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(LRN) SMD Large Current Weld Precision Resistor Shunts

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Product Introduction

Surface mounted high current shunt, low TCR 20PPM (LRN) is the first choice for high power circuit design.

Features :

- Air cooling, Strong stability of circuit.
- Tolerance ±1%, ±2%, and ±5%. Rated Power 4W and 7W.
- Reflow Soldering appliable. lead-free and RoHS compliant.
- TCR down to ±20ppm/°C and ±50ppm/°C. Resistance down to 0.0005Ω.

Applications :

- Communication system.
- Power modules、Frequency converters.
- Current sensor for power hybrid applications.
- High current applications for the automotive market.

For the development of current detection and shunting applications, TOKEN's high current shunt (LRN) adopts the welding structure of Manganin and KAMAR (NiCr20AlSi) precision resistance alloys. The spacing standard design makes it easy for surface mounting, reflow soldering, and suitable for current sensing and shunting applications.

Open bare alloy element design allows air flow to achieve maximum cooling effect, so that PCB retains less heat. The design of flame protection structure provides 0.0005Ω low resistance and low inductance. These factors make ruggedness (LRN) an excellent choice for all high current power supply and power applications that are not affected by most environmental stresses.

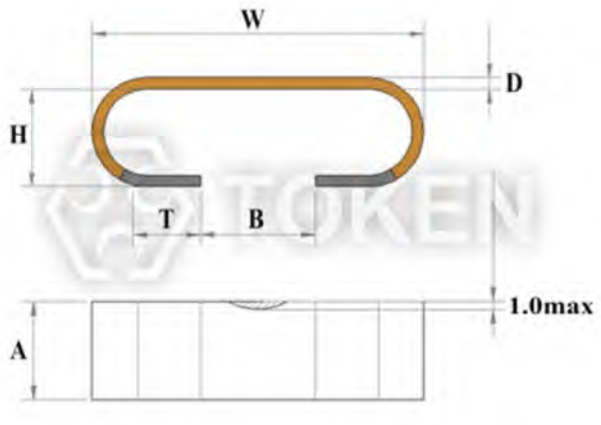
Specially designed for applications requiring high power processing (LRN). The power is 4W and 7W. The ultra-low resistance ranges from 0.5mΩ to 30mΩ. There are various tolerance selection advantages (±1%, ±2%, ±5%) , size 4312, and 4320. To achieve compact size and miniaturization, design a smaller, lower cost, higher performance, high power circuit terminal product design.

Provide packing with Embossed Plastic Tape, size 4312 2Kpcs per reel, 4320 2Kpcs per reel, products meet the lead-free and RoHS standards. Customers can specify resistance, size and specifications to meet the design challenges and specific technical requirements. Please contact TOKEN Business Department for the latest product information. Or link to Token official website "Current Sense Resistors". Contact us with your specific needs.

Dimensions

Chip Weld Shunts LRN - Dimension Specifications (Unit:mm)

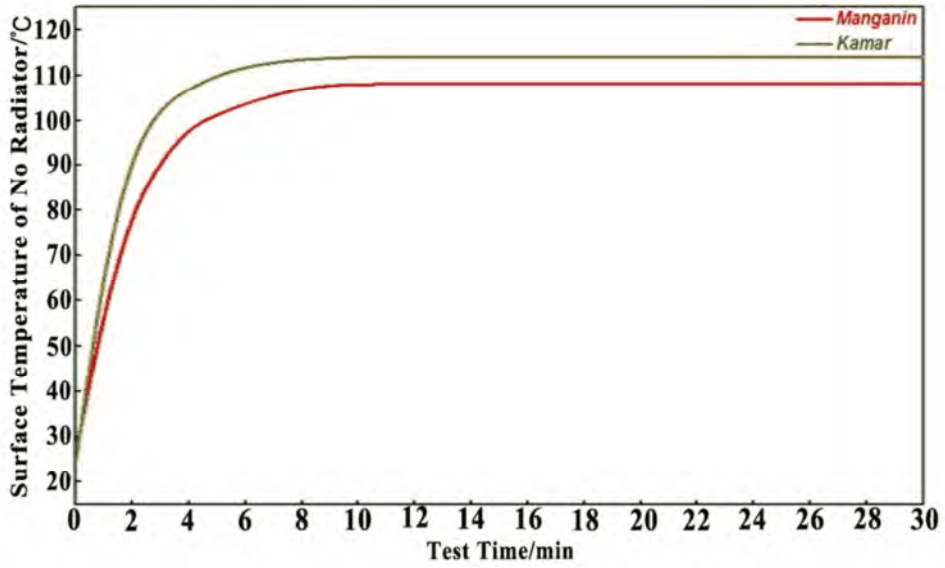
Type	Power (W)	Material	Size	Resistance (mΩ)	D (mm)	H (mm)	B (mm)	W (mm)	T (mm)	A (mm)
LRN	4	M	4312	2	0.59±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	3.1±0.3
				3	0.39±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	3.1±0.3
				5	0.40±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	3.1±0.3
		K	4312	10	0.62±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	3.1±0.3
				20	0.62± 0.05	3.1± 0.3	4.2±0.5	11±0.5	2.8±0.3	3.1±0.3
				30	0.25± 0.05	3.1± 0.3	4.2±0.5	11±0.5	2.8±0.3	3.1±0.3
	7	M	4320	0.5	0.74±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	6.1±0.4
				1	0.37±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	6.1±0.4
				5	0.20±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	6.1±0.4
		K	4320	5	0.62±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	6.1±0.4
				10	0.30±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	6.1±0.4
				15	0.20±0.05	3.1±0.3	4.2±0.5	11±0.5	2.8±0.3	6.1±0.4



Chip Weld Shunts LRN - Dimensions (Unit:mm)

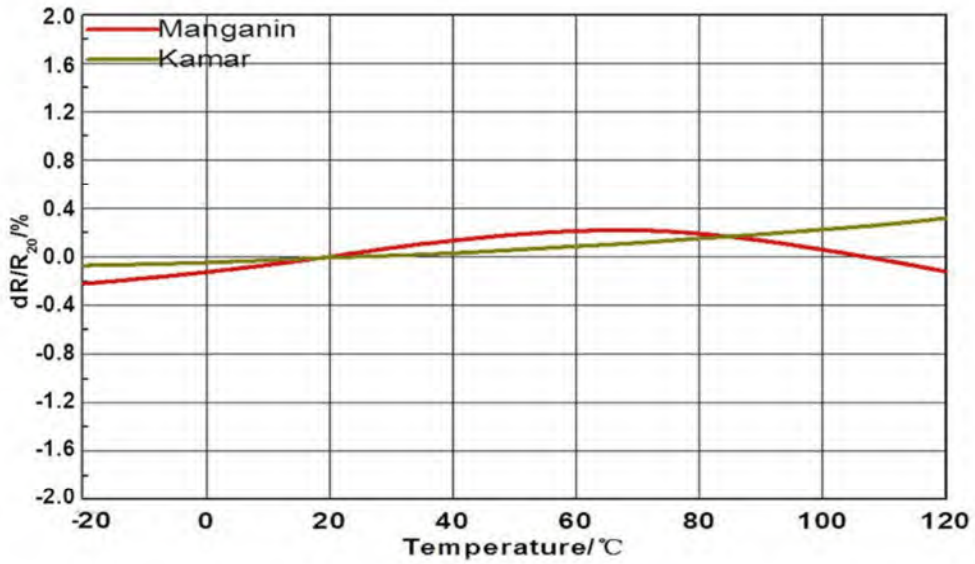
Technical Specifications

Chip Weld Resistors LRN - Surface Temperature Curve



Surface Temperature Curve (LRN)

SMD Weld Resistors LRN - TCR Derating Curve



TCR Derating Curve (LRN)

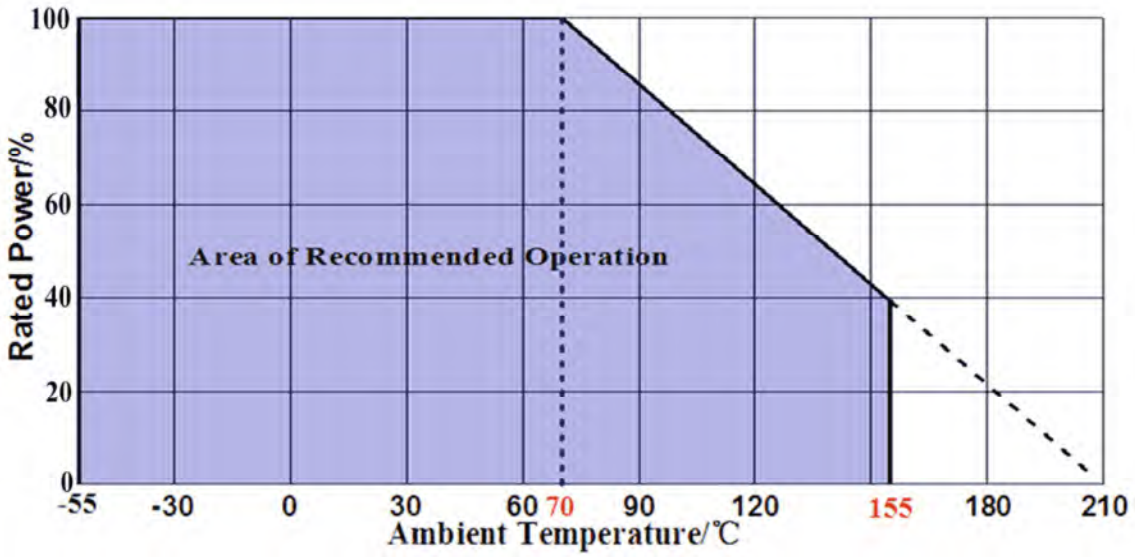
Environmental Characteristics

SMD Weld Resistor LRN - Environmental Characteristics

Iterms	Requirement	Test Methods
Temperature Cycling	±0.5%	JESD22 1000 Cycles (-55°C to +125°C). Measurement at 24±2 hours after test conclusion.
High Temperature Exposure	±0.5%	MIL-STD-202 1000hrs.@T=125°C. Unpowered. Measurement at 24±2 hours after test conclusion.
Moisture Resistance	±0.5%	MIL-STD-202 t=24 hrs/cycle. Note:Steps 7a & 7b not required.Unpowered. Measurement at 24±2 hours after test conclusion.
Biased Humidity	±0.5%	MIL-STD-202 1000hrs 85°C/85% RH. Note: Specified conditions:10% of operating power. Measurement at 24±2 hours after test conclusion.
Operational Life	±0.5%	MIL-STD-202 Condition D Steady State TA=125°C at rated power. Measurement at 24±2 hours after test conclusion.
Solderability	95% Coverage Minimum.	J-STD-002C 245°C±5°C, 5s+0.5s/-0.
Resistance to Soldering Heat	±0.5%	MIL-STD-202 260°C±5°C, 10s±1s. Measurement at 24±2 hours after test conclusion.
Short Time Overload	±0.5%	MIL-STD-202 5 × Rated power for 5s. Measurement at 24±2 hours after test conclusion.
Thermal Shock	±1%	MIL-STD-202 -55°C/+125°C, 300 Cycles.Maximumtransfer time 20s, Dwell time 15min.
Vibration	±0.5%	MIL-STD-202 5g'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 secure points at corners of opposite sides which parts mounted within 2 from any secure point. Test from 10-2000 Hz. Measurement at 24±2 hours after test conclusion.

Derating Curve

LRN - Derating Curve

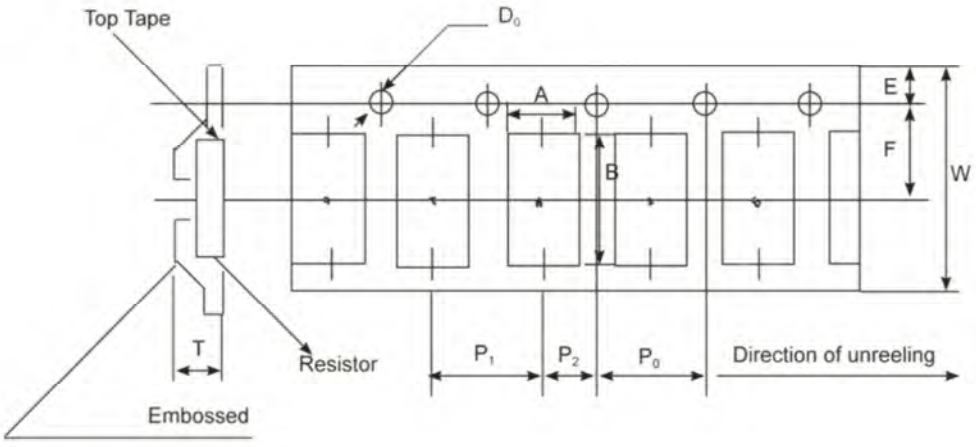


Rated power VS Ambient temperature (Derating Cruve)

Packaging

LRN - Packaging

Size	A/mm	B/mm	W/mm	E/mm	F/mm	P_0/mm	P_1/mm	P_2/mm	D_0/mm	T/mm	Quantity (EA) / pieces
4312	4.3	12.5	24	1.55	7.5	6	12	12	1.50	3.8	2000
4320	7	12.5	24	1.55	11.2	6	12	12	1.50	3.8	1000



LRN - Embossed Plastic Tape Specifications

Order Codes

SMD Large Current Weld Precision Shunts LRN - Order Code

LRN	4	M	R003	J
Part Number	Power (W)	Material	Resistance (Ω)	Tolerance (%)
LRN	4 4W 7 7W	M Manganin K Kamar	0m50 0.0005Ω R002 0.002Ω R003 0.003Ω R010 0.01Ω R030 0.03Ω	J ±5 G ±2 F ±1

General Information

Your Current Options - Token Current Sense

As the world becomes more and more technology-driven, the uses for current sensing components will continue to increase. The need for even lower resistance value ranges is already becoming evident, as is the need for these resistors to handle more power. The industry-wide trend is the emergence of smaller and smaller products.

Token Electronics offers a wide variety of current sensing products from the industry to military standards, such as current sense in Thin-Film / Thick-Film Technology, Bare Element Resistors, and Open Air Shunts. This enables Token to present an astounding number of possible solutions for any circuit design needs.

Applications of Current Detecting Components

Token's TCS and CS Series unique form factor provides automotive designers with several advantages. Both TCS and CS Series are ideal for applications involving window lift motors, fuel pump systems, seat belt pretensioners, and pulse width modulator feedback.

The wider resistive element and lower resistance enables higher current to pass through the device. Token's LRC ultra low Ohmic metal strip chip series provides the inherent ability to flex slightly and offers stress relief during extreme temperature cycling on typical or metal substrates. This LRC series is suitable for switch power supply applications (DC-DC Converter, Charger, and Adaptor) and power management of monitor.

The open air design of bare element resistor LRA and LRB Series provide a far cooler operation by allowing more air flow under the resistive element to keep excess heat from being transmitted to the PC board. They are suitable for high power AC/DC detection of power supply circuit.

Token axial moulded BWL series provides power rating up to 10 watts and lower resistance 0.005Ω, is ideal for all types of current sensing applications including switching and linear power supplies, instruments and power amplifiers.

Token standard current sensing components can be replacement for Vishay, IRC, Ohmite, KOA, Yageo devices with fast delivery and more competitive price. Contact us with your specific needs.