

Size 3920 (10x5.2mm) Current Shunt Resistors

SRC39 Series



SRC39 Series Current Shunt Resistors aid precision measurement and high-current applications. A wide range of precision shunts, designed for use with kilowatt-hour meters and other high-current applications where a high level of accuracy is required, is now available from PROSEMI.

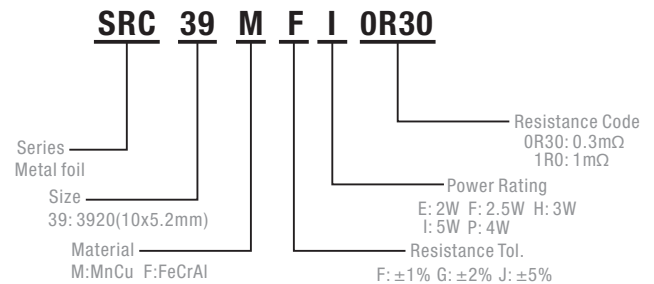
Features

- Power rating up to 5 W at 100°C
- Excellent long term stability
- Continuous current load up to 160A at 0.2mΩ
- Halogen free, lead free and RoHS compliant



Applications

- Power modules
- Frequency converters
- Current sensor for power hybrid sources
- High current for automotive
- Lithium battery protection board



| Part Number | Power Rating $P_{100^{\circ}\text{C}}$ (W) | Resistance Range (mΩ) | TCR (ppm/°C) | Thickness (mm) | Material |
|--------------|--|--------------------------|-----------------|-------------------|----------|
| SRC39F_E5R0 | 2 | 5 | ±50 | 0.85±0.1 | FeCrAl |
| SRC39F_F4R0 | 2.5 | 4 | ±50 | 0.85±0.1 | FeCrAl |
| SRC39F_H3R0 | 3 | 3 | ±50 | 0.95±0.1 | FeCrAl |
| SRC39F_P2R0 | 4 | 2 | ±50 | 1.19±0.1 | FeCrAl |
| SRC39M_I1R0 | 5 | 1 | ±50 | 0.92±0.1 | MnCu |
| SRC39M_I0R50 | 5 | 0.5 | ±50 | 1.36±0.1 | MnCu |
| SRC39M_I0R30 | 5 | 0.3 | ±70 | 1.92±0.1 | MnCu |
| SRC39M_I0R20 | 5 | 0.2 | ±150 | 1.95±0.1 | MnCu |

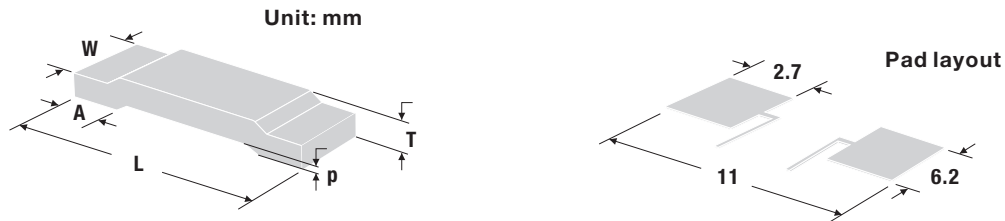
- Applicable temperature range of -55°C to +170°C
- Power rating is guaranteed for use on an aluminum substrate (MCPCB) Part
- Number definition “_” of Resistance Tolerance

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Dimension



| Type | L | W | T | A | p |
|--------------|----------|---------|----------|---------|---------|
| SRC39F_E5R0 | 10.2±0.2 | 5.2±0.1 | 0.85±0.1 | 1.8±0.1 | 0.5±0.1 |
| SRC39F_F4R0 | 10.2±0.2 | 5.2±0.1 | 0.85±0.1 | 1.8±0.1 | 0.5±0.1 |
| SRC39F_H3R0 | 10.2±0.2 | 5.2±0.1 | 0.95±0.1 | 1.8±0.1 | 0.5±0.1 |
| SRC39F_P2R0 | 10.2±0.2 | 5.2±0.1 | 1.19±0.1 | 1.8±0.1 | 0.5±0.1 |
| SRC39M_I1R0 | 10.2±0.2 | 5.2±0.1 | 0.92±0.1 | 1.8±0.1 | 0.5±0.1 |
| SRC39M_I0R50 | 10.2±0.2 | 5.2±0.1 | 1.36±0.1 | 1.8±0.1 | 0.5±0.1 |
| SRC39M_I0R30 | 10.2±0.2 | 5.2±0.1 | 1.92±0.1 | 1.8±0.1 | 0.5±0.1 |
| SRC39M_I0R20 | 10.2±0.2 | 5.2±0.1 | 1.95±0.1 | 1.8±0.1 | 0.5±0.1 |

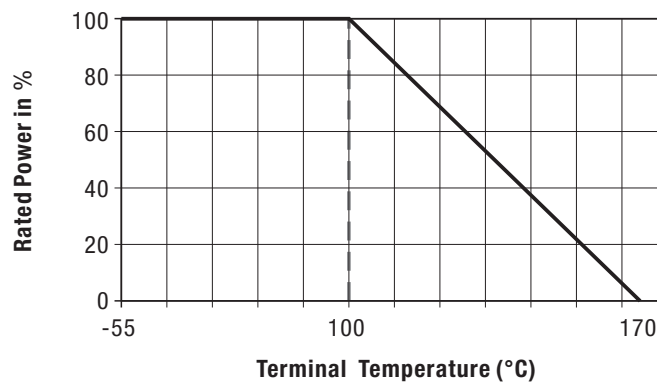
Packaging

- Quantity: 3,000pcs
- 16mm wide tape on 330mm(13 inch) diameter reel -specification EIA Standard 481.

Storage Conditions

- Temperature: 22~28°C, Humidity: 40~75%

Derating Curve

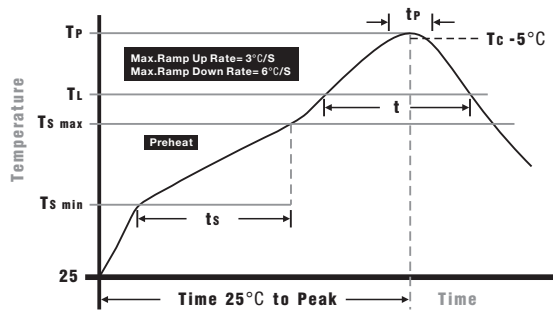


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Soldering Parameters



Wave Soldering: 260°C, 10 seconds max.
Infrared Reflow: 260°C, 30 seconds max.

IR Reflow Profile

| | |
|---|------------------|
| Preheat Heat | |
| Temperature min (T _{smin}) | 150°C |
| Temperature max (T _{smax}) | 200°C |
| Time (T _{smin} to T _{smax}) (ts) | 60 - 120 seconds |
| Average ramp-up rate (T_{smax} to T_p) | 3°C/second max. |
| Liquidous temperature (TL) | 217°C |
| Time at liquidous (t _L) | 60 - 150 seconds |
| Peak temperature (T_p) | 260+0/-5°C |
| Time within 5°C of actual peak Temperature (tp) | 10 - 30 seconds |
| Average ramp-down rate (T_p to T_{smax}) | 6°C/second max. |
| Time 25 °C to peak temperature | 8 minutes max. |

Performances

| | |
|------------------------------------|--|
| Short Time Overload | Loading 5 times rate power 5sec |
| Moisture Resistance | The specimens shall be placed in a chamber and subjected to a relative humidity of 90~98% percent and a temperature of 25°C / 65°C 10 cycles |
| High Temperature Exposure | The chip (mounted on board) is exposed in the heat chamber 125°C for 1000 hrs. |
| Rapid Change of Temperature | The chip (mounted on board) is exposed, -55±3°C (30min.)/+125±2°C (30min.) for 5 cycles. |
| Load Life | Apply rated power for 1000 hours with 1.5 hours ON and 0.5 hour OFF. |

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