BOURNS®

CRK2725 Series

Metal Strip, Wide-Terminal Current Sense Resistor



*RoHS COMPLIANT & **HALOGEN FREE

Features

- Wide terminal design for superior heat dissipation
- Low inductance <5 nH
- Low thermal EMF <40 µV/°C
- Ultra-low resistance down to 0.2 mΩ
- RoHS compliant* and halogen-free**

Applications

- Current sensing
- Power supplies
- Stepper motor drives
- Input amplifiers

Sustainability

- Small size reduces material use
- High pallet density for lower CO_2
- Corrosion-resistant for longevity
- High efficiency, low power loss
- ISO 14001, low-impact energy
- Responsibly sourced and produced

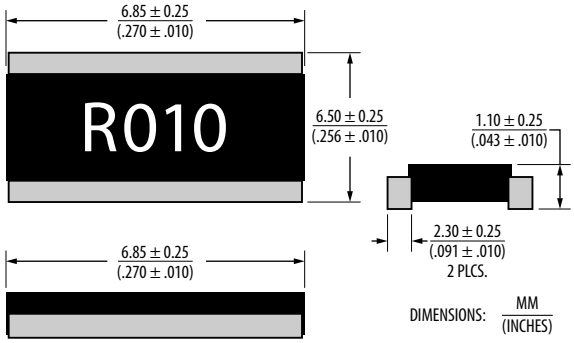
Electrical Characteristics

Characteristic	CRK2725
Power Rating @ 70 °C	5 W
Resistance Value	0.2 mΩ to 1 mΩ
Operating Temperature Range	-55 °C to +170 °C
Temperature Coefficient of Resistance	±100 ppm/°C
Tolerance	±1 %, ±5 %
Insulation Resistance	Over 100 MΩ
Maximum Working Voltage (V)	√(P*R)

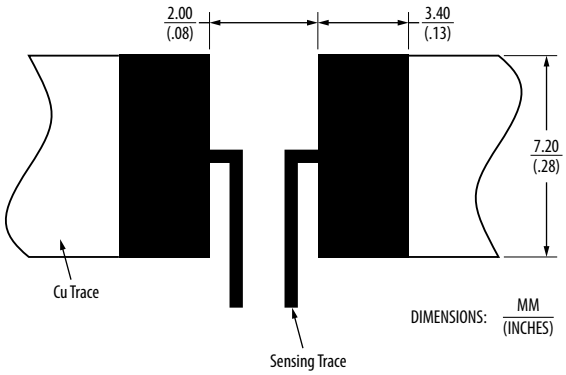
Environmental Characteristics

Storage Conditions
Temperature..... +5 °C to +35 °C
Humidity.....40 % to 75 %
Shelf Life ....2 years from manufacturing date
Solder Recommendations.....Reflow profile
(Solder: Sn96.5 / Ag3 / Cu0.5)
Moisture Sensitivity Level..... 1

Product Dimensions



Recommended Solder Pad Dimensions



Contact Information

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*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

**Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

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Reliability Tests

Test Items	Reference Standard	Condition of Test	Test Limits
Temperature Coefficient of Resistance	IEC 60115-1-4.8 JIS-C5201-4.8	+25 °C to +125 °C	±100 ppm/°C
Operation Life	AEC-Q200 Test 8 MIL-STD-202 Method 108	1000 hours at TA=70 °C at 100 % rated power ON/OFF	< ±1 %
Short Time Overload	IEC 60115-1-4.13 JIS-C5201-4.13	5X rated power for 5 sec.	< ±0.5 %
Biased Humidity	AEC-Q200 Test 7 MIL-STD-202 Method 103	85 °C, 85 % RH, 1000 hrs with 10 % rated power	< ±0.5 %
Temperature Cycle	AEC-Q200 Test 4 JESD22-A104	-55 °C & +155 °C, 1000 cycles	< ±0.5 %
Resistance to Soldering Heat	AEC-Q200 Test 15 MIL-STD-202 Method 210	260 ±5 °C for 10 ±1 sec	< ±0.5 %
Solderability	AEC-Q200 Test 18 J-STD-002	Solder dipping at 235 ±3 °C, 3 ±0.5 sec. Pre-condition: Aging 4 hours at 155 °C dry heat	At least 95 % of surface area of electrode shall be covered with new solder
High Temperature Exposure	AEC-Q200 Test 3 MIL-STD-202 Method 108	170 °C, 1000 hrs	< ±1 %
Resistance to Solvents	AEC-Q200 Test12 MIL-STD-202 Method 215	a: Isopropyl Alcohol c: Deionized Water b: Terpene Defluxer	< ±1 %
Board Flex	AEC-Q200-005	Bending with 2 mm for 60 sec.	< ±0.5 %
Insulation Resistance	IEC 60115-1-4.6 JIS-C5201-4.6	100 VDC for 1 minute	>100 MΩ
Vibration	AEC-Q200 Test 14 MIL-STD-202 Method 204	5 g's for 20 mins., 12 cycles 10~2000 Hz	< ±0.5 %
Terminal Strength/Shear	AEC-Q200-006	1.8 kg for 60 sec.	< ±1 %
ESD	AEC-Q200-002	Apply 500 V	< ±1 %
Mechanical Shock	AEC-Q200 Test 13 MIL-STD-202 Method 213	100 g's for 6 ms	< ±0.5 %
Flammability	AEC-Q200 Test 20 UL-94	V-0 or V-1 are acceptable. Electrical test not required	V-0

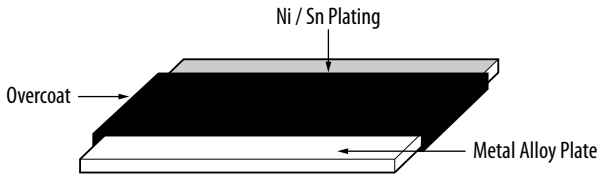
Rated Voltage

The rated voltage is calculated by the following formula:

$$V = \sqrt{P \times R}$$

V: Rated Voltage (V)
P: Rated Power (W)
R: Resistance Value (W)

Construction



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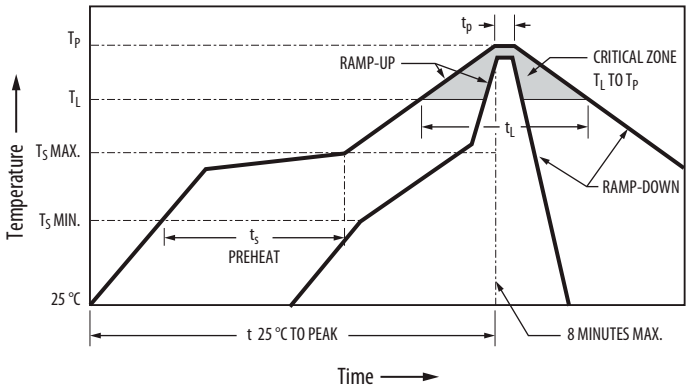
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Soldering Profile



Profile Feature	Lead Free Assembly
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max.
Preheat - Temperature Min. (T_{smin}) - Temperature Max. (T_{smax}) - Time (t_s) from T_{smin} to T_{smax}	 150 °C 200 °C 60-150 seconds
Liquidus temperature (T_L)	217 °C
Time (t_L) maintained above T_L	60-120 seconds
Peak package body temperature (T_p)	260 °C
Time within +0/-5 °C of actual peak temperature (T_p)	10 seconds
Ramp-Down Rate (T_p to T_L)	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

How to Order

CRK 2725 - F Z - R001 - E

Model
- CRK = Metal Strip, Wide Terminal Current Sense Resistor

Size
- 2725 = 2725 size

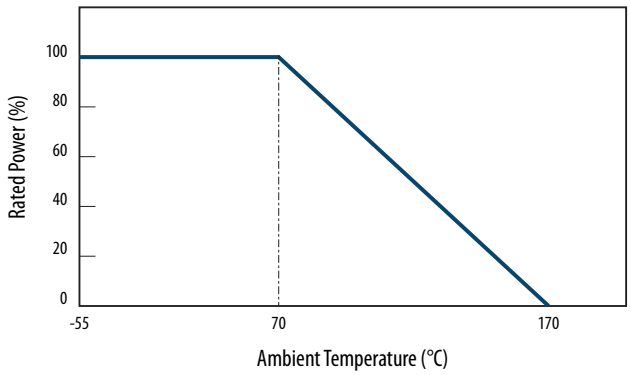
Resistance Tolerance
- F = ±1 %
- J = ±5 %

TCR (ppm/°C)
- Z = ±100

Resistance Value
- 1 mΩ: "R" represents decimal point (example: R001=1 mΩ)
- <1 mΩ: "L" represents decimal point (example: 0L25 = 0.25 mΩ)

Packaging
- E = Embossed tape and reel (2,000 pcs. per 13-inch reel)

Derating Curve



Popular Resistance Values

Code	R Value
0L20	0.2 mΩ
0L25	0.25 mΩ
0L30	0.3 mΩ
0L50	0.5 mΩ

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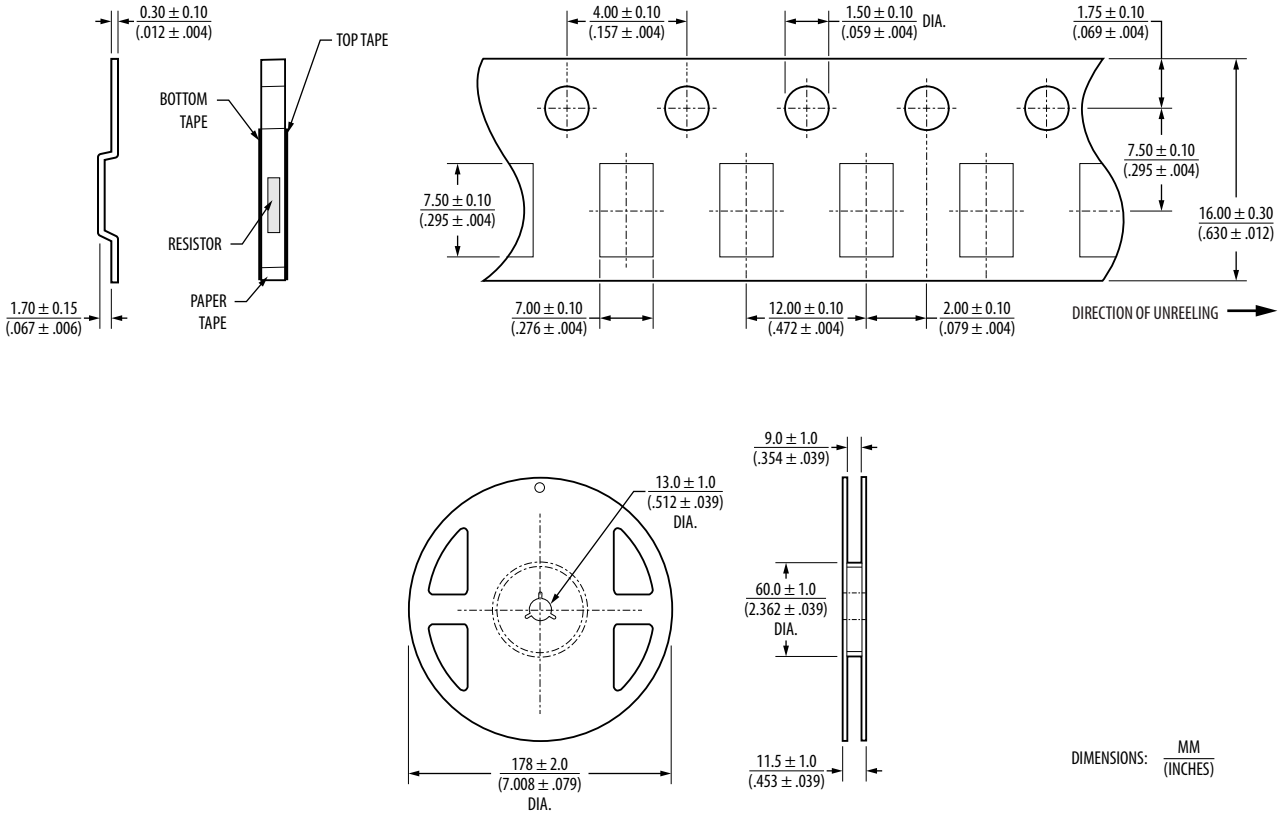
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Packaging Information

Specifications and tolerances comply with EIA RS-481A requirements.



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