

Size 3920 (10 x 5.2mm)

ASRC39 Series

Automotive Current Shunt Resistors



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.

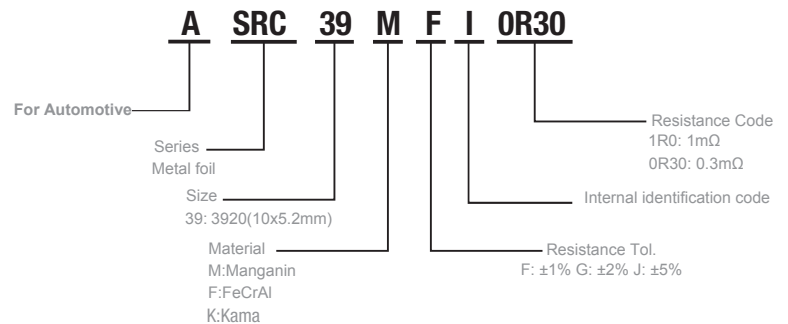
Features

- Power rating up to 12 W at 70°C
- Excellent long term stability
- Continuous current load up to 160A at 0.2mΩ
- Halogen free, lead free and RoHS compliant
- AEC-Q200 qualified



Applications

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



Part Number	Power Rating P70°C (W)	Resistance Range (mΩ)	TCR (ppm/°C)	Material
ASRC39F/K_I5R0	5	5	±50	FeCrAl/Kama
ASRC39F/K_I4R0	5	4	±50	FeCrAl/Kama
ASRC39F/K_I3R0	5	3	±50	FeCrAl/Kama
ASRC39F/K_I2R0	6	2	±50	FeCrAl/Kama
ASRC39F/K_I1R0	8	1	±50	FeCrAl/Kama
ASRC39M_I1R0	7	1	±50	Manganin
ASRC39M_I0R50	9	0.5	±70	Manganin
ASRC39M_I0R30	10	0.3	±150	Manganin
ASRC39M_I0R20	12	0.2	±200	Manganin

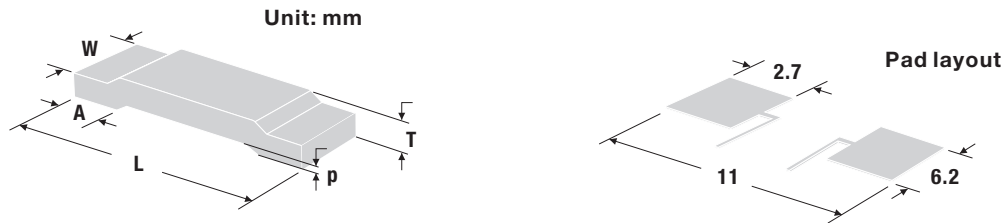
- Applicable temperature range of -55°C to +170°C
- Power rating is guaranteed for use an aluminum substrate (MCPCB) Part
- Number definition “_” of Resistance Tolerance

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Dimension

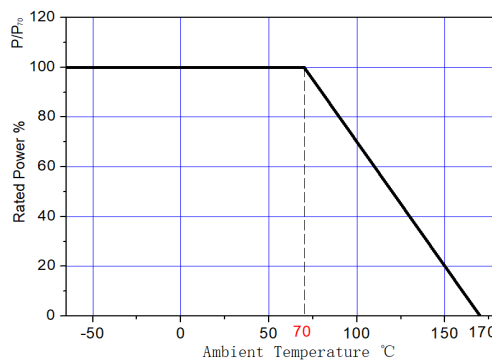


Type	L	W	T	A	p	*Quantity
ASRC39F/K_I5R0	10.0±0.2	5.2±0.4	0.78±0.2	2.2±0.2	0.5±0.1	2500
ASRC39F/K_I4R0	10.0±0.2	5.2±0.4	0.78±0.2	2.2±0.2	0.5±0.1	2500
ASRC39F/K_I3R0	10.0±0.2	5.2±0.4	0.87±0.2	2.2±0.2	0.5±0.1	2500
ASRC39F/K_I2R0	10.0±0.2	5.2±0.4	1.06±0.2	2.2±0.2	0.5±0.1	2500
ASRC39F/K_I1R0	10.0±0.2	5.2±0.4	1.66±0.2	2.2±0.2	0.5±0.1	2500
ASRC39M_I1R0	10.0±0.2	5.2±0.4	0.90±0.2	2.2±0.2	0.5±0.1	2500
ASRC39M_I0R50	10.0±0.2	5.2±0.4	1.33±0.2	2.2±0.2	0.5±0.1	2500
ASRC39M_I0R30	10.0±0.2	5.2±0.4	1.87±0.2	2.2±0.2	0.5±0.1	2000
ASRC39M_I0R20	10.0±0.2	5.2±0.4	2.14±0.2	2.2±0.2	0.5±0.1	2000

Storage Conditions

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

Power Derating Curve

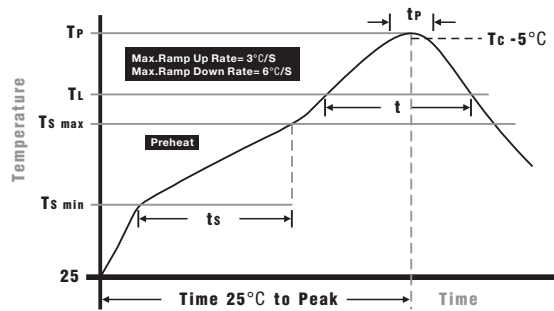


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Soldering Parameters



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}) (t _s)	60 - 120 seconds
Average ramp-up rate (T_{smax} to T_p)	3°C/second max.
Liquidous temperature (T_L)	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 (t_p)	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.

Endurance Test

Items	Additional Requirements	Reference	Limits
Temperature Cycling	1000 Cycles(-55°C to +125°C) Measurement at 24±2 hours after test conclusion	JESD22 Method JA-104	±0.5%
High Temperature Exposure	1000hrs.@T=125°C.Unpowered. Measurement at 24±2 hours after test conclusion	MIL-STD-202 Method 108	±0.5%
Moisture Resistance	t=24hrs/cycle.Note:Steps 7a & 7b not required. Unpowered.	MIL-STD-202 Method 106	±0.5%
Biased Humidity	1000hrs 85°C/85%RH. Note: Specified conditions: 10% of operating power. Measurement at 24±2 hours after test conclusion	MIL-STD-202 Method 103	±0.5%
Operational Life	Condition D Steady State TA=125°C at rated power. Measurement at 24±2 hours after test conclusion	MIL-STD-202 Method 108	±0.5%
Solderability	245°C±5°C,5s+0.5s/-0	J-STD-002C	95% Coverage Min
Vibration	5 g's for 20 min, 12 cycles each of 3 orientations. Note:Use 8"X5" PCB.031"thick 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000Hz. Measurement at 24±2 hours after test conclusion	MIL-STD-202 Method 204	±0.5%
Resistance to Soldering Heat	260°C±5°C, 10s±1s Measurement at 24±2 hours after test conclusion	MIL-STD-202 Method 210	±0.5%
Short Time Overload	5×Rated power for 5 s Measurement at 24±2 hours after test conclusion	MIL-STD-202 Method 301	±0.5%

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