           | 18.0 | 3.5                | 4.1   |
| 0.56 |                |      |              |       | 17.0           | 13.0 | 5.5                | 6.5   | 25.5           | 16.5 | 4.7          | 5.0   | 18.0           | 16.5 | 3.9                | 4.5   |
| 0.68 | 18.0           | 11.0 | 9.4          | 8.7   | 16.0           | 12.0 | 6.2                | 7.0   | 25.0           | 15.5 | 5.0          | 5.5   | 17.0           | 16.0 | 4.8                | 5.3   |
| 0.82 | 17.0           | 10.0 | 10.6         | 11.8  |                |      |                    |       | 20.0           | 13.0 | 6.7          | 8.0   | 16.0           | 14.0 | 5.4                | 6.0   |
| 1.0  | 16.0           | 9.0  | 11.0         | 12.1  | 16.0           | 9.0  | 11.0               | 13.5  | 22.0           | 11.0 | 9.0          | 10.0  | 15.0           | 12.0 | 6.7                | 7.4   |
| 1.5  |                |      |              |       | 13.5           | 9.0  | 17.0               | 20.0  | 16.0           | 9.0  | 14.0         | 15.0  | 14.0           | 12.0 | 10.6               | 12.1  |
| 2.2  | 14.0           | 6.5  | 28.0         | 34.0  | 11.0           | 7.0  | 23.0               | 28.0  | 12.0           | 8.0  | 17.0         | 20.0  | 10.0           | 9.5  | 13.5               | 15.0  |
| 3.3  | 13.0           | 5.0  | 36.5         | 51.6  | 8.5            | 5.5  | 31.0               | 39.0  | 10.0           | 6.0  | 28.0         | 30.0  | 9.5            | 8.5  | 18.0               | 22.0  |
| 4.7  | 9.0            | 4.5  | 45.0         | 63.0  | 7.5            | 5.0  | 45.0               | 54.0  | 7.0            | 5.5  | 37.0         | 40.0  | 6.5            | 6.0  | 28.0               | 33.0  |
| 5.6  | 8.0            | 4.0  | 66.0         | 73.0  |                |      |                    |       | 6.0            | 5.5  | 40.0         | 44.0  | 6.0            | 5.0  | 37.0               | 42.0  |
| 6.8  | 7.0            | 3.6  | 72.5         | 95.0  | 6.0            | 4.0  | 57.0               | 70.0  | 6.5            | 4.5  | 54.0         | 60.0  | 6.0            | 5.0  | 42.5               | 48.0  |
| 8.2  |                |      |              |       |                |      |                    |       | 6.0            | 4.5  | 54.0         | 60.0  | 6.0            | 5.0  | 54.0               | 60.0  |
| 10   | 6.0            | 2.5  | 115.6        | 129.0 | 4.5            | 3.5  | 92.0               | 101.0 | 5.5            | 4.0  | 62.0         | 68.0  | 5.5            | 4.5  | 62.0               | 67.0  |
| 15   |                |      |              |       | 3.3            | 2.5  | 145.0              | 160.0 | 3.5            | 3.0  | 110.0        | 125.0 | 4.5            | 3.0  | 104.0              | 115.0 |
| 22   |                |      |              |       | 2.5            | 2.0  | 220.0              | 230.0 |                |      |              |       | 3.0            | 2.3  | 180.0              | 200.0 |
| 33   |                |      |              |       |                |      |                    |       |                |      |              |       | 2.5            | 2.0  | 280.0              | 310.0 |

MLCC

Chip R

Coil

# MCS (MOLDING)

## ■ High Current Molding Power Chokes

### ELECTRICAL SPECIFICATION

| Size | MCS1040-xxxMNx |              |             |       | MCS1070-xxxMN1 |              |             |      | MCS1250-xxxMN1 |              |             |        | MCS1265-xxxMN1 |              |             |        | MCS1770-xxxMN1 |              |             |        |
|------|----------------|--------------|-------------|-------|----------------|--------------|-------------|------|----------------|--------------|-------------|--------|----------------|--------------|-------------|--------|----------------|--------------|-------------|--------|
|      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |       | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |        | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |        | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |        |
|      | Typ.           | Typ.         | Typ.        | Max.  | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max.   | Typ.           | Typ.         | Typ.        | Max.   | Typ.           | Typ.         | Typ.        | Max.   |
| 0.10 |                |              |             |       |                |              |             |      | 80.0           | 55.0         | 0.53        | 0.60   | 80.0           | 60.0         | 0.47        | 0.50   |                |              |             |        |
| 0.15 |                |              |             |       |                |              |             |      |                |              |             |        | 80.0           | 55.0         | 0.53        | 0.60   |                |              |             |        |
| 0.22 | 50.0           | 35.0         | 0.8         | 1.0   |                |              |             |      | 80.0           | 51.0         | 0.64        | 0.80   | 80.0           | 53.0         | 0.63        | 0.70   |                |              |             |        |
| 0.30 |                |              |             |       | 55.0           | 36.0         | 0.78        | 0.86 |                |              |             |        | 72.0           | 48.0         | 0.70        | 0.80   |                |              |             |        |
| 0.33 |                |              |             |       | 40.0           | 36.0         | 0.82        | 0.9  | 80.0           | 42.0         | 0.85        | 1.10   | 65.0           | 46.0         | 0.83        | 0.90   |                |              |             |        |
| 0.36 | 40.0           | 34.0         | 1.1         | 1.2   |                |              |             |      |                |              |             |        |                |              |             |        |                |              |             |        |
| 0.47 | 35.0           | 25.0         | 1.3         | 1.55  |                |              |             |      | 65.0           | 38.0         | 1.10        | 1.30   | 63.0           | 41.0         | 1.00        | 1.20   |                |              |             |        |
| 0.56 | 32.0           | 25.0         | 1.6         | 1.8   |                |              |             |      | 55.0           | 36.0         | 1.30        | 1.60   | 62.0           | 37.0         | 1.20        | 1.40   |                |              |             |        |
| 0.68 | 30.0           | 22.0         | 2.4         | 2.7   |                |              |             |      | 54.0           | 34.0         | 1.50        | 1.70   | 60.0           | 35.0         | 1.40        | 1.60   |                |              |             |        |
| 0.82 |                |              |             |       |                |              |             |      | 53.0           | 31.0         | 2.00        | 2.30   | 50.0           | 33.0         | 1.60        | 1.90   | 45.0           | 56.5         | 0.98        | 1.08   |
| 1.0  | 28.0           | 18.0         | 3.0         | 3.3   |                |              |             |      | 50.0           | 29.0         | 2.10        | 2.50   | 49.0           | 32.0         | 1.70        | 2.00   | 32.0           | 55.5         | 1.21        | 1.27   |
| 1.2  |                |              |             |       |                |              |             |      | 49.0           | 25.0         | 2.80        | 3.50   | 48.0           | 30.0         | 2.10        | 2.50   |                |              |             |        |
| 1.5  | 21.0           | 16.0         | 3.8         | 4.2   |                |              |             |      | 38.0           | 23.0         | 3.40        | 4.10   | 45.0           | 27.0         | 2.50        | 3.00   | 31.0           | 48.0         | 1.54        | 1.62   |
| 1.8  |                |              |             |       |                |              |             |      | 35.0           | 19.0         | 4.20        | 4.90   | 41.0           | 24.0         | 2.80        | 3.20   |                |              |             |        |
| 2.2  | 18.0           | 12.0         | 6.7         | 7.0   |                |              |             |      | 32.0           | 20.0         | 4.60        | 5.50   | 40.0           | 22.0         | 3.50        | 4.20   | 28.0           | 43.5         | 1.85        | 1.98   |
| 3.3  | 16.0           | 10.0         | 10.8        | 11.8  |                |              |             |      | 32.0           | 15.0         | 7.70        | 9.20   | 35.0           | 18.0         | 5.70        | 6.80   | 27.0           | 35.0         | 2.79        | 2.93   |
| 4.7  | 15.0           | 8.5          | 17.0        | 20.0  |                |              |             |      | 27.0           | 12.0         | 12.80       | 15.00  | 30.0           | 13.5         | 9.30        | 11.20  | 21.0           | 30.0         | 3.98        | 4.18   |
| 5.6  |                |              |             |       |                |              |             |      | 22.0           | 11.5         | 14.00       | 16.50  | 26.5           | 12.0         | 11.80       | 12.80  | 21.0           | 28.0         | 4.23        | 4.44   |
| 6.8  | 9.0            | 6.5          | 22.5        | 25.0  |                |              |             |      | 21.0           | 11.0         | 15.40       | 18.50  | 16.5           | 11.5         | 13.10       | 14.00  | 18.5           | 22.5         | 5.86        | 6.15   |
| 7.8  |                |              |             |       |                |              |             |      | 18.0           | 10.0         | 17.20       | 20.50  |                |              |             |        |                |              |             |        |
| 8.2  | 9.0            | 7.0          | 26.0        | 29.0  |                |              |             |      | 18.0           | 9.5          | 18.90       | 22.50  | 16.0           | 10.5         | 14.50       | 15.50  | 18.0           | 21.0         | 7.71        | 8.10   |
| 10   | 8.5            | 7.5          | 27.0        | 30.0  |                |              |             |      | 16.0           | 9.0          | 21.40       | 25.50  | 15.5           | 10.0         | 15.80       | 16.80  | 17.0           | 19.0         | 8.89        | 9.33   |
| 15   | 7.0            | 6.25         | 40.0        | 45.0  |                |              |             |      | 9.0            | 6.0          | 44.00       | 48.00  | 9.0            | 6.0          | 25.00       | 29.00  | 12.0           | 14.0         | 13.70       | 14.40  |
| 22   | 5.5            | 5.0          | 60.0        | 66.0  |                |              |             |      | 8.0            | 5.5          | 50.00       | 58.00  | 7.5            | 5.0          | 34.00       | 39.50  | 9.5            | 12.0         | 20.00       | 21.00  |
| 33   | 5.0            | 4.4          | 85.0        | 92.0  |                |              |             |      | 6.0            | 3.5          | 75.00       | 84.00  | 6.0            | 4.0          | 55.00       | 65.00  | 9.0            | 10.7         | 35.10       | 37.00  |
| 47   | 3.5            | 3.3          | 130.0       | 145.0 |                |              |             |      | 4.0            | 2.0          | 138.00      | 152.00 | 5.0            | 3.0          | 80.00       | 92.00  | 8.6            | 8.7          | 40.70       | 42.70  |
| 56   |                |              |             |       |                |              |             |      |                |              |             |        |                |              |             |        | 4.2            | 7.2          | 55.00       | 57.80  |
| 68   | 2.6            | 3.5          | 190.0       | 200.0 |                |              |             |      |                |              |             |        | 3.5            | 2.0          | 122.00      | 134.00 | 4.5            | 6.1          | 72.10       | 75.70  |
| 82   |                |              |             |       |                |              |             |      |                |              |             |        |                |              |             |        | 4.5            | 5.5          | 87.30       | 91.70  |
| 100  |                |              |             |       |                |              |             |      |                |              |             |        |                |              |             |        | 4.0            | 5.0          | 105.00      | 110.00 |

| Size               | MCS0312-XXXMT1 |              |             |      | MCS0320-XXXMT1 |              |             |      | MCS0412-XXXxT1 |              |             |        | MCS0418-XXXxT1 |              |             |      | MCS0420-XXXxT1 |              |             |       |
|--------------------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|----------------|--------------|-------------|--------|----------------|--------------|-------------|------|----------------|--------------|-------------|-------|
| Inductance<br>(μH) | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |        | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |       |
|                    | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max.   | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max.  |
| 0.10               |                |              |             |      | 14.0           | 10.5         | 6.6         | 9    | 25.0           | 11.5         | 4.3         | 5.5    |                |              |             |      | 35.0           | 14.0         | 3.2         | 4.0   |
| 0.15               |                |              |             |      |                |              |             |      | 21.5           | 10.0         | 5.5         | 6.8    |                |              |             |      |                |              |             |       |
| 0.18               |                |              |             |      |                |              |             |      |                |              |             |        |                |              |             |      | 28.0           | 13.5         | 4.6         | 5.4   |
| 0.22               |                |              |             |      | 11.2           | 9.0          | 11.0        | 14.0 | 20.0           | 8.5          | 6.6         | 8.0    |                |              |             |      | 24.0           | 13.0         | 6.6         | 7.3   |
| 0.33               |                |              |             |      | 10.0           | 8.0          | 17.0        | 21.0 | 11.0           | 7.0          | 13.6        | 16.0   |                |              |             |      | 18.0           | 10.0         | 7.8         | 8.6   |
| 0.36               |                |              |             |      |                |              |             |      | 8.5            | 6.5          | 15.5        | 18.0   |                |              |             |      |                |              |             |       |
| 0.47               | 7.2            | 5.0          | 25          | 30   | 9.0            | 7.0          | 19.7        | 23   | 6.5            | 6.0          | 18.0        | 20.0   |                |              |             |      | 12.0           | 8.0          | 11.2        | 14.0  |
| 0.56               | 6.6            | 4.5          | 31          | 36   |                |              |             |      |                |              |             |        | 9.0            | 6.0          | 16          | 20   | 10.0           | 7.3          | 13.5        | 16.0  |
| 0.60               |                |              |             |      |                |              |             |      | 6.0            | 5.3          | 22.5        | 26.0   |                |              |             |      |                |              |             |       |
| 0.68               | 6.1            | 4.0          | 34          | 40   | 7.0            | 5.5          | 25.5        | 29   | 6.0            | 5.0          | 32.0        | 37.0   | 8.5            | 5.8          | 18.5        | 22   | 10.0           | 7.0          | 16.0        | 19.0  |
| 0.82               | 5.8            | 3.5          | 41          | 48   |                |              |             |      |                |              |             |        |                |              |             |      |                |              |             |       |
| 1.0                | 5.5            | 3.3          | 50          | 60   | 5.0            | 4.0          | 32          | 38   | 6.0            | 4.0          | 41.0        | 47.0   | 6.9            | 4.8          | 24.5        | 30   | 8.5            | 5.0          | 22.0        | 27.0  |
| 1.2                |                |              |             |      |                |              |             |      | 5.0            | 3.5          | 48.0        | 56.0   |                |              |             |      | 7.8            | 4.8          | 25.0        | 30.0  |
| 1.5                | 4.0            | 3.0          | 71          | 85   | 4.0            | 3.8          | 42          | 50   | 4.0            | 3.0          | 55.0        | 63.3   |                |              |             |      | 7.0            | 4.5          | 34.8        | 42.0  |
| 2.2                | 3.4            | 2.7          | 98          | 115  | 3.7            | 3.5          | 65          | 75   | 3.5            | 2.8          | 69.2        | 80.0   | 4.2            | 3.5          | 39          | 45   | 6.0            | 4.0          | 51.0        | 61.0  |
| 3.3                | 3.1            | 2.0          | 191         | 210  | 3.5            | 3.0          | 125         | 145  | 3.0            | 2.3          | 84.0        | 97.0   | 3.6            | 3.0          | 82          | 100  | 4.0            | 3.5          | 69.0        | 76.0  |
| 4.7                | 2.8            | 1.6          | 266         | 293  | 3.0            | 2.6          | 172         | 200  | 2.5            | 2.0          | 128.0       | 145.0  | 3.0            | 2.3          | 106         | 130  | 3.5            | 2.6          | 95.0        | 105.0 |
| 5.6                | 2.2            | 1.5          | 310         | 360  | 2.6            | 2.2          | 205         | 238  | 2.3            | 1.7          | 180.0       | 208.0  |                |              |             |      | 3.0            | 2.2          | 112.0       | 125.0 |
| 6.8                | 2.0            | 1.4          | 360         | 400  | 2.2            | 1.9          | 260         | 300  | 1.7            | 1.5          | 300.0       | 360.0  |                |              |             |      | 2.8            | 2.1          | 150.0       | 172.0 |
| 8.2                | 1.7            | 1.2          | 420         | 463  | 1.9            | 1.6          | 340         | 390  | 1.6            | 1.4          | 313.0       | 376.0  |                |              |             |      | 2.5            | 2.0          | 158.0       | 180.0 |
| 10                 | 1.4            | 1.0          | 498         | 550  | 1.6            | 1.4          | 366         | 422  | 1.4            | 1.3          | 410.0       | 463.0  | 2.10           | 1.65         | 220         | 265  | 2.3            | 1.8          | 215.0       | 243.0 |
| 15                 |                |              |             |      |                |              |             |      |                |              |             |        |                |              |             |      | 1.9            | 1.5          | 325.0       | 374.0 |
| 22                 |                |              |             |      |                |              |             |      | 1.0            | 0.8          | 950.0       | 1050.0 |                |              |             |      | 1.4            | 1.2          | 470.0       | 500.0 |

MLCC

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Coil

## ■ High Current Molding Power Chokes

## ELECTRICAL SPECIFICATION

| Size | MCS0512-XXXxT1 |              |             |      | MCS0515-XXXxT1 |              |             |      | MCS0518-XXXMT1 |              |             |      | MCS0520-XXXxT1 |              |             |      | MCS0530-XXXxT1 |              |             |      |
|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|
|      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      |
|      | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. |
| 0.10 | 14.5           | 14.0         | 4.3         | 5.2  |                |              |             |      |                |              |             |      | 45.0           | 18.0         | 3.6         | 4.0  | 27.0           | 23.0         | 2.5         | 3.0  |
| 0.15 |                |              |             |      | 25.0           | 16.0         | 3.6         | 4.1  |                |              |             |      | 27.0           | 16.0         | 3.8         | 4.6  |                |              |             |      |
| 0.22 | 14.0           | 10.7         | 5.5         | 6.7  | 20.0           | 12.0         | 5.0         | 6.5  | 22.0           | 13.0         | 4.2         | 5.0  | 25.0           | 15.0         | 4.0         | 5.5  | 21.0           | 15.5         | 3.7         | 4.4  |
| 0.33 | 13.5           | 8.5          | 7.8         | 9.4  | 16.0           | 9.0          | 8.5         | 9.8  | 15.0           | 11.0         | 7.5         | 8.6  | 21.3           | 12.0         | 6.3         | 7.3  | 18.0           | 14.0         | 4.3         | 5.0  |
| 0.36 | 13.0           | 8.0          | 10.0        | 11.5 | 15.5           | 8.5          | 10.0        | 12.5 |                |              |             |      |                |              |             |      |                |              |             |      |
| 0.47 | 11.0           | 7.0          | 13.6        | 15.8 | 15.0           | 8.0          | 12.0        | 13.8 | 14.0           | 10.0         | 9.8         | 11.3 | 18.0           | 11.5         | 7.3         | 8.6  | 16.0           | 12.0         | 6.4         | 7.4  |
| 0.56 |                |              |             |      |                |              |             |      |                |              |             |      |                |              |             |      | 15.0           | 10.0         | 8.0         | 10.0 |
| 0.68 | 9.0            | 6.0          | 21.5        | 24.5 | 13.0           | 7.0          | 14.0        | 16.2 | 13.0           | 9.0          | 12.4        | 14.3 | 12.8           | 10.0         | 11.0        | 12.4 | 14.0           | 8.5          | 10.0        | 12.0 |
| 1.0  | 6.0            | 5.0          | 26          | 30   | 9.0            | 6.0          | 22.0        | 25.3 | 10.0           | 6.8          | 18.2        | 21.0 | 13.7           | 7.0          | 17.5        | 20.0 | 11.0           | 7.0          | 13.0        | 14.0 |
| 1.2  | 5.5            | 4.5          | 33          | 40   |                |              |             |      |                |              |             |      | 11.0           | 6.2          | 23.0        | 28.0 | 11.0           | 6.5          | 14.0        | 16.0 |
| 1.5  | 5.0            | 4.0          | 38          | 44   | 7.0            | 4.5          | 39          | 45   | 9.0            | 6.0          | 26          | 30   | 9.8            | 5.5          | 26.5        | 30.5 | 10.0           | 6.0          | 16.0        | 25.0 |
| 2.2  | 4.0            | 3.5          | 65          | 75   | 6.0            | 4.0          | 45          | 52   | 7.5            | 4.5          | 42          | 48.3 | 9.0            | 4.2          | 42          | 50   | 9.0            | 5.5          | 25.0        | 35.0 |
| 3.3  | 3.8            | 3.0          | 75          | 86   | 4.5            | 3.2          | 78          | 90   | 5.0            | 3.5          | 60          | 69   | 7.3            | 3.3          | 66          | 76   | 8.0            | 5.0          | 32.0        | 38.0 |
| 4.7  | 3.2            | 2.5          | 100         | 115  | 4.0            | 2.7          | 103         | 118  | 4.5            | 3.0          | 85          | 98   | 5.0            | 2.8          | 103         | 116  | 6.0            | 4.6          | 50.0        | 53.0 |
| 5.6  | 3.2            | 2.4          | 175         | 201  | 3.2            | 2.4          | 126         | 152  | 4.0            | 2.5          | 110         | 127  | 4.0            | 2.5          | 112         | 122  | 4.5            | 4.25         | 55.0        | 63.0 |
| 6.8  | 3.0            | 2.0          | 193         | 222  | 3.0            | 2.3          | 142         | 171  | 3.5            | 2.4          | 118         | 137  | 3.8            | 2.4          | 130         | 150  | 4.3            | 4.0          | 68.0        | 76.2 |
| 8.2  | 2.8            | 1.7          | 327         | 378  | 2.6            | 2.1          | 175         | 210  | 3.0            | 2.3          | 143         | 165  | 3.5            | 2.3          | 148         | 171  |                |              |             |      |
| 10   | 1.8            | 1.5          | 335         | 385  | 2.3            | 2.0          | 210         | 235  | 2.8            | 2.3          | 165         | 190  | 3.4            | 2.3          | 180         | 199  | 3.5            | 2.75         | 110         | 128  |
| 15   | 1.6            | 1.3          | 410         | 470  |                |              |             |      |                |              |             |      | 2.8            | 1.9          | 240         | 270  | 2.6            | 2.1          | 165         | 190  |
| 18   |                |              |             |      |                |              |             |      |                |              |             |      |                |              |             |      | 2.3            | 2.0          | 195         | 230  |
| 22   |                |              |             |      | 1.7            | 1.2          | 405         | 466  |                |              |             |      | 1.8            | 1.5          | 350         | 390  | 1.7            | 1.9          | 220         | 250  |
| 33   |                |              |             |      |                |              |             |      |                |              |             |      |                |              |             |      | 1.60           | 1.60         | 380         | 440  |

| Size | MCS0612-XXXxT1 |              |             |      | MCS0615-XXXxT1 |              |             |      | MCS0618-XXXMT1 |              |             |      | MCS0620-XXXxT1 |              |             |      | MCS0624-XXXxT1 |              |             |      |
|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|----------------|--------------|-------------|------|
|      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      | I sat<br>(A)   | I rms<br>(A) | DCR<br>(mΩ) |      |
|      | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. | Typ.           | Typ.         | Typ.        | Max. |
| 0.10 |                |              |             |      | 35.0           | 17.5         | 2.5         | 3.1  | 45.0           | 18.0         | 2.1         | 2.5  | 40.0           | 21.0         | 2.0         | 2.4  | 70.0           | 30.0         | 1.4         | 1.7  |
| 0.12 |                |              |             |      | 30.0           | 17.0         | 3.0         | 3.6  |                |              |             |      |                |              |             |      |                |              |             |      |
| 0.15 | 24.0           | 14.0         | 4.9         | 5.7  | 25.0           | 16.0         | 3.7         | 4.5  |                |              |             |      | 39.0           | 18.0         | 2.3         | 2.7  | 45.0           | 30.0         | 1.8         | 2.3  |
| 0.22 | 19.0           | 11.0         | 6.5         | 7.5  | 22.0           | 14.0         | 4.3         | 5.2  | 26.0           | 16.0         | 2.5         | 3.0  | 32.0           | 15.0         | 3.5         | 4.0  | 34.0           | 21.0         | 2.0         | 3.2  |
| 0.33 | 16.0           | 9.5          | 9           | 10   | 18.0           | 11.0         | 6.6         | 7.6  | 22.0           | 14.0         | 4.8         | 5.8  | 25.0           | 14.0         | 4.5         | 5.0  | 30.0           | 18.0         | 3.6         | 4.4  |
| 0.47 | 12.0           | 8.5          | 13          | 17   | 16.0           | 9.5          | 9.0         | 10.3 | 18.0           | 12.0         | 6.4         | 7.4  | 20.0           | 11.7         | 7.1         | 8.3  | 26.0           | 15.0         | 4.8         | 5.1  |
| 0.56 |                |              |             |      | 15.5           | 9.0          | 12.5        | 14.0 |                |              |             |      | 18.0           | 11.0         | 7.9         | 9.3  | 24.0           | 13.0         | 5.5         | 6.5  |
| 0.68 | 9.0            | 7.0          | 17          | 19   | 15.0           | 7.5          | 13.8        | 15.2 | 17.0           | 10.0         | 9.5         | 11.0 | 16.0           | 10.5         | 8.3         | 10.0 | 21.0           | 13.0         | 6.4         | 7.2  |
| 0.82 |                |              |             |      | 14.0           | 7.0          | 20.0        | 24.0 | 15.5           | 8.5          | 11.5        | 14.0 |                |              |             |      | 17.0           | 11.0         | 8.0         | 9.5  |
| 1.0  | 7.0            | 6.0          | 27          | 30   | 12.0           | 6.5          | 23.0        | 25.8 | 14.0           | 7.0          | 14.5        | 17.0 | 14.0           | 8.0          | 16.5        | 18.0 | 16.0           | 11.0         | 10.5        | 13.5 |
| 1.2  | 6.8            | 5.0          | 31          | 36   | 10.5           | 5.6          | 29.0        | 34.0 | 13.5           | 6.5          | 20.0        | 24.0 | 13.0           | 7.5          | 19.0        | 23.0 |                |              |             |      |
| 1.5  | 6.5            | 4.5          | 35          | 40   | 9.5            | 5.0          | 37          | 42.5 | 13.0           | 6.0          | 21          | 25.2 | 12.0           | 7.0          | 23.0        | 27.0 | 15.0           | 9.0          | 17.0        | 20.0 |
| 2.2  | 5.0            | 4.0          | 53          | 61   | 6.5            | 4.5          | 48          | 55   | 11.0           | 6.0          | 31          | 35   | 10.0           | 6.0          | 32          | 37   | 14.0           | 7.0          | 23.0        | 28.0 |
| 3.3  | 4.0            | 3.2          | 90          | 103  | 6.0            | 4.2          | 62          | 74   | 9.0            | 5.0          | 40          | 46   | 8.0            | 5.0          | 43          | 48   | 10.0           | 6.0          | 34.0        | 39.0 |
| 4.7  | 3.8            | 2.5          | 130         | 150  | 5.0            | 3.8          | 96          | 111  | 7.0            | 4.0          | 68          | 76   | 7.0            | 4.5          | 53          | 60   | 9.0            | 5.5          | 41.0        | 50.0 |
| 5.6  |                |              |             |      | 4.5            | 3.0          | 115         | 138  | 6.0            | 3.5          | 78          | 86   | 6.0            | 4.0          | 59          | 68   | 8.0            | 5.00         | 56.0        | 62.0 |
| 6.8  | 3.0            | 2.1          | 172         | 198  | 3.5            | 2.6          | 128         | 148  | 5.5            | 3.0          | 93          | 104  | 5.5            | 4.0          | 63          | 73   | 7.0            | 4.0          | 65.0        | 72.0 |
| 8.2  |                |              |             |      | 3.2            | 2.4          | 153         | 184  | 4.5            | 2.6          | 123         | 140  | 5.0            | 3.2          | 101         | 116  | 6.0            | 3.6          | 81.0        | 95.0 |
| 10   | 2.5            | 1.8          | 280         | 290  | 2.8            | 2.3          | 180         | 216  | 3.5            | 2.3          | 143         | 160  | 4.0            | 2.8          | 134         | 154  | 5.0            | 3.20         | 92          | 101  |
| 15   |                |              |             |      |                |              |             |      |                |              |             |      | 3.3            | 2.1          | 190         | 210  | 3.5            | 2.50         | 150         | 180  |
| 22   | 1.7            | 1.2          | 540         | 600  | 2.5            | 1.5          | 420         | 504  |                |              |             |      | 2.5            | 1.5          | 236         | 280  | 3.0            | 1.8          | 185         | 215  |

MLCC

Chip R

Coil

# MCS (MOLDING)

## ■ High Current Molding Power Chokes

### ELECTRICAL SPECIFICATION

| Size | MCS0630-XXXxT1  |      |          |       | MCS0640-XXXxT1 |      |          |      | MCS0650-XXXMT1 |      |          |      | MCS1040-XXXxT1 |      |          |      | MCS1050-XXXxT1 |      |          |      |
|------|-----------------|------|----------|-------|----------------|------|----------|------|----------------|------|----------|------|----------------|------|----------|------|----------------|------|----------|------|
|      | Inductance (μH) |      | DCR (mΩ) |       | DCR (mΩ)       |      | DCR (mΩ) |      | DCR (mΩ)       |      | DCR (mΩ) |      | DCR (mΩ)       |      | DCR (mΩ) |      | DCR (mΩ)       |      | DCR (mΩ) |      |
|      | Typ.            | Max. | Typ.     | Max.  | Typ.           | Max. | Typ.     | Max. | Typ.           | Max. | Typ.     | Max. | Typ.           | Max. | Typ.     | Max. | Typ.           | Max. | Typ.     | Max. |
| 0.10 | 60.0            | 32.5 | 1.2      | 1.7   |                |      |          |      |                |      |          |      |                |      |          |      |                |      |          |      |
| 0.12 |                 |      |          |       | 64.0           | 32.0 | 0.7      | 1.0  |                |      |          |      |                |      |          |      |                |      |          |      |
| 0.15 | 45.0            | 27.0 | 1.5      | 1.9   | 55.0           | 30.0 | 0.9      | 1.2  |                |      |          |      | 75.0           | 43.0 | 0.5      | 0.6  |                |      |          |      |
| 0.22 | 40.0            | 23.0 | 2.1      | 2.8   |                |      |          |      |                |      |          |      | 60.0           | 35.0 | 0.80     | 1.0  | 70.0           | 45.0 | 0.45     | 0.5  |
| 0.33 | 32.0            | 20.0 | 3.5      | 3.9   |                |      |          |      | 32.0           | 25.0 | 2.5      | 3.0  | 60.0           | 31.0 | 1.0      | 1.2  |                |      |          |      |
| 0.47 | 26.0            | 17.5 | 4.0      | 4.2   | 28.0           | 23.0 | 3.0      | 3.4  | 30.0           | 22.0 | 3.5      | 3.9  | 43.0           | 28.0 | 1.3      | 1.5  |                |      |          |      |
| 0.56 | 25.5            | 16.5 | 4.7      | 5.0   | 26.0           | 20.0 | 3.8      | 4.3  | 27.0           | 20.0 | 3.6      | 4.2  | 40.0           | 25.0 | 1.6      | 1.8  |                |      |          |      |
| 0.68 | 25.0            | 15.5 | 4.8      | 5.5   | 24.0           | 16.0 | 4.1      | 4.5  | 24.0           | 18.0 | 4.0      | 4.5  | 39.0           | 22.0 | 2.4      | 2.7  |                |      |          |      |
| 0.82 | 24.0            | 13.0 | 6.7      | 8.0   |                |      |          |      | 22.0           | 16.5 | 4.6      | 4.9  |                |      |          |      |                |      |          |      |
| 1.0  | 22.0            | 11.0 | 8.3      | 10.0  |                |      |          |      | 20.0           | 15.0 | 6.1      | 6.5  | 36.0           | 18.0 | 3.0      | 3.3  | 30.0           | 22.0 | 2.8      | 3.5  |
| 1.2  | 20.0            | 10.0 | 10.0     | 12.0  |                |      |          |      | 18.0           | 14.0 | 6.7      | 7.5  | 33.0           | 17.0 | 3.3      | 3.8  | 28.0           | 20.0 | 2.9      | 3.5  |
| 1.5  | 18.0            | 9.0  | 13.0     | 15.0  | 20.0           | 12.0 | 10       | 12.0 | 16.5           | 12.0 | 8.6      | 9.0  | 33.0           | 16.0 | 4.0      | 4.6  | 27.0           | 19.0 | 3.5      | 4.1  |
| 2.2  | 14.0            | 8.0  | 18.0     | 20.0  | 14.0           | 9.0  | 11.5     | 14   | 14.0           | 10.0 | 11.2     | 12   | 27.0           | 12.0 | 6.5      | 7.0  | 24.0           | 16.0 | 5.4      | 6.0  |
| 3.3  | 13.5            | 6.0  | 28.0     | 30.0  |                |      |          |      | 12.0           | 8.0  | 19       | 20.9 | 20.0           | 11.0 | 10.8     | 11.8 | 22.0           | 14.0 | 9.0      | 10.4 |
| 4.7  | 10.0            | 5.5  | 37.0     | 40.0  | 11.0           | 6.0  | 28       | 32.5 | 10.0           | 6.5  | 28       | 30.8 | 17.0           | 10.0 | 15       | 15.5 |                |      |          |      |
| 5.6  | 9.0             | 5.0  | 43.0     | 48.0  |                |      |          |      | 9.0            | 6.0  | 43.5     | 49   | 14.0           | 9.0  | 17       | 19.3 |                |      |          |      |
| 6.8  | 8.0             | 4.5  | 54.0     | 60.0  | 8.5            | 4.5  | 44       | 50   | 8.5            | 5.5  | 46       | 51.5 | 13.5           | 8.5  | 17.5     | 23.3 |                |      |          |      |
| 8.2  | 7.5             | 4.0  | 64.0     | 68.0  | 8.0            | 4.5  | 55       | 64   | 8.0            | 5.0  | 56       | 63   | 12.5           | 8.0  | 20       | 22.5 | 14.5           | 9.0  | 18.5     | 24.0 |
| 10   | 6.0             | 3.5  | 75.0     | 85.0  | 7.0            | 4.0  | 64       | 72   | 7.5            | 4.0  | 60       | 69   | 12.0           | 7.5  | 27       | 30   | 13.5           | 8.0  | 25       | 29   |
| 15   |                 |      |          |       | 4.0            | 3.0  | 80       | 90   | 6.0            | 3.5  | 81       | 92   | 10.0           | 6.25 | 40       | 45   | 9.5            | 5.5  | 37       | 45   |
| 22   | 3.5             | 2.0  | 165.0    | 190.0 | 3.5            | 2.5  | 120      | 145  | 5.5            | 2.5  | 140      | 170  | 7.0            | 5.0  | 64       | 74   | 9.0            | 5.0  | 50       | 60   |
| 33   | 2.5             | 2.0  | 200.0    | 240.0 | 3.2            | 2.0  | 180      | 210  | 3.5            | 2.0  | 173      | 200  | 5.0            | 3.5  | 92       | 112  | 7.5            | 4.3  | 80       | 92   |
| 47   | 2.0             | 1.75 | 302.0    | 363.0 |                |      |          |      | 2.7            | 1.9  | 290      | 330  | 4.5            | 3.0  | 145      | 167  | 6.5            | 3.8  | 125      | 145  |
| 56   |                 |      |          |       |                |      |          |      | 2.1            | 1.6  | 342      | 396  |                |      |          |      |                |      |          |      |
| 68   |                 |      |          |       |                |      |          |      | 2.0            | 1.2  | 386      | 445  | 3.0            | 2.0  | 205      | 240  | 4.0            | 2.5  | 176      | 205  |
| 100  |                 |      |          |       |                |      |          |      |                |      |          |      |                |      |          |      | 3.0            | 2.0  | 315      | 380  |

MLCC

Chip R

Coil

# FH (SHIELDED)

## ■ Multilayer Power Inductors

### ELECTRICAL SPECIFICATION

| Size            | FH160810 |                      | FH201210 |                      | FH201610 |                      | FH252010             |                      |
|-----------------|----------|----------------------|----------|----------------------|----------|----------------------|----------------------|----------------------|
| Inductance (μH) | DCR (Ω)  | I <sub>rms</sub> (A) | DCR (Ω)  | I <sub>rms</sub> (A) | DCR (Ω)  | I <sub>rms</sub> (A) | I <sub>sat</sub> (A) | I <sub>rms</sub> (A) |
| 0.33            | 0.35     | 0.35                 |          |                      |          |                      |                      |                      |
| 0.47            |          |                      | 0.08     | 1.2                  | 0.075    | 1.6                  | 0.05                 | 1.8                  |
| 0.5             | 0.15     | 0.9                  | 0.08     | 1.2                  |          |                      |                      |                      |
| 1               | 0.2      | 0.75                 | 0.14     | 1                    | 0.12     | 1.3                  | 0.08                 | 1.4                  |
| 1.5             |          |                      | 0.2      | 0.8                  | 0.13     | 1.2                  | 0.09                 | 1.3                  |
| 2.2             | 0.3      | 0.65                 | 0.2      | 0.8                  | 0.14     | 1.2                  | 0.09                 | 1.3                  |
| 3.3             |          |                      | 0.24     | 0.7                  | 0.16     | 1.1                  | 0.12                 | 1.2                  |
| 4.7             |          |                      | 0.28     | 0.7                  | 0.2      | 0.9                  | 0.15                 | 1.1                  |



# (SHIELDED) CSM

## ■ SMD Wire Wound Power Inductors

### ELECTRICAL SPECIFICATION

| Size                     | CSM0310D    |             | CSM0315D    |             | CSM0645D    |             | CSM0840D    |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.9                      |             |             |             |             |             |             | 12          | 8           |
| 1                        | 1.7         | 1.525       | 2.1         | 2.1         | 8.5         | 6           |             |             |
| 1.3                      |             |             |             |             | 8           | 5.2         |             |             |
| 1.4                      |             |             |             |             |             |             | 10.8        | 7.8         |
| 1.5                      | 1.4         | 1.47        | 1.8         | 1.9         |             | 5           |             |             |
| 1.8                      |             |             | 1.75        | 1.7         | 7           |             |             |             |
| 2                        |             |             |             |             |             |             | 9           | 7.4         |
| 2.2                      | 1.25        | 1.27        | 1.48        | 1.6         |             |             | 7.5         | 6           |
| 2.3                      |             |             |             |             | 6           | 4.5         |             |             |
| 3                        |             |             |             |             | 5           | 4           |             |             |
| 3.3                      | 0.9         | 1.13        | 1.21        | 1.45        |             |             | 7           | 5.1         |
| 3.6                      |             |             |             |             |             |             | 6           | 4.9         |
| 4.5                      |             |             |             |             | 4           | 3.7         |             |             |
| 4.7                      | 0.85        | 0.925       | 1.08        | 1.25        |             |             | 5.5         | 4.6         |
| 5.1                      |             |             | 1.08        | 1.09        |             |             |             |             |
| 5.6                      | 0.72        | 0.82        |             |             |             |             |             |             |
| 6.3                      |             |             |             |             | 3.8         | 3.5         |             |             |
| 6.8                      | 0.66        | 0.71        | 0.9         | 0.9         |             |             | 5           | 4.4         |
| 10                       | 0.53        | 0.63        | 0.75        | 0.87        | 3           | 2.8         | 4           | 3.8         |
| 12                       |             |             | 0.7         | 0.68        |             |             |             |             |
| 15                       | 0.42        | 0.475       | 0.58        | 0.65        | 2.3         | 2.3         | 3           | 2.8         |
| 18                       | 0.42        | 0.47        | 0.56        | 0.59        |             |             |             |             |
| 22                       | 0.36        | 0.43        | 0.47        | 0.55        | 1.9         | 1.7         | 2.8         | 2.6         |
| 27                       | 0.3         | 0.35        |             |             |             |             |             |             |
| 33                       | 0.28        | 0.345       | 0.39        | 0.45        | 1.5         | 1.5         | 2           | 1.8         |
| 39                       | 0.28        | 0.28        |             |             |             |             |             |             |
| 47                       | 0.24        | 0.27        | 0.32        | 0.4         | 1.3         | 1.3         | 1.9         | 1.75        |
| 56                       |             |             | 0.3         | 0.34        |             |             |             |             |
| 68                       |             |             |             |             | 1           | 1           | 1.7         | 1.45        |
| 82                       |             |             |             |             | 0.9         | 0.9         |             |             |
| 100                      |             |             | 0.23        | 0.25        | 0.8         | 0.8         | 1.1         | 1.1         |

# (SHIELDED) CSMV / CSMS / CSMH

## ■ SMD Wire Wound Power Inductors

### ELECTRICAL SPECIFICATION

| Size                     | CSMV2012D   |             | CSMS2012D   |             | CSMH2410D   |             | CSMH2412D   |             | CSMH0310D   |             | CSMH0312D   |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.47                     |             |             |             |             |             |             | 2.9         | 2.1         |             |             |             |             |
| 0.68                     |             |             |             |             | 2.2         | 1.57        |             |             |             |             |             |             |
| 0.8                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 0.9                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1                        | 2.35        | 1.83        | 2.05        | 1.85        | 1.8         | 1.41        | 2.35        | 1.3         |             |             | 2.2         | 1.71        |
| 1.2                      |             |             |             |             |             |             |             |             | 1.7         | 1.48        |             |             |
| 1.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.4                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.5                      | 1.95        | 1.55        | 1.8         | 1.65        | 1.55        | 1.16        | 2.1         | 1.15        | 1.44        | 1.37        | 1.7         | 1.6         |
| 1.8                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 2                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 2.2                      | 1.7         | 1.35        | 1.5         | 1.5         | 1.29        | 0.97        | 1.7         | 1           | 1.3         | 1.3         | 1.5         | 1.37        |
| 2.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 2.5                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 3                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 3.3                      | 1.35        | 1.04        | 1.15        | 1.1         | 1           | 0.77        | 1.4         | 0.75        | 1           | 1.03        | 1.2         | 1.21        |
| 3.6                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 4.5                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 4.7                      | 1.15        | 0.85        | 1.05        | 1           | 0.88        | 0.67        | 1.15        | 0.65        | 0.85        | 0.9         | 1           | 1.06        |
| 5.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 6                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 6.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 6.8                      |             |             |             |             | 0.75        | 0.57        | 0.95        | 0.55        | 0.7         | 0.745       | 0.85        | 0.89        |
| 10                       |             |             |             |             | 0.55        | 0.45        | 0.81        | 0.45        | 0.6         | 0.62        | 0.73        | 0.72        |
| 15                       |             |             |             |             | 0.47        | 0.37        |             |             | 0.45        | 0.48        | 0.53        | 0.57        |
| 22                       |             |             |             |             | 0.39        | 0.3         |             |             | 0.38        | 0.41        | 0.5         | 0.5         |
| 33                       |             |             |             |             |             |             |             |             |             |             |             |             |
| 47                       |             |             |             |             |             |             |             |             |             |             |             |             |
| 68                       |             |             |             |             |             |             |             |             |             |             |             |             |
| 100                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 150                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 220                      |             |             |             |             |             |             |             |             |             |             |             |             |

MLCC

Chip R

Coil

# CSMS (SHIELDED)

## ■ SMD Wire Wound Power Inductors

### ELECTRICAL SPECIFICATION

| Size                     | CSMS0315D   |             | CSMS0410D   |             | CSMS0412D   |             | CSMS0418D   |             | CSMS0510D   |             | CSMS0512D   |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.47                     |             |             |             |             |             |             |             |             |             |             |             |             |
| 0.68                     |             |             |             |             |             |             |             |             |             |             |             |             |
| 0.8                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 0.9                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1                        | 2.1         | 2.1         | 2           | 1.9         | 2.8         | 2.2         | 4           | 3.2         | 2.35        | 1.75        | 4.5         | 2.3         |
| 1.2                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.4                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.5                      | 1.8         | 1.82        |             |             |             |             | 3.3         | 2.4         |             |             | 3.8         | 2.2         |
| 1.8                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 2                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 2.2                      | 1.48        | 1.5         | 1.2         | 1.5         | 1.65        | 1.9         | 3           | 2.2         | 1.5         | 1.4         | 3.1         | 2           |
| 2.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 2.5                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 3                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 3.3                      | 1.21        | 1.23        | 1.1         | 1.4         | 1.4         | 1.7         | 2.3         | 2           | 1.4         | 1.25        | 2.4         | 1.45        |
| 3.6                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 4.5                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 4.7                      | 1.02        | 1.04        | 0.95        | 1.2         | 1.2         | 1.5         | 2           | 1.7         | 1.2         | 1.15        | 2.2         | 1.4         |
| 5.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 6                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 6.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 6.8                      | 0.87        | 0.88        | 0.8         | 1           | 0.9         | 1.3         | 1.6         | 1.45        | 1           | 1           | 1.7         | 1.1         |
| 10                       | 0.7         | 0.71        | 0.62        | 0.75        | 0.8         | 1.1         | 1.3         | 1.2         | 0.85        | 0.9         | 1.4         | 0.85        |
| 15                       |             |             | 0.54        | 0.6         | 0.65        | 0.75        | 1.1         | 0.85        | 0.68        | 0.65        | 1.2         | 0.64        |
| 22                       | 0.47        | 0.47        | 0.45        | 0.5         | 0.5         | 0.62        | 0.9         | 0.72        | 0.55        | 0.45        |             |             |
| 33                       |             |             |             |             |             |             | 0.7         | 0.55        |             |             |             |             |
| 47                       |             |             |             |             |             |             | 0.6         | 0.44        |             |             |             |             |
| 68                       |             |             |             |             |             |             | 0.52        | 0.32        |             |             |             |             |
| 100                      |             |             |             |             |             |             | 0.42        | 0.28        |             |             |             |             |
| 150                      |             |             |             |             |             |             | 0.34        | 0.22        |             |             |             |             |
| 220                      |             |             |             |             |             |             | 0.275       | 0.17        |             |             |             |             |

| Size                     | CSMS0514D   |             | CSMS0520D   |             | CSMS0540D   |             | CSMS0610D   |             | CSMS0612D   |             | CSMS0620D   |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.47                     | 5.8         | 3.3         |             |             |             |             |             |             |             |             |             |             |
| 0.68                     |             |             |             |             |             |             |             |             |             |             |             |             |
| 0.8                      |             |             |             |             |             |             |             |             |             |             | 6.4         | 4.1         |
| 0.9                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1                        |             |             | 4           | 3.6         |             |             |             |             |             |             |             |             |
| 1.2                      | 3.8         | 2.4         |             |             |             |             |             |             |             |             |             |             |
| 1.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.4                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.5                      |             |             | 3.35        | 3.2         | 6.4         | 4.5         | 2.4         | 1.9         |             |             | 4.3         | 3.6         |
| 1.8                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 2                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 2.2                      | 2.8         | 2           | 2.9         | 2.9         | 5           | 3.7         | 1.9         | 1.7         |             |             | 3.2         | 2.9         |
| 2.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 2.5                      |             |             |             |             |             |             |             |             | 2.1         | 1.8         |             |             |
| 3                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 3.3                      | 2.35        | 1.7         | 2.4         | 2.4         | 4           | 3.3         | 1.6         | 1.5         | 1.8         | 1.7         | 2.8         | 2.75        |
| 3.6                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 4.5                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 4.7                      | 2.05        | 1.4         | 2           | 2           | 3.3         | 3.1         | 1.3         | 1.4         | 1.6         | 1.55        | 2.4         | 2.15        |
| 5.3                      |             |             |             |             |             |             |             |             | 1.5         | 1.55        |             |             |
| 6                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 6.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 6.8                      | 1.6         | 1.2         | 1.6         | 1.65        | 2.8         | 2.4         | 1.2         | 1.2         | 1.3         | 1.35        | 2           | 1.8         |
| 10                       | 1.4         | 1.05        | 1.3         | 1.45        | 2.3         | 2.1         | 1           | 1.1         | 1           | 1.2         | 1.9         | 1.5         |
| 15                       | 1.1         | 0.65        | 1.1         | 1.2         | 2           | 1.8         |             |             | 0.8         | 0.8         |             |             |
| 22                       | 0.9         | 0.55        | 0.9         | 1           | 1.5         | 1.4         | 0.65        | 0.7         | 0.76        | 0.65        | 1.25        | 0.95        |
| 33                       |             |             |             |             | 1.3         | 1.2         |             |             | 0.59        | 0.55        |             |             |
| 47                       |             |             |             |             | 1.1         | 0.9         |             |             | 0.52        | 0.46        |             |             |
| 68                       |             |             |             |             |             |             |             |             | 0.44        | 0.41        |             |             |
| 100                      |             |             |             |             |             |             |             |             | 0.35        | 0.32        |             |             |
| 150                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 220                      |             |             |             |             |             |             |             |             |             |             |             |             |

MLCC

Chip R

Coil

# (SHIELDED) CSMS / CSCA

## ■ SMD Wire Wound Power Inductors

### ELECTRICAL SPECIFICATION

| Size                     | CSMS0628D   |             | CSMS0645D   |             | CSMS0840D   |             | CSCA2016D   |             | CSCA2520D   |             | CSCA2510D   |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.24                     |             |             |             |             |             |             | 4.2         | 3           |             |             |             |             |
| 0.47                     |             |             |             |             |             |             | 2.8         | 2.8         |             |             |             |             |
| 0.68                     |             |             |             |             |             |             |             |             | 4           | 3.4         | 3.9         | 3.2         |
| 0.8                      |             |             |             |             |             |             |             |             | 3           | 3           | 3.7         | 2.9         |
| 0.9                      | 6.7         | 4.6         |             |             | 13          | 7.8         |             |             |             |             |             |             |
| 1                        |             |             | 9.8         | 4.5         |             |             | 2.2         | 2.2         | 2.7         | 2.7         | 2.7         | 2.5         |
| 1.2                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.3                      |             |             | 8.2         | 4.2         |             |             |             |             |             |             |             |             |
| 1.4                      |             |             |             |             | 10          | 7           |             |             |             |             |             |             |
| 1.5                      | 5.1         | 4.2         |             |             |             |             | 1.6         | 1.65        | 2.6         | 2.4         |             |             |
| 1.8                      |             |             | 7.2         | 3.9         |             |             |             |             |             |             |             |             |
| 2                        |             |             |             |             | 8.1         | 6.3         |             |             |             |             |             |             |
| 2.2                      | 4.2         | 3.7         |             |             |             |             | 1.5         | 1.5         | 1.9         | 1.9         | 1.9         | 1.5         |
| 2.3                      |             |             | 6.4         | 3.6         |             |             |             |             |             |             |             |             |
| 2.5                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 3                        | 3.6         | 3.4         | 5.6         | 3.3         |             |             |             |             |             |             |             |             |
| 3.3                      |             |             |             |             |             |             | 1.15        | 1.2         | 1.6         | 1.7         |             |             |
| 3.6                      |             |             |             |             | 6.4         | 4.9         |             |             |             |             |             |             |
| 4.5                      |             |             | 4.4         | 3.1         |             |             |             |             |             |             |             |             |
| 4.7                      | 2.7         | 3           |             |             | 5.4         | 4.1         | 1           | 0.95        | 1.3         | 1.3         | 1.3         | 1.1         |
| 5.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 6                        | 2.5         | 2.5         |             |             |             |             |             |             |             |             |             |             |
| 6.3                      |             |             | 3.6         | 3           |             |             |             |             |             |             |             |             |
| 6.8                      |             |             |             |             | 4.4         | 3.7         |             |             |             |             |             |             |
| 10                       | 1.9         | 1.9         | 3.1         | 2.4         | 3.8         | 3.1         |             |             |             |             |             |             |
| 15                       | 1.6         | 1.8         | 2.5         | 1.9         | 2.9         | 2.4         |             |             |             |             |             |             |
| 22                       | 1.3         | 1.4         | 2           | 1.6         | 2.4         | 2.2         |             |             |             |             |             |             |
| 33                       | 1.1         | 1.1         | 1.65        | 1.4         |             |             |             |             |             |             |             |             |
| 47                       | 1           | 0.92        | 1.4         | 1.15        |             |             |             |             |             |             |             |             |
| 68                       | 0.8         | 0.77        | 1.1         | 0.95        |             |             |             |             |             |             |             |             |
| 100                      | 0.65        | 0.66        | 0.9         | 0.75        |             |             |             |             |             |             |             |             |
| 150                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 220                      |             |             |             |             |             |             |             |             |             |             |             |             |

MLCC

Chip R

# (SHIELDED) CSME

## ■ SMD Wire Wound Power Inductors

### ELECTRICAL SPECIFICATION

| Size                     | CSME0315D   |             | CSME0412D   |             | CSME0418D   |             | CSME0430D   |             | CSME0520D   |             | CSME0540D   |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.47                     |             |             |             |             |             |             | 7.5         | 3.5         |             |             |             |             |
| 0.68                     | 2.1         | 2.1         |             |             | 4           | 3.2         | 5.9         | 3.4         |             |             |             |             |
| 0.8                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 0.9                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1                        | 1.8         | 1.82        |             |             | 3.3         | 2.4         | 4.85        | 3.3         | 4           | 3.6         | 7.35        | 4.9         |
| 1.2                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.3                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 1.4                      | 1.48        | 1.5         |             |             | 3           | 2.2         | 4.1         | 2.95        |             |             |             |             |
| 1.5                      |             |             |             |             |             |             |             |             | 3.35        | 3.2         | 6.4         | 4.5         |
| 1.8                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 2                        |             |             |             |             |             |             |             |             |             |             |             |             |
| 2.2                      | 1.21        | 1.23        |             |             | 2.3         | 2           | 3.3         | 2.4         | 2.9         | 2.9         | 5           | 3.7         |
| 2.3                      |             |             |             |             |             |             | 3.1         | 2.3         |             |             |             |             |
| 2.5                      |             |             |             |             |             |             |             |             |             |             |             |             |
| 3                        | 1.02        | 1.04        |             |             | 2           | 1.7         | 2.9         | 2           |             |             |             |             |
| 3.3                      |             |             |             |             |             |             | 2.75        | 1.95        | 2.4         | 2.4         | 4           | 3.3         |
| 3.6                      | 0.87        | 0.88        |             |             | 1.6         | 1.45        | 2.6         | 1.7         |             |             |             |             |
| 4.5                      |             |             |             |             |             |             | 2.2         | 1.65        |             |             |             |             |
| 4.7                      |             |             |             |             |             |             | 2.1         | 1.6         | 2           | 2           | 3.3         | 3.1         |
| 5.3                      | 0.7         | 0.71        | 0.8         | 1.1         | 1.3         | 1.2         | 1.95        | 1.5         |             |             |             |             |
| 6                        |             |             |             |             |             |             | 1.7         | 1.35        |             |             |             |             |
| 6.3                      |             |             |             |             | 1.1         | 0.85        | 1.65        | 1.15        |             |             |             |             |
| 6.8                      |             |             |             |             |             |             | 1.4         | 1.1         | 1.6         | 1.65        | 2.8         | 2.4         |
| 10                       | 0.47        | 0.47        |             |             | 0.9         | 0.72        | 1.3         | 1           | 1.3         | 1.45        | 2.3         | 2.1         |
| 15                       |             |             |             |             | 0.7         | 0.55        | 1.1         | 0.84        | 1.1         | 1.2         | 2           | 1.8         |
| 22                       |             |             |             |             |             |             | 0.9         | 0.72        | 0.9         | 1           | 1.5         | 1.4         |
| 33                       |             |             |             |             |             |             | 0.85        | 0.65        |             |             | 1.3         | 1.2         |
| 47                       |             |             |             |             |             |             | 0.75        | 0.55        |             |             | 1.1         | 0.9         |
| 68                       |             |             |             |             |             |             | 0.68        | 0.5         | 0.7         | 0.53        |             |             |
| 100                      |             |             |             |             | 0.42        | 0.28        | 0.6         | 0.45        |             |             | 0.75        | 0.7         |
| 150                      |             |             |             |             |             |             | 0.5         | 0.35        |             |             |             |             |
| 220                      |             |             |             |             |             |             | 0.4         | 0.35        |             |             |             |             |

Coil

# CSMW (SHIELDED)

## ■ SMD Wire Wound Power Inductors

### ELECTRICAL SPECIFICATION

| Size                     | CSMW0315D   |             | CSMW0418D   |             | CSMW0430D   |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.47                     |             |             |             |             |             |             |
| 1                        | 2.32        | 2.35        | 4.8         | 2           | 5.3         | 4.15        |
| 1.2                      |             |             |             |             |             |             |
| 1.3                      |             |             |             |             |             |             |
| 1.4                      |             |             |             |             |             |             |
| 1.5                      | 2.3         | 1.7         | 3           | 1.8         | 5.2         | 3.34        |
| 1.8                      |             |             |             |             |             |             |
| 2                        |             |             |             |             |             |             |
| 2.2                      | 1.6         | 1.6         | 2.7         | 1.65        | 4.75        | 2.95        |
| 2.3                      |             |             |             |             |             |             |
| 2.5                      |             |             |             |             |             |             |
| 3                        |             |             |             |             |             |             |
| 3.3                      | 1.32        | 1.36        | 2.45        | 1.23        | 3.3         | 2.4         |
| 3.9                      |             |             |             |             | 3           | 2.1         |
| 4.5                      |             |             |             |             |             |             |
| 4.7                      | 1.1         | 1.09        | 1.7         | 1.2         | 2.9         | 2           |
| 5.3                      |             |             |             |             |             |             |
| 6                        |             |             |             |             |             |             |
| 6.3                      |             |             |             |             |             |             |
| 6.8                      | 0.85        | 0.85        | 1.45        | 1.06        | 2.7         | 1.6         |
| 10                       | 0.72        | 0.77        | 1.3         | 0.84        | 1.95        | 1.5         |
| 15                       | 0.66        | 0.65        | 0.94        | 0.65        | 1.85        | 1.1         |
| 22                       | 0.52        | 0.57        | 0.8         | 0.59        | 1.3         | 1           |
| 33                       | 0.44        | 0.43        | 0.65        | 0.49        | 1           | 0.84        |
| 47                       | 0.35        | 0.35        | 0.57        | 0.42        | 0.95        | 0.72        |
| 51                       |             |             |             |             | 0.88        | 0.7         |
| 68                       |             |             | 0.47        | 0.32        | 0.85        | 0.52        |
| 100                      |             |             | 0.4         | 0.25        |             |             |
| 120                      |             |             |             |             | 0.55        | 0.42        |
| 150                      |             |             | 0.31        | 0.22        |             |             |
| 220                      |             |             | 0.27        | 0.17        |             |             |
| 470                      |             |             |             |             | 0.25        | 0.2         |

| Size                     | CSMW0520D   |             | CSMW0540D   |             | CSMW0840D   |             |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Inductance<br>( $\mu$ H) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) | Isat<br>(A) | Irms<br>(A) |
| 0.24                     |             |             |             |             |             |             |
| 0.47                     |             |             |             |             |             |             |
| 1                        | 4.33        | 3.8         |             |             |             |             |
| 1.2                      |             |             |             |             |             |             |
| 1.3                      |             |             |             |             |             |             |
| 1.4                      |             |             |             |             |             |             |
| 1.5                      | 4.1         | 3.2         | 6.3         | 4.3         | 10          | 7.8         |
| 1.8                      |             |             |             |             |             |             |
| 2                        |             |             |             |             |             |             |
| 2.2                      | 3.6         | 2.9         | 4.9         | 3.8         |             |             |
| 2.3                      |             |             |             |             |             |             |
| 2.5                      |             |             |             |             |             |             |
| 3                        |             |             |             |             |             |             |
| 3.3                      | 3.25        | 2.9         | 3.95        | 3.4         |             |             |
| 3.9                      |             |             |             |             |             |             |
| 4.5                      |             |             |             |             |             |             |
| 4.7                      | 2.5         | 2.2         | 3.5         | 3           |             |             |
| 5.3                      |             |             |             |             |             |             |
| 6                        |             |             |             |             |             |             |
| 6.3                      |             |             |             |             |             |             |
| 6.8                      | 2.05        | 1.8         | 2.9         | 2.5         |             |             |
| 10                       | 1.55        | 1.55        | 2.35        | 2.1         |             |             |
| 15                       |             |             | 2           | 2           |             |             |
| 22                       | 1.15        | 1.1         | 1.6         | 1.5         |             |             |
| 33                       | 1           | 0.8         | 1.3         | 1.2         |             |             |
| 47                       |             |             | 1.1         | 1           |             |             |
| 51                       |             |             |             |             |             |             |
| 68                       |             |             |             |             |             |             |
| 100                      |             |             |             |             |             |             |
| 120                      |             |             |             |             |             |             |
| 150                      |             |             |             |             |             |             |
| 220                      |             |             |             |             |             |             |
| 470                      |             |             |             |             |             |             |

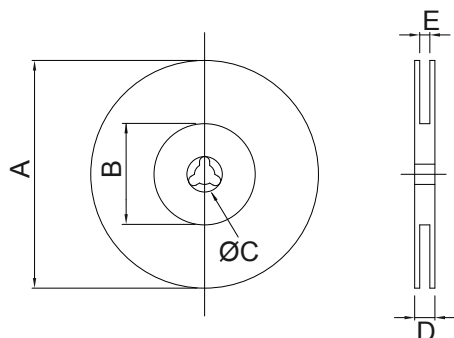
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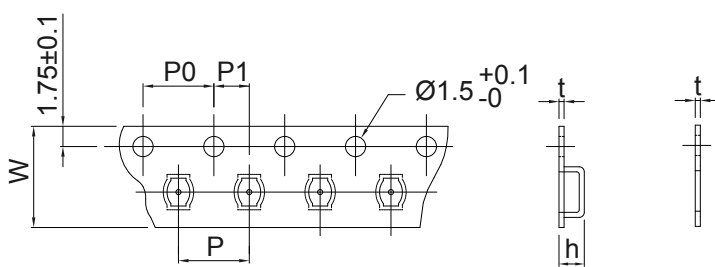
Coil

# Tape and Reel Specifications

## CARRIER TAPE REELS



## TAPE DIMENSIONS (mm)



Plastic

Paper

## SMD AIR COILS

| Series<br>P/N | Reel dimensions (mm) |     |    |      |      | Tape dimensions (mm) |    |    |    |      |      | Parts per reel |       | Quantity per |        |
|---------------|----------------------|-----|----|------|------|----------------------|----|----|----|------|------|----------------|-------|--------------|--------|
|               | A                    | B   | C  | D    | E    | W                    | P  | P0 | P1 | h    | t    | 7"             | 13"   | BOX          | CARTON |
| 291A          | 180                  | 75  | 13 | 16.5 | 12.5 | 12                   | 8  | 4  | 2  | 3.30 | 0.25 | 500            | ----  | 2,000        | 12,000 |
| 291B          | 180                  | 75  | 13 | 20.5 | 16.5 | 16                   | 8  | 4  | 2  | 3.30 | 0.25 | 500            | ----  | 1,500        | 9,000  |
| 292AR         | 180                  | 75  | 13 | 12.5 | 8.4  | 8                    | 4  | 4  | 2  | 1.70 | 0.30 | 2,000          | ----  | 10,000       | 60,000 |
| 292BR         | 180                  | 50  | 13 | 16.5 | 12.5 | 12                   | 4  | 4  | 2  | 1.75 | 0.35 | 2,000          | ----  | 6,000        | 36,000 |
| 293A          | 340                  | 100 | 13 | 25.5 | 16.5 | 16                   | 12 | 4  | 2  | 4.40 | 0.30 | ----           | 1,000 | 1,000        | 10,000 |
| 294A          | 340                  | 100 | 13 | 30.4 | 24.5 | 24                   | 12 | 4  | 2  | 5.30 | 0.35 | ----           | 1,000 | 1,000        | 8,000  |
| 29B           | 340                  | 100 | 13 | 18.4 | 12.5 | 12                   | 12 | 4  | 2  | 6.00 | 0.40 | ----           | 1,000 | 3,000        | 9,000  |
| 29CAR         | 180                  | 75  | 13 | 16.5 | 12.5 | 12                   | 8  | 4  | 2  | 2.80 | 0.35 | 1,000          | ----  | 4,000        | 24,000 |
| 29CBR         | 180                  | 75  | 13 | 16.5 | 12.5 | 12                   | 8  | 4  | 2  | 2.80 | 0.35 | 1,000          | ----  | 4,000        | 24,000 |

## SMD SQUARE TYPE AIR COILS

| Series<br>P/N | Reel dimensions (mm) |     |    |      |      | Tape dimensions (mm) |   |    |    |      |      | Parts per reel |       | Quantity per |        |
|---------------|----------------------|-----|----|------|------|----------------------|---|----|----|------|------|----------------|-------|--------------|--------|
|               | A                    | B   | C  | D    | E    | W                    | P | P0 | P1 | h    | t    | 7"             | 13"   | BOX          | CARTON |
| LSQ0806A      | 180                  | 50  | 13 | 16.4 | 12.5 | 12                   | 4 | 4  | 2  | 1.75 | 0.23 | 2,000          | ----  | 8,000        | 48,000 |
| LSQ0807A      | 180                  | 50  | 13 | 16.4 | 12.5 | 12                   | 4 | 4  | 2  | 1.86 | 0.23 | 2,000          | ----  | 8,000        | 48,000 |
| LSQ0908A      | 180                  | 50  | 13 | 16.4 | 12.5 | 12                   | 4 | 4  | 2  | 2.10 | 0.25 | 2,000          | ----  | 8,000        | 48,000 |
| LSQ1515A      | 340                  | 100 | 13 | 18.4 | 12.5 | 12                   | 8 | 4  | 2  | 4.50 | 0.40 | ----           | 2,000 | 4,000        | 12,000 |

## SMD RF CHIP INDUCTORS

| Series<br>P/N | Reel dimensions (mm) |    |    |      |      | Tape dimensions (mm) |   |    |    |      |      | Parts per reel |      | Quantity per |         |
|---------------|----------------------|----|----|------|------|----------------------|---|----|----|------|------|----------------|------|--------------|---------|
|               | A                    | B  | C  | D    | E    | W                    | P | P0 | P1 | h    | t    | 7"             | 13"  | BOX          | CARTON  |
| 0402CP        | 180                  | 75 | 13 | 12.5 | 8.4  | 8                    | 2 | 4  | 2  | ---  | 0.60 | 4,000          | ---- | 20,000       | 120,000 |
| FEC0603CP     | 180                  | 75 | 13 | 12.5 | 8.4  | 8                    | 4 | 4  | 2  | 1.07 | 0.25 | 4,000          | ---- | 20,000       | 120,000 |
| FEC0805CP     | 180                  | 75 | 13 | 12.5 | 8.4  | 8                    | 4 | 4  | 2  | 1.38 | 0.25 | 3,000          | ---- | 15,000       | 90,000  |
| FEC1008CP     | 180                  | 75 | 13 | 12.5 | 8.4  | 8                    | 4 | 4  | 2  | 2.30 | 0.25 | 2,000          | ---- | 10,000       | 60,000  |
| 1210C         | 180                  | 75 | 13 | 12.5 | 8.4  | 8                    | 4 | 4  | 2  | 2.43 | 0.23 | 1,500          | ---- | 7,500        | 45,000  |
| 1812CP        | 180                  | 50 | 13 | 18.4 | 12.4 | 12                   | 8 | 4  | 2  | 3.60 | 0.35 | 600            | ---- | 3,000        | 18,000  |
| 0805F         | 180                  | 75 | 13 | 12.5 | 8.4  | 8                    | 4 | 4  | 2  | 1.38 | 0.25 | 3,000          | ---- | 15,000       | 90,000  |
| 1008F         | 180                  | 75 | 13 | 12.5 | 8.4  | 8                    | 4 | 4  | 2  | 2.52 | 0.25 | 2,000          | ---- | 10,000       | 60,000  |

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# Tape and Reel Specifications

## SMD COMMON MODE CHIP COILS

| Series P/N | Reel dimensions (mm) |     |    |      |      | Tape dimensions (mm) |    |    |    |      |      | Parts per reel |       | Quantity per |        |
|------------|----------------------|-----|----|------|------|----------------------|----|----|----|------|------|----------------|-------|--------------|--------|
|            | A                    | B   | C  | D    | E    | W                    | P  | P0 | P1 | h    | t    | 7"             | 13"   | BOX          | CARTON |
| SCM2012F   | 180                  | 75  | 13 | 12.5 | 8.4  | 8                    | 4  | 4  | 2  | 1.45 | 0.22 | 2,000          | ----  | 10,000       | 60,000 |
| SCM2012FH  | 180                  | 75  | 13 | 12.5 | 8.4  | 8                    | 4  | 4  | 2  | 1.45 | 0.22 | 2,000          | ----  | 10,000       | 60,000 |
| SCM7038F   | 340                  | 100 | 13 | 22.4 | 16.5 | 16                   | 12 | 4  | 2  | 4.25 | 0.35 | ----           | 1,000 | 2,000        | 6,000  |

## SMD BALUN TRANSFORMER

| Series P/N | Reel dimensions (mm) |    |    |      |     | Tape dimensions (mm) |   |    |    |      |      | Parts per reel |      | Quantity per |        |
|------------|----------------------|----|----|------|-----|----------------------|---|----|----|------|------|----------------|------|--------------|--------|
|            | A                    | B  | C  | D    | E   | W                    | P | P0 | P1 | h    | t    | 7"             | 13"  | BOX          | CARTON |
| BIH2012OB  | 180                  | 75 | 13 | 12.5 | 8.4 | 8                    | 4 | 4  | 2  | 1.45 | 0.22 | 2,000          | ---- | 10,000       | 60,000 |

## SMD MOLDING TYPE HIGH CURRENT POWER CHOKES

| Series P/N | Reel dimensions (mm) |     |    |      |      | Tape dimensions (mm) |    |    |    |      |     | Parts per reel |       | Quantity per |        |
|------------|----------------------|-----|----|------|------|----------------------|----|----|----|------|-----|----------------|-------|--------------|--------|
|            | A                    | B   | C  | D    | E    | W                    | P  | P0 | P1 | h    | t   | 7"             | 13"   | BOX          | CARTON |
| MCS0420    | 330                  | 100 | 13 | 16.6 | 12.4 | 12                   | 8  | 4  | 2  | 2.5  | 0.3 | ----           | 2,000 | 2,000        | 12,000 |
| MCS0530    | 330                  | 100 | 13 | 16.6 | 12.4 | 12                   | 8  | 4  | 2  | 3.6  | 0.4 | ----           | 2,000 | 2,000        | 12,000 |
| MCS0630    | 330                  | 100 | 13 | 16.6 | 21.2 | 16                   | 12 | 4  | 2  | 3.4  | 0.4 | ----           | 1,000 | 1,000        | 6,000  |
| MCS1040    | 330                  | 100 | 13 | 24.6 | 29.2 | 24                   | 16 | 4  | 2  | 4.25 | 0.4 | ----           | 500   | 500          | 3,000  |

## SMD COATING RESIN TYPE POWER CHOKES

| Series P/N | Reel dimensions (mm) |     |    |      |      | Tape dimensions (mm) |    |    |    |      |      | Parts per reel |       | Quantity per |        |
|------------|----------------------|-----|----|------|------|----------------------|----|----|----|------|------|----------------|-------|--------------|--------|
|            | A                    | B   | C  | D    | E    | W                    | P  | P0 | P1 | h    | t    | 7"             | 13"   | BOX          | CARTON |
| CSM0310D   | 180                  | 60  | 13 | 12.5 | 8.4  | 8                    | 4  | 4  | 2  | 1.40 | 0.23 | 2,000          | ----  | 12,000       | 72,000 |
| CSM0315D   | 180                  | 60  | 13 | 12.5 | 8.4  | 8                    | 4  | 4  | 2  | 1.70 | 0.23 | 2,000          | ----  | 12,000       | 72,000 |
| CSM0645D   | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 4.65 | 0.40 | ----           | 1,500 | 3,000        | 9,000  |
| CSM0840D   | 330                  | 100 | 13 | 22.4 | 16.4 | 16                   | 12 | 4  | 2  | 4.40 | 0.35 | ----           | 1,000 | 2,000        | 6,000  |
| CSMV2012D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.30 | 0.25 | 2,500          | ----  | 12,500       | 75,000 |
| CSMH2410D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.30 | 0.25 | 2,500          | ----  | 12,500       | 75,000 |
| CSMH2412D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.30 | 0.25 | 2,500          | ----  | 12,500       | 75,000 |
| CSMH0310D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.40 | 0.30 | 2,000          | ----  | 12,000       | 72,000 |
| CSMH0312D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.60 | 0.30 | 2,000          | ----  | 12,000       | 72,000 |
| CSMS2012D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.30 | 0.25 | 2,500          | ----  | 12,500       | 75,000 |
| CSMS0315D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 2.00 | 0.30 | 2,000          | ----  | 12,000       | 72,000 |
| CSMS0410D  | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 1.40 | 0.30 | ----           | 5,000 | 10,000       | 40,000 |
| CSMS0412D  | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 1.60 | 0.30 | ----           | 4,500 | 9,000        | 36,000 |
| CSMS0418D  | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 2.10 | 0.30 | ----           | 3,500 | 7,000        | 28,000 |
| CSMS0510D  | 180                  | 60  | 13 | 20.5 | 15.5 | 12                   | 8  | 4  | 2  | 1.40 | 0.30 | 1,000          | ----  | 4,000        | 24,000 |
| CSMS0512D  | 180                  | 60  | 13 | 20.5 | 15.5 | 12                   | 8  | 4  | 2  | 1.40 | 0.30 | 1,000          | ----  | 4,000        | 24,000 |
| CSMS0514D  | 180                  | 60  | 13 | 20.5 | 15.5 | 12                   | 8  | 4  | 2  | 2.00 | 0.30 | 1,000          | ----  | 4,000        | 24,000 |
| CSMS0520D  | 180                  | 60  | 13 | 20.5 | 15.5 | 12                   | 8  | 4  | 2  | 2.30 | 0.30 | 800            | ----  | 3,200        | 19,200 |
| CSMS0540D  | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 4.20 | 0.40 | ----           | 1,500 | 3,000        | 9,000  |
| CSMS0610D  | 180                  | 60  | 13 | 20.5 | 15.5 | 12                   | 8  | 4  | 2  | 1.40 | 0.40 | 1,000          | ----  | 4,000        | 24,000 |
| CSMS0612D  | 180                  | 60  | 13 | 20.5 | 15.5 | 12                   | 8  | 4  | 2  | 1.60 | 0.40 | 1,000          | ----  | 4,000        | 24,000 |
| CSMS0620D  | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 2.30 | 0.40 | ----           | 2,500 | 5,000        | 15,000 |
| CSMS0628D  | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 3.10 | 0.40 | ----           | 2,000 | 4,000        | 24,000 |
| CSMS0645D  | 330                  | 80  | 13 | 18.5 | 13.5 | 12                   | 8  | 4  | 2  | 4.70 | 0.40 | ----           | 1,500 | 3,000        | 12,000 |
| CSMS0840D  | 330                  | 80  | 13 | 22.5 | 17.5 | 16                   | 12 | 4  | 2  | 4.50 | 0.50 | ----           | 1,000 | 2,000        | 8,000  |
| CSCA2016D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.35 | 0.25 | 3,000          | ----  | 15,000       | 90,000 |
| CSCA2520D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.75 | 0.30 | 3,000          | ----  | 15,000       | 90,000 |
| CSCD2012D  | 180                  | 60  | 13 | 16.5 | 11.5 | 8                    | 4  | 4  | 2  | 1.60 | 0.25 | 2,500          | ----  | 12,500       | 75,000 |

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