

# Automotive Grade

## Component Guide



# Introduction



Systems and electronics within automobiles have become increasingly more sophisticated with the introduction of new and improved features every year. Crucial to customer satisfaction is that each of these features must be reliably powered, protected and connected to its respective interface within the overall automotive system. Bourns has substantial automotive component level experience and supplies leading component solutions. The Bourns Automotive division has extensive experience designing, building and supplying high reliability AEC-Q compliant components. Bourns offers a wide variety of resistors and magnetics to condition and filter electronic circuits. To complement our conditioning products, we offer a portfolio of circuit protection products that have been used by our customers in typical automotive applications.

All Bourns® standard components that are approved for typical automotive applications are manufactured in facilities that are fully certified to IATF 16949, and have been tested, qualified using the AEC-Q product validation standard for passive components and presented to the customer for selection and approval using PPAP. Bourns also offers customers access to our application test lab.

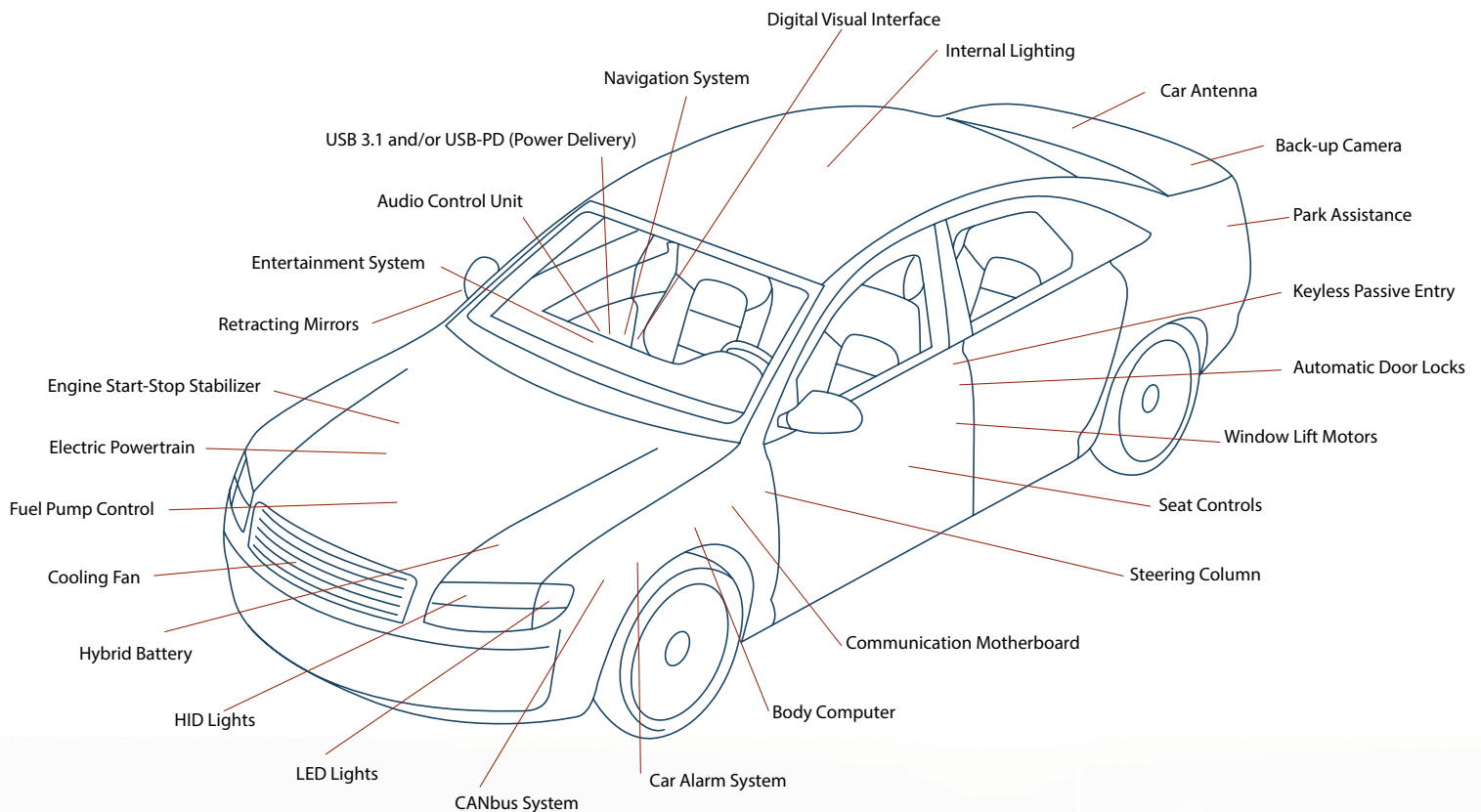
Bourns has a long history of serving the automotive market with quality sensor products. The company's inductive and circuit protection components are available to meet the board level requirements of many automotive applications. With excellent customer service and the availability of field application engineers, Bourns works closely with automotive system designers in helping customers select the right components, providing layout support, and making modifications as requested by the customer. Bourns performs surge tests and offers application and customer-specific testing.

Bourns® Automotive Grade standard components are designed and developed to meet the following criteria:

- Compliance with the latest applicable AEC-Q200, AEC-Q101 or AEC-Q102 product validation standard or its equivalent as determined by Bourns
- New product and new process development meets or exceeds the requirements established in the latest AIAG revision of the Advanced Product Quality Planning (APQP) process. Bourns' design review process may be used if the Bourns quality and design engineering teams have established that the Bourns® standard component meets or exceeds the requirements of the APQP process
- The manufacturing facility(ies) has a VDA 6.3 process audit score greater than 80 % with no downgrade
- The manufacturing site (Bourns or third-party subcontractor) that manufactures the Bourns® standard components must be certified to IATF 16949
- The Bourns® standard components must be presented to a customer for approval using PPAP

The "Automotive Grade" designation is not a substitute for the customer's careful selection and testing of such Bourns® standard components in their particular applications.

# Typical Uses by Customers - Bourns® Automotive Grade Components



## Comfort & Positioning

- Window Lift Motor
- Seat Position Motor
- Seat Heater
- Park Assistance
- Back-up Camera
- Keyless Passive Entry
- Automatic Door Lock
- Body Computer
- Steering Column
- Retracting External Mirror
- Rear View Interior Mirror

## Electrification

- Fuel Pump
- Start-Stop Module
- Battery Charger
- Cooling Fan
- Body Control
- Parking Assist
- Start-Stop Engine Control
- On Board Charging (OBC)
- Battery Management System (BMS)
- Advanced Driving Assistance System (ADAS)

## Infotainment

- Instrument Cluster
- Stereo (Audio) Control
- In-Car Camera
- In-Car Television
- Ethernet Hub/Switch
- USB Charging Port
- Antenna
- Communications ECU
- GPS & Navigation Control

## Lighting

- HID Headlight
- LED Headlight
- Internal LED Light

## Networks

- CAN
- FlexRay
- LIN
- Ethernet

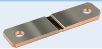
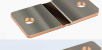
## Resistors

| Model       | Photo                                                                               | Tolerances | Temperature Coefficient, (ppm/°C) | Power (W)  | Resistance Range (Ω) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|-------------|-------------------------------------------------------------------------------------|------------|-----------------------------------|------------|----------------------|--------------------|--------------------|--------------------|
| CAT10A-LF   |    | 5 %        | ±300                              | 0.063      | 10 - 1M              | Yes                | Level 3            | Yes                |
| CAT16A-LF   |    | 1 %, 5 %   | ±200, ±400                        | 0.063      | 10 - 1M              | Yes                | Level 3            | Yes                |
| CAY10A-AS   |    | 5 %        | ±250, ±500                        | 0.063      | 3 - 1M               | Yes                | Level 3            | Yes                |
| CAY10A-LF   |    | 5 %        | ±250, ±500                        | 0.063      | 3 - 1M               | Yes                | Level 3            | Yes                |
| CAY16A-AS   |    | 5 %        | ±200, ±400                        | 0.063      | 3 - 1M               | Yes                | Level 3            | Yes                |
| CAY16A-LF   |    | 1 %, 5 %   | ±200, ±400                        | 0.063      | 3 - 1M               | Yes                | Level 3            | Yes                |
| CFN-A       |    | 1 %, 5 %   | ±50, ±100                         | 0.2 - 1    | 5 m - 40 m           | Yes                | Level 3            | Yes                |
| CHP-A       |    | 1 %, 5 %   | ±100, ±200                        | 0.33 - 3   | 10 - 1M              | Yes                | Level 3            | Yes                |
| CHP0603-Q   |    | 1 %, 5 %   | ±100, ±200                        | 0.3        | 10 - 1M              | Yes                | Level 3            | Yes                |
| CHP0805-Q   |    | 1 %, 5 %   | ±100, ±200                        | 0.5        | 10 - 1M              | Yes                | Level 3            | Yes                |
| CHP1206-Q   |    | 1 %, 5 %   | ±100, ±200                        | 0.75       | 10 - 1M              | Yes                | Level 3            | Yes                |
| CHV-A       |    | 1 %, 5 %   | ±100, ±200                        | 0.1 - 1    | 100 m - 100 M        | Yes                | Level 3            | Yes                |
| CMP-A       |    | 1 %, 5 %   | ±100, ±200                        | 0.25 - 1.5 | 10 - 1M              | Yes                | Level 3            | Yes                |
| CMP0603-Q   |    | 1 %, 5 %   | ±100, ±200                        | 0.25       | 10 - 1M              | Yes                | Level 3            | Yes                |
| CMP0805-Q   |    | 1 %, 5 %   | ±100, ±200                        | 0.5        | 10 - 1M              | Yes                | Level 3            | Yes                |
| CMP1206-Q   |    | 1 %, 5 %   | ±100, ±200                        | 0.75       | 10 - 1M              | Yes                | Level 3            | Yes                |
| CMP2010-Q   |    | 1 %, 5 %   | ±100, ±200                        | 1.00       | 10 - 1M              | Yes                | Level 3            | Yes                |
| CMP2512-Q   |    | 1 %, 5 %   | ±100, ±200                        | 1.5        | 10 - 1M              | Yes                | Level 3            | Yes                |
| CR0201A-AS  |    | 1 %, 5 %   | ±100, ±200, -200+600              | 0.05       | 1 - 10 M             | Yes                | Level 3            | Yes                |
| CR0402A-AS  |    | 1 %, 5 %   | ±100, ±200, -200+500              | 0.063      | 1 - 20 M             | Yes                | Level 3            | Yes                |
| CR0603A-AS  |    | 1 %, 5 %   | ±100, ±200, ±400                  | 0.1        | 1 - 20 M             | Yes                | Level 3            | Yes                |
| CR0805A-AS  |    | 1 %, 5 %   | ±100, ±200, ±400                  | 0.125      | 1 - 20 M             | Yes                | Level 3            | Yes                |
| CR01005A-AS |    | 1 %, 5 %   | ±100, ±200, ±300, ±400            | 0.03125    | 1 - 10 M             | Yes                | Level 3            | Yes                |
| CR1206A-AS  |    | 1 %, 5 %   | ±100, ±200, ±400                  | 0.25       | 1 - 20 M             | Yes                | Level 3            | Yes                |
| CR1210A-AS  |   | 1 %, 5 %   | ±100, ±200, ±400                  | 0.33       | 1 - 20 M             | Yes                | Level 3            | Yes                |
| CR2010A-AS  |  | 1 %, 5 %   | ±100, ±200, ±400                  | 0.5        | 1 - 20 M             | Yes                | Level 3            | Yes                |
| CR2512A-AS  |  | 1 %, 5 %   | ±100, ±200, ±400                  | 1          | 1 - 20 M             | Yes                | Level 3            | Yes                |
| CRA2512     |  | 1 %, 5 %   | ±50                               | 3          | 10 m - 100 m         | Yes                | Level 3            | Yes                |
| CRE2512     |  | 1 %        | ±50                               | 2/3        | 1 m - 9 m            | Yes                | Level 3            | Yes                |
| CRF0805     |  | 1 %, 5 %   | ±50                               | 0.5        | 0.001 - 0.025        | Yes                | Level 3            | Yes                |
| CRF0805-J   |  | 5 %        | ±3800                             | 0.5        | ≤ 0.2 m              | Yes                | Level 3            | Yes                |
| CRF1206     |  | 1 %, 5 %   | ±50                               | 1          | 0.001 - 0.050        | Yes                | Level 3            | Yes                |
| CRF1206-J   |  | 5 %        | ±3800                             | 1          | ≤ 0.2 m              | Yes                | Level 3            | Yes                |
| CRF2010     |  | 5 %        | ±3800                             | 1.5        | ≤ 0.2 m              | Yes                | Level 3            | Yes                |
| CRF2010-J   |  | 5 %        | ±3800                             | 1.5        | ≤ 0.2 m              | Yes                | Level 3            | Yes                |
| CRF2512     |  | 1 %, 5 %   | ±50                               | 1; 2       | 1 m - 50 m           | Yes                | Level 3            | Yes                |
| CRF2512-J   |  | 5 %        | ±3800                             | 2          | ≤ 0.2 m              | Yes                | Level 3            | Yes                |
| CRG2512     |  | 1 %, 5 %   | ±50                               | 1; 2       | 110 - 680 m          | Yes                | Level 3            | Yes                |
| CRK0612     |  | 1 %, 5 %   | ±100                              | 1          | 1 m - 10 m           | Yes                | Level 3            | Yes                |
| CRK0815     |  | 1 %, 5 %   | ±100                              | 1          | 1 m - 30 m           | Yes                | Level 3            | Yes                |
| CRK1225     |  | 1 %, 5 %   | ±100                              | 3          | 1 m - 55 m           | Yes                | Level 3            | Yes                |

## Resistors

| Model     | Photo                                                                              | Tolerances         | Temperature Coefficient, (ppm/°C) | Power (W) | Resistance Range (Ω) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|-----------|------------------------------------------------------------------------------------|--------------------|-----------------------------------|-----------|----------------------|--------------------|--------------------|--------------------|
| CRM0805A  |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 0.25      | 50 m - 1 M           | Yes                | Level 3            | Yes                |
| CRM1206A  |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 0.5       | 50 m - 1 M           | Yes                | Level 3            | Yes                |
| CRM1210A  |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 0.5       | 50 m - 1 M           | Yes                | Level 3            | Yes                |
| CRM2010A  |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 1         | 50 m - 1 M           | Yes                | Level 3            | Yes                |
| CRM2512A  |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 2         | 50 m - 1 M           | Yes                | Level 3            | Yes                |
| CRM1206-Q |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 0.5       | 10 - 1M              | Yes                | Level 3            | Yes                |
| CRM2010-Q |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 1         | 10 - 1M              | Yes                | Level 3            | Yes                |
| CRM2512-Q |   | 0.5 %, 1 %, 5 %    | ±100, ±200                        | 2         | 10 - 1M              | Yes                | Level 3            | Yes                |
| CRS0603A  |   | 1 %, 5 %           | ±100, ±200                        | 0.125     | 1 - 1 M              | Yes                | Level 3            | Yes                |
| CRS0805A  |   | 1 %, 5 %           | ±100, ±200                        | 0.25      | 1 - 1 M              | Yes                | Level 3            | Yes                |
| CRS1206A  |   | 1 %, 5 %           | ±100, ±200                        | 0.5       | 1 - 1 M              | Yes                | Level 3            | Yes                |
| CRS1210A  |   | 1 %, 5 %           | ±100, ±200                        | 0.5       | 1 - 1 M              | Yes                | Level 3            | Yes                |
| CRS2010A  |   | 1 %, 5 %           | ±100, ±200                        | 1         | 1 - 1 M              | Yes                | Level 3            | Yes                |
| CRS2512A  |   | 1 %, 5 %           | ±100, ±200                        | 2         | 1 - 1 M              | Yes                | Level 3            | Yes                |
| CRS1206-Q |   | 1 %, 5 %           | ±100, ±200                        | 0.5       | 10 - 1M              | Yes                | Level 3            | Yes                |
| CRS2010-Q |   | 1 %, 5 %           | ±100, ±200                        | 1         | 10 - 1M              | Yes                | Level 3            | Yes                |
| CRS2512-Q |   | 1 %, 5 %           | ±100, ±200                        | 2         | 10 - 1M              | Yes                | Level 3            | Yes                |
| CRT0402A  |   | 0.1%,0.25%,0.5%,1% | ±10, ±15, ±25, ±50                | 0.063     | 10 - 100K            | Yes                | Level 3            | Yes                |
| CRT0603A  |   | 0.1%,0.25%,0.5%,1% | ±10, ±15, ±25, ±50                | 0.1       | 10 - 511K            | Yes                | Level 3            | Yes                |
| CRT0805A  |   | 0.1%,0.25%,0.5%,1% | ±10, ±15, ±25, ±50                | 0.125     | 10 - 800K            | Yes                | Level 3            | Yes                |
| CRT1206A  |   | 0.1%,0.25%,0.5%,1% | ±10, ±15, ±25, ±50                | 0.25      | 10 - 1M              | Yes                | Level 3            | Yes                |
| CWM-Q     |  | ±1%,±5%            | ±100, ±200                        | 1; 2      | 1 - 1 M              | Yes                | Level 3            | Yes                |

## Resistors

| Model      | Photo                                                                               | Tolerances | Temperature Coefficient, (ppm/°C) | Power (W) | Resistance Range (Ω) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|------------|-------------------------------------------------------------------------------------|------------|-----------------------------------|-----------|----------------------|--------------------|--------------------|--------------------|
| CSM2F-6918 |  | 5 %        | ±50                               | 36        | 0.05 m - 0.1 m       | Yes                | Level 3            | Yes                |
| CSM2F-7036 |  | 1 %, 5 %   | ±50                               | 50        | 0.05 m - 0.1 m       | Yes                | Level 3            | Yes                |
| CSM2F-8518 |  | 5 %        | ±50                               | 36        | 0.05 m - 0.1 m       | Yes                | Level 3            | Yes                |
| CSM2F-8536 |  | 5 %        | ±150, ±200                        | 50        | 25 - 100 μ           | Yes                | Level 3            | Yes                |
| CSS2H-2512 |  | 1 %, 5 %   | ±50                               | 1.5 - 6   | 0.3 m - 5 m          | Yes                | Level 3            | Yes                |
| CSS2H-3920 |  | 1 %, 5 %   | ±50                               | 2 - 12    | 0.2 m - 5 m          | Yes                | Level 3            | Yes                |
| CSS2H-5930 |  | 1 %, 5 %   | ±50                               | 4 - 15    | 0.2 m - 3 m          | Yes                | Level 3            | Yes                |
| CSS4C-1216 |  | 1 %, 5 %   | ±50, ±100                         | 3 - 5     | 0.3 - 1 m            | Yes                | Level 3            | Yes                |
| CSS4J-4026 |  | 1 %, 5 %   | ±50                               | 3 - 5     | 0.2 - 5 m            | Yes                | Level 3            | Yes                |
| CST0612    |  | 1 %        | ±100, ±200                        | 1         | 0.5 m - 5 m          | Yes                | Level 3            | Yes                |
| PWR163     |  | 1 %, 5 %   | ±100                              | 25        | 20 m - 130 K         | Yes                | Level 3            | Yes                |
| PWR220T-20 |  | 1 %, 5 %   | ±100                              | 20        | 0.02 - 130K          | Yes                | Level 3            | Yes                |
| PWR220T-35 |  | 1 %, 5 %   | ±100                              | 35        | 0.02 - 130K          | Yes                | Level 3            | Yes                |
| PWR221T-30 |  | 1 %, 5 %   | ±100, ±300, ±600                  | 30        | 0.02 - 130K          | Yes                | Level 3            | Yes                |
| PWR263S-20 |  | 1 %, 5 %   | ±100                              | 20        | 20 m - 130 K         | Yes                | Level 3            | Yes                |
| PWR263S-35 |  | 1 %, 5 %   | ±100                              | 35        | 20 m - 130 K         | Yes                | Level 3            | Yes                |

## Power Inductors

| Model       | Photo                                                                               | Size (mm)             | Shielded | Inductance Range (μH) | Current Range (A) | AEC-Q200 Compliant                    | PPAP Documentation | IATF 16949 Factory |
|-------------|-------------------------------------------------------------------------------------|-----------------------|----------|-----------------------|-------------------|---------------------------------------|--------------------|--------------------|
| PQ2614BHA   |    | 28 x 28 x 16          | Yes      | 2.2 - 33              | 30                | -2R2K, -330K                          | Level 3            | Yes                |
| PQ2614BLA   |    | 28 x 28 x 16          | Yes      | 1 - 33                | 30                | -330K                                 | Level 3            | Yes                |
| PQ2617BHA   |    | 28 x 28 x 19          | Yes      | 3.3 - 33              | 30                | -220K                                 | Level 3            | Yes                |
| SDE0403A    |    | 4.5 x 4 x 3.2         | No       | 1 - 68                | 0.4 - 2.7         | -2R2M, -150M, -680K                   | Level 3            | Yes                |
| SDE0403AT   |    | 4 x 4.5 x 3.2         | Yes      | 1 - 68                | 0.4 - 2.7         | -4R7Y, -120M, -680K                   | Level 3            | Yes                |
| SDE0604A    |    | 5.8 x 5.2 x 4.5       | No       | 1.2 - 150             | 0.52 - 5.3        | -3R3M, -330M, -101K                   | Level 3            | Yes                |
| SDE0805A    |    | 7.8 x 7 x 5           | No       | 1.5 - 470             | 0.55 - 5.8        | -100M, -101K, -471K                   | Level 3            | Yes                |
| SDE1006A    |    | 10 x 9 x 5.4          | No       | 1.5 - 820             | 0.45 - 7.2        | -2R2M, -150M, -680K                   | Level 3            | Yes                |
| SRF1010DA   |    | 12 x 9.6 x 11.6       | Yes      | 0.43 - 15             | 4.6 - 27          | -R43M, -150M, -7R5M                   | Level 3            | Yes                |
| SRF1206A    |    | 12 x 11 x 6           | Yes      | 6 - 17                | 4.8 - 10          | -R43M, -150M, -7R5M, -3R3, -100, -102 | Level 3            | Yes                |
| SRF1280A    |    | 12.5 x 12.56 x 8      | Yes      | 0.47 - 4000           | 0.307 - 8.94      | -4R7, -100, -102                      | Level 3            | Yes                |
| SRF7035A    |    | 7 x 6 x 3.5           | Yes      | 4 - 22.6              | 1.2 - 5           | -301Y, -701Y, -132Y                   | Level 3            | Yes                |
| SRF9045A    |    | 9 x 7 x 4.5           | Yes      | 7.5                   | 5                 | -301Y, -701Y, -132Y                   | Level 3            | Yes                |
| SRN2508A    |    | 2.5 x 2 x 0.8         | Yes      | 0.47 - 10             | 0.45 - 1.45       | -R47M, -2R2M, -6R8M                   | Level 3            | Yes                |
| SRN2010BTA  |    | 2 x 1.6 x 0.9         | Semi     | 0.8 - 5.2             | 0.7 - 4.1         | -R24M, -3R3M, -220M                   | Level 3            | Yes                |
| SRN2010TA   |    | 2 x 1.6 x 1           | Yes      | 0.47 - 22             | 0.27 - 2.35       | -3R3M, -150M, -R47Y                   | Level 3            | Yes                |
| SRN2510BTA  |    | 2 x 2.5 x 0.9         | Semi     | 0.47 - 15             | 0.8 - 3           | -R47M, -3R3M, -220M                   | Level 3            | Yes                |
| SRN3010BTA  |    | 3 x 3 x 0.9           | Semi     | 1 - 22                | 0.7 - 0.7 - 3.4   | -1R2M, -8R2M, -470M                   | Level 3            | Yes                |
| SRN3010TA   |   | 3 x 3 x 1             | Yes      | 1 - 22                | 0.6 - 2.1         | -1R5Y, -6R8M, 220M                    | Level 3            | Yes                |
| SRN3012BTA  |  | 3 x 3 x 1             | Semi     | 0.22 - 47             | 0.65 - 6.2        | -R22M, -5R6M, -330M                   | Level 3            | Yes                |
| SRN3012TA   |  | 3 x 3 x 1.2           | Yes      | 1 - 22                | 0.61 - 2          | -3R3M, -150M, -1R0Y                   | Level 3            | Yes                |
| SRN3015BTA  |  | 3 x 3 x 1.3           | Semi     | 0.24 - 47             | 0.7 - 5           | -R47M, -6R8M, -101M                   | Level 3            | Yes                |
| SRN3015TA   |  | 3 x 3 x 1.5           | Yes      | 1 - 47                | 0.4 - 2.2         | -2R2M, -100M, -330M                   | Level 3            | Yes                |
| SRN3030HA   |  | 3 x 3 x 3             | Semi     | 1 - 100               | 0.25 - 2.6        | -1R0Y, -100M, -101M                   | Level 3            | Yes                |
| SRN4012BTA  |  | 4 x 4 x 1.0           | Semi     | 0.47 - 47             | 0.48 - 5          | -R68M, -4R7M, -470M                   | Level 3            | Yes                |
| SRN4012TA   |  | 4 x 4 x 1.2           | Yes      | 0.47 - 22             | 0.62 - 3.2        | -2R2M, -150M, -R47M                   | Level 3            | Yes                |
| SRN4018BTA  |  | 4 x 4 x 1.6           | Semi     | 0.47 - 100            | 0.42 - 6          | -R56M, -6R8M, -680M                   | Level 3            | Yes                |
| SRN4018TA   |  | 4 x 4 x 1.8           | Yes      | 1 - 150               | 0.27 - 3.2        | -1R0M, -150M, -101M                   | Level 3            | Yes                |
| SRN4030HA   |  | 4 x 4 x 3             | Semi     | 1 - 100               | 0.55 - 5.5        | -1R0Y, -100M, -101M                   | Level 3            | Yes                |
| SRN5020TA   |  | 5 x 5 x 2             | Yes      | 1 - 47                | 0.7 - 4.1         | -1R0M, -220M, -6R8M                   | Level 3            | Yes                |
| SRN5030HA   |  | 5 x 5 x 3             | Semi     | 0.47 - 100            | 0.45 - 7          | -2R2Y, -220M, -101M                   | Level 3            | Yes                |
| SRN5040TA   |  | 5 x 5 x 4.1           | Yes      | 0.6 - 100             | 0.72 - 8          | -1R0M, -330M, -4R7M                   | Level 3            | Yes                |
| SRN5040TA-P |  | 4.95 x 4.95 x 3.8/3.9 | Semi     | 0.6 - 100             | 0.72 - 8          | -100MP, -101MP, -R60MP                | Level 3            | Yes                |
| SRN6045HA   |  | 6 x 6 x 4.7           | Semi     | 0.55 - 100            | 0.72 - 7          | -R55Y, -4R7Y, -330M                   | Level 3            | Yes                |
| SRN6045TA   |  | 6 x 6 x 4.5           | Yes      | 1 - 470               | 0.4 - 8           | -1R0M, -220M, -221M                   | Level 3            | Yes                |
| SRN8040HA   |  | 7.9 x 8.15 x 4.2      | Semi     | 0.5 - 100             | 1.3 - 15          | -R50Y, -1R0M, -100M, -101M            | Level 3            | Yes                |
| SRN8040TA   |  | 8 x 8 x 4.5           | Yes      | 0.5 - 330             | 0.7 - 12          | -1R0Y, -221M, -470M, -6R8M            | Level 3            | Yes                |

## Power Inductors

| Model      | Photo                                                                             | Size (mm)         | Shielded | Inductance Range (μH) | Current Range (A) | AEC-Q200 Compliant  | PPAP Documentation | IATF 16949 Factory |
|------------|-----------------------------------------------------------------------------------|-------------------|----------|-----------------------|-------------------|---------------------|--------------------|--------------------|
| SRP1038A   |  | 11 x 10 x 3.8     | Yes      | 0.22 - 47             | 3 - 35            | -2R2Y, -150Y, -101Y | Level 3            | Yes                |
| SRP1038AA  |  | 10 x 11 x 3.8     | Yes      | 0.15 - 47             | 3.5 - 44          | -R56M, -3R3M, -470M | Level 3            | Yes                |
| SRP1038WA  |  | 11 x 10 x 3.8     | Yes      | 0.22 - 47             | 3.6 - 34          | -R56M, -3R3M, -470M | Level 3            | Yes                |
| SRP1040VA  |  | 11 x 10 x 3.8     | Yes      | 0.47 - 47             | 3.5 - 27          | -3R3M, -100M, -470M | Level 3            | Yes                |
| SRP1050WA  |  | 11 x 10 x 5.1     | Yes      | 1 - 100               | 2.7 - 30          | -1R0M, -8R2M, -150M | Level 3            | Yes                |
| SRP1238A   |  | 13.5 x 12.5 x 3.3 | Yes      | 0.1 - 10              | 7 - 43            | -1R0Y, -100M, -101M | Level 3            | Yes                |
| SRP1245A   |  | 13.5 x 12.5 x 4.8 | Yes      | 0.33 - 18             | 7.5 - 42          | -R33M, -2R2M, -100M | Level 3            | Yes                |
| SRP1265A   |  | 13.5 x 12.5 x 6.2 | Yes      | 0.15 - 68             | 6.5 - 55          | -R33M, -1R5M, -680M | Level 3            | Yes                |
| SRP1265WA  |  | 13.6 x 12.6 x 6.2 | Yes      | 0.68 - 47             | 5.2 - 36.5        | -R68M, -5R6M, -220M | Level 3            | Yes                |
| SRP1770TA  |  | 17.3 x 16.9 x 6.7 | Yes      | 1 - 100               | 5.3 - 52          | -330M, -331M, -681M | Level 3            | Yes                |
| SRP2010TMA |  | 2.0 x 1.6 x 0.8   | Yes      | 0.24 - 2.2            | 2.3 - 6.5         | -R33M, -1R0M, -2R2M | Level 3            | Yes                |
| SRP2012TMA |  | 2.0 x 1.6 x 1.0   | Yes      | 0.22 - 2.2            | 2.5 - 7.0         | -R47M, -1R0M, -2R2M | Level 3            | Yes                |
| SRP2313AA  |  | 23.5 x 22 x 12.6  | Yes      | 1.5 - 68              | 21 - 57           | -1R5M, -6R8M, -330M | Level 3            | Yes                |
| SRP2510A   |  | 2.5 x 2 x 1       | Yes      | 0.22 - 4.7            | 1.36 - 5.9        | -R47M, -1R0M, -4R7M | Level 3            | Yes                |
| SRP2510TMA |  | 2.5 x 2.0 x 0.8   | Yes      | 0.22 - 2.2            | 2.8 - 7.2         | -R22M, -1R5M, -2R2M | Level 3            | Yes                |
| SRP2512A   |  | 2.5 x 2 x 1.2     | Yes      | 0.47 - 4.7            | 1.55 - 4.6        | -R47M, -1R0M, -4R7M | Level 3            | Yes                |
| SRP2512TMA |  | 2.5 x 2.0 x 1.0   | Yes      | 0.24 - 2.2            | 3.1 - 7.3         | -R47M, -1R0M, -2R2M | Level 3            | Yes                |

## Power Inductors

| Model     | Photo                                                                               | Size (mm)        | Shielded | Inductance Range (μH) | Current Range (A) | AEC-Q200 Compliant         | PPAP Documentation | IATF 16949 Factory |
|-----------|-------------------------------------------------------------------------------------|------------------|----------|-----------------------|-------------------|----------------------------|--------------------|--------------------|
| SRP3012TA |    | 3.5 x 3.2 x 1.2  | Yes      | 0.15 - 10             | 1 - 10            | -1R0M, -100M, -R33M        | Level 3            | Yes                |
| SRP3020TA |    | 3.5 x 3.2 x 2    | Yes      | 0.1 - 10              | 1.4 - 10.5        | -2R2M, -6R8M, -R33M        | Level 3            | Yes                |
| SRP3212A  |    | 3.2 x 2.5 x 1.0  | Yes      | 0.33 - 4.7            | 2.2 - 8.5         | -R33M, -1R5M, -2R2M, -4R7M | Level 3            | Yes                |
| SRP3220A  |    | 3.2 x 2.5 x 1.8  | Yes      | 0.33 - 6.8            | 2.3 - 8.5 A       | -R68M, -1R5M, -4R7M        | Level 3            | Yes                |
| SRP4012TA |    | 4.45 x 4 x 1     | Yes      | 0.1 - 10              | 1.3 - 11.5        | -1R0M, -4R7M, -100M        | Level 3            | Yes                |
| SRP4018FA |    | 4.1 x 4.1 x 1.8  | Yes      | 0.33 - 1.2            | 9.5 - 15          | -R47M, -R68M, -1R2M        | Level 3            | Yes                |
| SRP4020FA |    | 4.1 x 4.1 x 1.9  | Yes      | 0.47 - 4.7            | 5.1 - 13.2        | -R68M, -1R2M, -4R7M        | Level 3            | Yes                |
| SRP4020TA |    | 4.45 x 4 x 1.8   | Yes      | 0.1 - 22              | 1.2 - 12          | -R47M, -2R2M, -100M        | Level 3            | Yes                |
| SRP4030FA |    | 4.1 x 4.1 x 2.8  | Yes      | 0.9 - 6.8             | 4 - 11.2          | -R90M, -3R3M, -6R8M        | Level 3            | Yes                |
| SRP5015TA |    | 5.7 x 5.2 x 1.3  | Yes      | 0.15 - 22             | 1.2 - 16          | -R47M, -3R3M, -100M        | Level 3            | Yes                |
| SRP5020TA |    | 5.7 x 5.2 x 1.8  | Yes      | 0.33 - 10             | 2.3 - 12          | -R47M, -2R2M, -100M        | Level 3            | Yes                |
| SRP5030CA |    | 5.5 x 5.3 x 2.9  | Yes      | 0.15 - 4.7            | 5.9 - 22.2        | -R33M, -1R2M, -4R7M        | Level 3            | Yes                |
| SRP5030TA |    | 5.7 x 5.2 x 2.8  | Yes      | 0.33 - 10             | 2.75 - 14         | -R47M, -2R2M, -100M        | Level 3            | Yes                |
| SRP5030WA |    | 7.1 x 6.6 x 2.8  | Yes      | 0.68 - 22             | 2.2 - 12          | -R68M, -3R3M, -150M, -220M | Level 3            | Yes                |
| SRP5050FA |    | 5.5 x 5.3 x 4.8  | Yes      | 5.6 - 8.2             | 0.18 - 4.5        | -5R6M, -8R2M, -220M1       | Level 3            | Yes                |
| SRP6030CA |    | 6.6 x 6.4 x 2.9  | Yes      | 0.18 - 4.5            | 7 - 32            | -R33M, -1R2M, -3R3M        | Level 3            | Yes                |
| SRP6030WA |   | 5.5 x 5.25 x 2.8 | Yes      | 0.47 - 22             | 2.9 - 19          | -R47M, -4R7M, -220M        | Level 3            | Yes                |
| SRP6030VA |  | 7.1 x 6.6 x 2.8  | Yes      | 0.47 - 22             | 3.4 - 20          | -R68M, -4R7M, -150M        | Level 3            | Yes                |
| SRP6050CA |  | 6.6 x 6.4 x 4.8  | Yes      | 1 - 4.7               | 8.5 - 20          | -1R0M, -2R2M, -4R7M        | Level 3            | Yes                |
| SRP6060FA |  | 6.6 x 6.4 x 5.8  | Yes      | 2.2 - 22              | 5 - 14            | -4R7M, -100M, -220M        | Level 3            | Yes                |
| SRP7020TA |  | 7 x 6.6 x 1.8    | Yes      | 0.1 - 10              | 2.8 - 21          | -R33M, -1R0M, -100M        | Level 3            | Yes                |
| SRP7028A  |  | 7.3 x 6.6 x 2.8  | Yes      | 0.15 - 33             | 2 - 27            | -R33M, -2R2M, -100M        | Level 3            | Yes                |
| SRP7028AA |  | 6.6 x 7.1 x 2.8  | Yes      | 0.15 - 22             | 2.5 - 30          | -R33M, -2R2M, -100M        | Level 3            | Yes                |
| SRP7030CA |  | 7.8 x 7.6 x 2.9  | Yes      | 1 - 8.2               | 5.9 - 21.8        | -1R0M, -3R3M, -6R8M        | Level 3            | Yes                |
| SRP7050AA |  | 6.6 x 7.3 x 4.8  | Yes      | 0.47 - 47             | 2.6 - 22          | -1R0M, -3R3M, -6R8M        | Level 3            | Yes                |
| SRP7050TA |  | 7.3 x 6.6 x 4.8  | Yes      | 0.33 - 68             | 1.2 - 25          | -R33M, -1R5M, -680M        | Level 3            | Yes                |
| SRP7050WA |  | 7.9 x 7.3 x 5.2  | Yes      | 1 - 100               | 2.2 - 20          | -1R5M, -3R3M, -680M        | Level 3            | Yes                |
| SRP8540A  |  | 8.8 x 8.4 x 3.8  | Yes      | 0.22 - 22             | 3.9 - 31          | -R22M, -3R3M, -220M        | Level 3            | Yes                |

## Power Inductors

| Model     | Photo                                                                              | Size (mm)       | Shielded | Inductance Range (μH) | Current Range (A) | AEC-Q200 Compliant                | PPAP Documentation | IATF 16949 Factory |
|-----------|------------------------------------------------------------------------------------|-----------------|----------|-----------------------|-------------------|-----------------------------------|--------------------|--------------------|
| SRR0735HA |   | 7.3 x 7.3 x 3.5 | Yes      | 10 - 680              | 0.21 - 2.1        | -100M, -330M, -101M, -102M        | Level 3            | Yes                |
| SRR0745HA |   | 7.3 x 7.3 x 4.5 | Yes      | 10 - 1000             | 0.2 - 2.1         | -100M, -101M, -102M               | Level 3            | Yes                |
| SRR1050HA |   | 10 x 10.2 x 7.8 | Yes      | 0.68 - 470            | 0.6 - 9.5         | -R22M, -3R3M, -220M               | Level 3            | Yes                |
| SRR3818A  |   | 3.8 x 3.8 x 1.8 | Yes      | 1 - 100               | 0.34 - 3.6        | -2R2Y, -3R3Y, -100M               | Level 3            | Yes                |
| SRR4818A  |   | 4.8 x 4.8 x 1.8 | Yes      | 1 - 47                | 0.75 - 5.1        | -1R0Y, -100M, -220M               | Level 3            | Yes                |
| SRR4828A  |   | 4.8 x 4.8 x 2.8 | Yes      | 1.2 - 220             | 0.5 - 5           | -1R2Y, -220M, -470M, -221M        | Level 3            | Yes                |
| SRR1210A  |   | 12 x 12 x 10    | Yes      | 1 - 1000              | 0.75 - 11         | -1R0Y, -101M, -102M               | Level 3            | Yes                |
| SRR5228A  |   | 5.2 x 5.2 x 3.2 | Yes      | 1.2 - 1000            | 0.21 - 5.2        | -1R2Y, -101M, -102M               | Level 3            | Yes                |
| SRR5828A  |   | 5.8 x 5.8 x 3.2 | Yes      | 2.6 - 1000            | 0.21 - 4.5        | -2R6Y, -150M, -180M, -681M, -102M | Level 3            | Yes                |
| SRR6838A  |   | 6.8 x 6.8 x 4.2 | Yes      | 1 - 100               | 1.1 - 6.8         | -1R0Y, -220M, -101M               | Level 3            | Yes                |
| SRU1028A  |   | 10 x 10 x 2.8   | Yes      | 1 - 150               | 0.6 - 7           | -100Y, -220Y, -330Y               | Level 3            | Yes                |
| SRU1038A  |   | 10 x 10 x 3.8   | Yes      | 1.5 - 330             | 0.55 - 7.2        | -3R5Y, -330Y, -101Y               | Level 3            | Yes                |
| SRU1048A  |   | 10 x 10 x 4.8   | Yes      | 1.5 - 330             | 0.65 - 7          | -R47M, -2R2M, -100M               | Level 3            | Yes                |
| SRU1063A  |   | 10 x 10 x 6.8   | Yes      | 4.7 - 100             | 1.1 - 5.5         | -4R7Y, -220M, -680M               | Level 3            | Yes                |
| SRU3028A  |   | 3.5 x 3.3 x 2.8 | Yes      | 10 - 33               | 0.47 - 0.72       | -100Y, -220Y, -330Y               | Level 3            | Yes                |
| SRU5028A  |   | 5.2 x 5.2 x 2.8 | Yes      | 1.2 - 100             | 0.47 - 3.5        | -2R2Y, -150Y, -101Y               | Level 3            | Yes                |
| SRU6025A  |   | 6.2 x 6.5 x 2.5 | Yes      | 1.2 - 220             | 0.42 - 4          | -2R2Y, -220Y, -221Y               | Level 3            | Yes                |
| SRU8028A  |   | 8 x 8 x 2.8     | Yes      | 2.5 - 100             | 0.75 - 4.5        | -6R8Y, -220Y, -101Y               | Level 3            | Yes                |
| SRU8045A  |  | 8 x 8 x 4.8     | Yes      | 3.5 - 100             | 1 - 5             | -6R2Y, -330M, -101M               | Level 3            | Yes                |

## Common Mode Chip Inductors

| Model          | Photo                                                                              | Size (mm)       | Inductance Range (Ohms) | Inductance Range (μH) | Current Range (A) | AEC-Q200 Compliant         | PPAP Documentation | IATF 16949 Factory |
|----------------|------------------------------------------------------------------------------------|-----------------|-------------------------|-----------------------|-------------------|----------------------------|--------------------|--------------------|
| SRF2012AA      |   | 2 x 1.2 x 1.2   | 67 - 360                | 300 - 400             | 0.25 - 0.5        | -670Y, -161Y, -361Y        | Level 3            | Yes                |
| SRF2012-801YA  |   | 2 x 1.2 x 1.2   | 800                     | —                     | 0.3               | -801YA                     | Level 3            | Yes                |
| SRF2012-900YA  |   | 2 x 1.2 x 1.2   | 90                      | —                     | 0.3               | -901YA                     | Level 3            | Yes                |
| SRF3216A       |   | 3.2 x 1.6 x 2   | 90 - 2200               | 200 - 400             | 0.3 - 1.2         | -900Y, -261Y, -222Y        | Level 3            | Yes                |
| SRF3225TABG    |   | 3.3 x 2.5 x 2.5 | —                       | 100                   | 0.1               | -101Y                      | Level 3            | Yes                |
| SRF3225TABM    |   | 3.3 x 2.5 x 2.5 | —                       | 200                   | 0.07              | -201Y                      | Level 3            | Yes                |
| SRF3225TAC     |   | 3.2 x 2.5 x 2.5 | —                       | 11 - 100              | 0.15 - 0.3        | -110Y, -220Y, -510Y, -101Y | Level 3            | Yes                |
| SRF3225TAFD    |   | 3.3 x 2.5 x 2.5 | —                       | 100                   | 0.15              | -101Y                      | Level 3            | Yes                |
| SRF3225TAP     |   | 3.2 x 2.5 x 2.2 | —                       | —                     | 1.5 - 2           | -102Y, -501Y               | Level 3            | Yes                |
| SRF4530A       |   | 4.5 x 3.2 x 3   | —                       | 11 - 100              | 0.20 - 0.36       | -110Y, -220Y, -101Y        | Level 3            | Yes                |
| SRF4530AG-201Y |   | 4.5 x 3.2 x 3   | —                       | 200                   | 0.1               | -201Y                      | Level 3            | Yes                |
| SRF4532TA      |   | 4.5 x 3.2 x 2.8 | —                       | 0.35 - 10             | 0.9 - 4           | -282Y, -601Y, -900Y        | Level 3            | Yes                |
| SRF7038A       |   | 7 x 6 x 3.      | —                       | 0.83 - 18.2           | 1.5 - 15          | -501Y, -701Y, -302Y        | Level 3            | Yes                |
| SRF9005A       |  | 9.2 x 6 x 5     | —                       | 10 - 6500             | 0.3 - 1.6         | -100Y, -471Y, -652Y        | Level 3            | Yes                |

## Chip Inductors

| Model     | Photo                                                                               | Size (mm)          | Inductance Range (μH) | Current Range (A) | AEC-Q200 Compliant         | PPAP Documentation | IATF 16949 Factory |
|-----------|-------------------------------------------------------------------------------------|--------------------|-----------------------|-------------------|----------------------------|--------------------|--------------------|
| CC322522A |  | 3.2 x 2.9 x 2.4    | 1 - 100               | 0.18 - 1.45       | -4R7K, -101K, -470K        | Level 3            | Yes                |
| CC453232A |  | 4.5 x 3.2 x 3.2    | 1 - 1000              | 0.09 - 2.30       | -330KL, -101KL -102KL      | Level 3            | Yes                |
| CW2012A   |  | 1.6 x 2.4 x 1.4    | 2 - 1000              | 105 - 800 mA      | -1R0K, -2N0D, -56NK        | Level 3            | Yes                |
| CWF1610A  |  | 1.0 x 1.6 x 1.0    | 0.1 - 22              | 200 - 1400 mA     | -4R7M, -220M, -R10K, -R56K | Level 3            | Yes                |
| CWF1612A  |  | 1.15 x 1.65 x 1.05 | 0.1 - 22              | 270 - 1500 mA     | -2R2K, -47NK, -72NK, -100K | Level 3            | Yes                |
| CWF2012A  |  | 1.6 x 2.4 x 1.4    | 0.47 - 33             | 145 - 750 mA      | -4R7K, -330K, -R47K        | Level 3            | Yes                |
| CWP3230A  |  | 3.2 x 2.5 x 3.0    | 2.2 - 47              | 0.5 - 1.9         | -2R2M, -100M, -470M        | Level 3            | Yes                |

## Line Filters

| Model  | Photo                                                                               | Size (mm)     | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|--------|-------------------------------------------------------------------------------------|---------------|--------------------|--------------------|--------------------|
| DR334A |  | 9 x 5.8 x 3.6 | Yes                | Level 3            | Yes                |

## Transformers

| Model             | Photo                                                                               | Size (mm)          | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|-------------------|-------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|
| BA60951CS         |    | 13.6 x 10.5 x 5.97 | Yes                | Level 3            | Yes                |
| HCTSM1110103HAL   |    | 19.6 x 13.5 x 9.6  | Yes                | Level 3            | Yes                |
| HCTSM8xxxxxAL     |    | 15.2 x 10.8 x 6.5  | Yes                | Level 3            | Yes                |
| HCT8xxxxEAL       |    | 15.2 x 10.6 x 8.0  | Yes                | Level 3            | Yes                |
| HVMA01F35A-ST10S  |    | 9.5 x 10.3 x 12.0  | Yes                | Level 3            | Yes                |
| HVMA03F4A-LP8S    |    | 17.2 x 12.8 x 10   | Yes                | Level 3            | Yes                |
| HVMA03F40C-ST10S  |    | 10.3 x 9.5 x 13    | Yes                | Level 3            | Yes                |
| HVMA03T100A-ST10S |    | 9.5 x 10.3 x 13.2  | Yes                | Level 3            | Yes                |
| PKSEP6            |    | 9.3 x 7.8 x 7.6    | Yes                | Level 3            | Yes                |
| SM453229A-381N7Y  |    | 4.7 x 3.3 x 2.9    | Yes                | Level 3            | Yes                |
| SM91071AL         |    | 12.8 x 9.5 x 5.65  | Yes                | Level 3            | Yes                |
| SM91072AL         |    | 12.8 x 9.5 x 5.65  | Yes                | Level 3            | Yes                |
| SM91073AL         |    | 12.8 x 9.5 x 5.65  | Yes                | Level 3            | Yes                |
| SM91074AL         |    | 12.8 x 9.5 x 5.65  | Yes                | Level 3            | Yes                |
| SM91259AL         |   | 14.5 x 12.0 x 14.0 | Yes                | Level 3            | Yes                |
| SM91501AL         |  | 14.8 x 14.73 x 5   | Yes                | Level 3            | Yes                |
| SM91501ALO        |  | 14.8 x 14.7 x 5    | Yes                | Level 3            | Yes                |
| SM91502AL         |  | 7.62 x 8.89 x 5.72 | Yes                | Level 3            | Yes                |
| SM91502ALA        |  | 7.6 x 8.9 x 5.7    | Yes                | Level 3            | Yes                |
| SM91508AL         |  | 8.38 x 10.5 x 4.25 | Yes                | Level 3            | Yes                |
| SM91509AL         |  | 14.81 x 14.73 x 5  | Yes                | Level 3            | Yes                |
| SM91514AL         |  | 7.6 x 8.9 x 5.7    | Yes                | Level 3            | Yes                |
| SM91523AL         |  | 19 x 19.60 x 10    | Yes                | Level 3            | Yes                |
| SM91525AL         |  | 8.38 x 10.5 x 4.95 | Yes                | Level 3            | Yes                |
| SM91534AL         |  | 12.5 x 31.5 x 9.5  | Yes                | Level 3            | Yes                |
| SM91536AL         |  | 16.4 x 10.4 x 8.4  | Yes                | Level 3            | Yes                |
| SM91542AL         |  | 7.62 x 8.89 x 5.72 | Yes                | Level 3            | Yes                |
| SM91543AL         |  | 12.5 x 31.5 x 9.5  | Yes                | Level 3            | Yes                |
| SM91574AL         |  | 9.19 X 8.12 X 6.08 | Yes                | Level 3            | Yes                |
| SM91801AL         |  | 8.5 x 14 x 5.5     | Yes                | Level 3            | Yes                |
| SM91803AL         |  | 8.5 x 14.0 x 3.8   | Yes                | Level 3            | Yes                |
| SM91806AL         |  | 8.5 x 17.4 x 5.5   | Yes                | Level 3            | Yes                |
| SM91808AL         |  | 8.5 x 17.4 x 3.8   | Yes                | Level 3            | Yes                |
| SM91872AL         |  | 17.4 x 10.6 x 8.1  | Yes                | Level 3            | Yes                |

## Multifuse® PPTC Resettable Fuses

| Model                                    | Photo                                                                               | Size (EIA, mm)          | Hold Current (A) | Max. Operating Voltage (V) | Max. Operating Current (A) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|------------------|----------------------------|----------------------------|--------------------|--------------------|--------------------|
| MF-DC                                    |    | Custom                  | Custom           | 16                         | 50                         | Yes                | Level 3            | Yes                |
| MF-LSMF                                  |    | 2920, 7555              | 1.85 - 3.0       | 6 - 33                     | 20 - 40                    | Yes                | Level 3            | Yes                |
| MF-MSMF                                  |    | 1812, 4532              | 0.1 - 3.0        | 6 - 60                     | 10 - 100                   | Yes                | Level 3            | Yes                |
| MF-MSHT                                  |    | 1812                    | 0.20 - 1.75      | 9 - 42                     | 40                         | Yes                | Level 3            | Yes                |
| MF-NSHT                                  |    | 1206, 3216              | 0.10 - 0.75      | 12 - 30                    | 20 - 40                    | Yes                | Level 3            | Yes                |
| MF-NSMF                                  |    | 1206, 3216              | 0.12 - 2.0       | 6 - 30                     | 10 - 100                   | Yes                | Level 3            | Yes                |
| MF-PSHT                                  |    | 0805, 2012              | 0.05 - 0.50      | 12 - 16                    | 40                         | Yes                | Level 3            | Yes                |
| MF-R<br>(except MF-R005, 010, 017, 1100) |    | Various                 | 0.20 - 9.0       | 30, 60                     | 40                         | Yes                | Level 3            | Yes                |
| MF-RG                                    |    | Various                 | 3.0 - 11.0       | 16                         | 100                        | Yes                | Level 3            | Yes                |
| MF-RHT                                   |    | Various                 | 0.50 - 13.0      | 16 - 32                    | 40 - 100                   | Yes                | Level 3            | Yes                |
| MF-SM                                    |    | 2920, 3425              | 0.30 - 3.0       | 16                         | 100                        | Yes                | Level 3            | Yes                |
| MF-SMHT                                  |    | 3425, 8763 / 2920, 7555 | 1.36 - 3.0       | 16                         | 100                        | Yes                | Level 3            | Yes                |
| MF-USHT                                  |   | 1210, 3225              | 0.10 - 2.0       | 9 - 30                     | 20 - 40                    | Yes                | Level 3            | Yes                |
| MF-USMF                                  |  | 1210, 3225              | 0.05 - 0.50      | 6 - 30                     | 10 - 40                    | Yes                | Level 3            | Yes                |

## SinglFuse™ SMD Fuses\*

| Model        | Photo                                                                               | Size (EIA, mm) | Rated Current (A) | Rated Voltage (V) | Operating Temperature (°C) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|--------------|-------------------------------------------------------------------------------------|----------------|-------------------|-------------------|----------------------------|--------------------|--------------------|--------------------|
| SF-0603HIA-M |  | 0603, 1608     | 1 - 5             | 32                | -55 - +125                 | Yes                | Level 3            | Yes                |
| SF-0603SA-M  |  | 0603, 1608     | 0.5 - 8           | 24 - 65           | -55 - +150                 | Yes                | Level 3            | Yes                |
| SF-0603SPA-R |  | 0603, 1608     | 1 - 8             | 63                | -55 - +150                 | Yes                | Level 3            | Yes                |
| SF-1206HHA-R |  | 1206, 3216     | 8 - 30            | 50                | -55 - +125                 | Yes                | Level 3            | Yes                |
| SF-1206HIA-M |  | 1206, 3216     | 0.5 - 6           | 24 - 65           | -55 - +150                 | Yes                | Level 3            | Yes                |
| SF-1206SA-M  |  | 1206, 3216     | 0.5 - 5           | 65                | -55 - +150                 | Yes                | Level 3            | Yes                |
| SF-1206SA-R  |  | 1206, 3216     | 10 - 20           | 32                | -55 - +150                 | Yes                | Level 3            | Yes                |
| SF-1206SA-W  |  | 1206, 3216     | 1.5 - 15          | 32 - 110          | -55 - +125                 | Yes                | Level 3            | Yes                |
| SF-2410FA-W  |  | 2410, 6125     | 1 - 10            | 125 - 250         | -55 - +125                 | Yes                | Level 3            | Yes                |
| SF-2410FPA-W |  | 2410, 6125     | 12 - 20           | 65                | -55 - +125                 | Yes                | Level 3            | Yes                |

\*Meets Bourns internal AEC-Q200 equivalent test plan.

## POWrFuse™ High-Power Fuses

| Model | Photo                                                                             | Dimensions (mm) | Rated Current (A) | Rated Voltage      | Interrupting Rating                                   | Mounting Type | Compliant Standard | PPAP Documentation |
|-------|-----------------------------------------------------------------------------------|-----------------|-------------------|--------------------|-------------------------------------------------------|---------------|--------------------|--------------------|
| PF-K  |  | 10 dia. x 38    | 30-50 A           | 275 VAC<br>500 VDC | 10 kA @ 275 VAC<br>20 kA @ 500 VDC<br>10 kA @ 450 VDC | Bolt<br>PCB   | ISO8820-8          | Yes                |

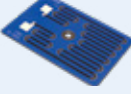
## TBU® High-Speed Protectors

| Model    | Photo                                                                             | Size (mm)       | V <sub>imp</sub> | V <sub>rms</sub> | AEC-Q101 Compliant | PPAP Documentation | IATF 16949 Factory |
|----------|-----------------------------------------------------------------------------------|-----------------|------------------|------------------|--------------------|--------------------|--------------------|
| TBU-CA-Q |  | 6.5 mm x 4 mm   | 250 - 850 V      | 100 - 425 V      | Yes                | Level 3            | Yes                |
| TBU-DB-Q |  | 6.5 mm x 5.5 mm | 550 V            | 100 V            | Yes                | Level 3            | Yes                |

## Varistor Products

| Model    | Photo                                                                               | Size (EIA, mm)                     | Peak Single Pulse Current 8/20 μs (A) | Operating Temperature (°C) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|----------|-------------------------------------------------------------------------------------|------------------------------------|---------------------------------------|----------------------------|--------------------|--------------------|--------------------|
| AVHT-SMD |    | 0805, 1206, 1812, 2220, 3225       | 200 - 2000                            | -55 - +150                 | Yes                | Level 3            | Yes                |
| AV-TH    |    | 602, 802, 902, 1103                | 400 - 2000                            | -55 - +125                 | Yes                | Level 3            | Yes                |
| AV-SMD   |    | 0805, 1206, 1812, 2220, 3225       | 200 - 2000                            | -55 - +125                 | Yes                | Level 3            | Yes                |
| BVRA     |  | 0402, 0603, 0805, 1206, 1210, 1812 | 10 ~ 220                              | -40 - +125                 | Yes                | Level 3            | Yes                |
| OV       |  | 9, 12                              | 800, 1200                             | -55 - +125                 | Yes                | Level 3            | Yes                |
| ZV       |  | 0603, 0805, 1206, 1210, 1812, 2220 | 30 - 1200                             | -55 - +125                 | Yes                | Level 3            | Yes                |
| ZVHT     |  | 0603, 0805, 1206, 1210, 1812, 2220 | 30 - 1200                             | -55 - +150                 | Yes                | Level 3            | Yes                |

## Thick Film on Steel

| Model         | Photo                                                                               | Size (mm)        | Resistance Range (Ohms) | Resistance Tolerance | Dielectric Withstand (VDC) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|---------------|-------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|----------------------------|--------------------|--------------------|--------------------|
| TFOS30-1-150T |  | 101.6 x 70 x 0.9 | 150                     | ±10 % Std.           | 2500                       | Yes                | Level 3            | Yes                |

## Mini-breaker Thermal Cutoff Devices\*

| Model   | Photo                                                                               | Size (mm)          | Trip Temp. (°C) | Reset Temp. Min. (°C) | AEC-Q200 Compliant | PPAP Documentation | IATF 16949 Factory |
|---------|-------------------------------------------------------------------------------------|--------------------|-----------------|-----------------------|--------------------|--------------------|--------------------|
| AD55xBB |    | 12.35 x 3.75 x 1.4 | 55              | 20                    | Yes                | Level 3            | Yes                |
| AD60xBB |                                                                                     |                    | 60              | 20                    |                    |                    |                    |
| AD65xBB |                                                                                     |                    | 65              | 20                    |                    |                    |                    |
| AD70xBB |                                                                                     |                    | 70              | 20                    |                    |                    |                    |
| AD72xBB |                                                                                     |                    | 72              | 40                    |                    |                    |                    |
| AD75xBB |                                                                                     |                    | 75              | 40                    |                    |                    |                    |
| AD77xBB |                                                                                     |                    | 77              | 40                    |                    |                    |                    |
| AD80xBB |                                                                                     |                    | 80              | 40                    |                    |                    |                    |
| AD82xBB |                                                                                     |                    | 82              | 40                    |                    |                    |                    |
| AD85xBB |                                                                                     |                    | 85              | 40                    |                    |                    |                    |
| AD90xBB |                                                                                     |                    | 90              | 40                    |                    |                    |                    |
| AD95xBB |                                                                                     |                    | 95              | 40                    |                    |                    |                    |
| ADA0xBB |                                                                                     |                    | 100             | 40                    |                    |                    |                    |
| ADA5xBB |                                                                                     |                    | 105             | 40                    |                    |                    |                    |
| ADB0xBB |                                                                                     |                    | 110             | 40                    |                    |                    |                    |
| ADB5xBB |                                                                                     |                    | 115             | 40                    |                    |                    |                    |
| ADC0xBB |                                                                                     |                    | 120             | 40                    |                    |                    |                    |
| ADC5xBB |                                                                                     |                    | 125             | 40                    |                    |                    |                    |
| ADD0xBB |                                                                                     |                    | 130             | 40                    |                    |                    |                    |
| ADD5xBB |                                                                                     |                    | 135             | 40                    |                    |                    |                    |
| ADE0xBB |                                                                                     |                    | 140             | 40                    |                    |                    |                    |
| ADE5xBB |                                                                                     |                    | 145             | 40                    |                    |                    |                    |
| ADF0xBB |                                                                                     |                    | 150             | 40                    |                    |                    |                    |
| SD55xBB |  | 10.35 x 3.75 x 1.4 | 55              | 20                    | Yes                | Level 3            | Yes                |
| SD60xBB |                                                                                     |                    | 60              | 20                    |                    |                    |                    |
| SD65xBB |                                                                                     |                    | 65              | 20                    |                    |                    |                    |
| SD70xBB |                                                                                     |                    | 70              | 20                    |                    |                    |                    |
| SD72xBB |                                                                                     |                    | 72              | 40                    |                    |                    |                    |
| SD75xBB |                                                                                     |                    | 75              | 40                    |                    |                    |                    |
| SD77xBB |                                                                                     |                    | 77              | 40                    |                    |                    |                    |
| SD80xBB |                                                                                     |                    | 80              | 40                    |                    |                    |                    |
| SD82xBB |                                                                                     |                    | 82              | 40                    |                    |                    |                    |
| SD85xBB |                                                                                     |                    | 85              | 40                    |                    |                    |                    |
| SD90xBB |                                                                                     |                    | 90              | 40                    |                    |                    |                    |
| SD95xBB |                                                                                     |                    | 95              | 40                    |                    |                    |                    |
| SDA0xBB |                                                                                     |                    | 100             | 40                    |                    |                    |                    |
| SDA5xBB |                                                                                     |                    | 105             | 40                    |                    |                    |                    |
| SDB0xBB |                                                                                     |                    | 110             | 40                    |                    |                    |                    |
| SDB5xBB |                                                                                     |                    | 115             | 40                    |                    |                    |                    |
| SDC0xBB |                                                                                     |                    | 120             | 40                    |                    |                    |                    |
| SDC5xBB |                                                                                     |                    | 125             | 40                    |                    |                    |                    |
| SDD0xBB |                                                                                     |                    | 130             | 40                    |                    |                    |                    |
| SDD5xBB |                                                                                     |                    | 135             | 40                    |                    |                    |                    |
| SDE0xBB |                                                                                     |                    | 140             | 40                    |                    |                    |                    |
| SDE5xBB |                                                                                     |                    | 145             | 40                    |                    |                    |                    |
| SDF0xBB |                                                                                     |                    | 150             | 40                    |                    |                    |                    |

## ChipGuard® ESD Suppressors

| Model      | Photo                                                                             | Size (mm)  | V <sub>rms</sub> | AEC-Q101 Compliant | PPAP Documentation | IATF 16949 Factory |
|------------|-----------------------------------------------------------------------------------|------------|------------------|--------------------|--------------------|--------------------|
| CGA0805MLA |  | 0805       | 14 - 20          | Yes                | Level 3            | Yes                |
| CGAMLC     |  | 0402, 0603 | —                | Yes                | Level 3            | Yes                |

## Transient Voltage Suppressor (TVS) Diodes

| Model                      | Photo                                                                               | Package        | Size                   | P <sub>pp</sub> (W) |                 | V <sub>RWM</sub> (V) | AEC-Q101 Compliant | PPAP Documentation | IATF 16949 Factory |
|----------------------------|-------------------------------------------------------------------------------------|----------------|------------------------|---------------------|-----------------|----------------------|--------------------|--------------------|--------------------|
|                            |                                                                                     |                |                        | 8/20 $\mu$ s        | 10/1000 $\mu$ s |                      |                    |                    |                    |
| 5.0SMDJ-Q, 5.0SMDJ-QH      |    | DO-214AB (SMC) | 7.9 mm x 5.9 mm        |                     | 5000            | 5 - 170              | Yes                | Level 3            | Yes                |
| 15KPA-SD-Q                 |    | DO-218         | 15.5 mm x 10.0 mm      |                     | 15000           | 16 - 66              | Yes                | Level 3            | Yes                |
| CDSOD323-TxxS-Q            |    | SOD-323        | Various                |                     | 500             | 5 - 18               | Yes                | Level 3            | Yes                |
| CDSOD323-T12C-DSLQ         |    | SOD-323        | 2.5 mm x 1.3 mm        | 350                 |                 | 12                   | Yes                | Level 3            | Yes                |
| CDSOD323-T24C-DSLQ         |    | SOD-323        | 2.5 mm x 1.3 mm        | 350                 |                 | 24                   | Yes                | Level 3            | Yes                |
| CDSOT23-SM712-Q            |    | SOT-23         | 2.9 mm x 2.3 mm x 1 mm | 400                 |                 | 7 / 12               | Yes                | Level 3            | Yes                |
| CDSOT23-T03-Q ~ T15C-Q     |    | SOT-23         | 2.9 mm x 2.3 mm        | 500                 |                 | 3.3 / 8 / 15         | Yes                | Level 3            | Yes                |
| CDSOT23-T24C-Q             |   | SOT-23         | 2.9 mm x 2.3 mm x 1 mm | 414                 |                 | 24                   | Yes                | Level 3            | Yes                |
| CDSOT23-T24CAN-Q           |  | SOT-23         | 2.9 mm x 2.3 mm        | 200                 |                 | 24                   | Yes                | Level 3            | Yes                |
| SM85-Q                     |  | DO-218         | 15.5 mm x 10.0 mm      |                     | 6600            | 16 - 43              | Yes                | Level 3            | Yes                |
| SM85F-Q                    |  | DFN            | 10.5 mm x 8.1 mm       |                     | 7000            | 24 - 36              | Yes                | Level 3            | Yes                |
| SMA6J-Q                    |  | DO-214AC (SMA) | 5.1 mm x 2.3 mm        |                     | 600             | 5 - 130              | Yes                | Level 3            | Yes                |
| SMAJ-Q, SMAJ-QH / P4SMA-Q  |  | DO-214AC (SMA) | 5.1 mm x 2.3 mm        |                     | 400             | 5 - 220 / 5.8 - 214  | Yes                | Level 3            | Yes                |
| SMBJ-Q, SMBJ-QH / P6SMB-Q  |  | DO-214AA (SMB) | 5.4 mm x 3.6 mm        |                     | 600             | 5 - 220 / 5.8 - 214  | Yes                | Level 3            | Yes                |
| SMCJ-Q, SMCJ-QH / 1.5SMC-Q |  | DO-214AB (SMC) | 7.9 mm x 5.9 mm        |                     | 1500            | 5 - 120 / 5.8 - 111  | Yes                | Level 3            | Yes                |
| SMF4C-Q                    |  | DFN3419        | 3.4 x 1.9 x 0.9 mm     |                     | 400             | 28, 30, 36           | Yes                | Level 3            | Yes                |
| SMLJ-Q, SMLJ-QH            |  | DO-214AB (SMC) | 7.9 mm x 5.9 mm        |                     | 3000            | 12 - 58              | Yes                | Level 3            | Yes                |

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