Version:
January 12, 2017

(LRD) Four-terminal Kelvin Connected Resistors

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Product Introduction

Token's open air 4-terminal kelvin connected resistors (LRD) tackle current sensing applications.

Features :

- Low inductance.
- 4 leads for Kelvin connection.
- Decimal marked, silicone coated.
- Tinned copper terminal for easy soldering.
- Radial, self-supporting, design is ideal for PC board mounting.

Applications :

- Surge/Pulse Applications.
- Current Sensing Application.
- Feed Back & Motor Control.
- High Precision Measurement Instrumentation.

Always preferred in current sense applications, Token's LRD Series range is available in the 1W, 3W, 5W, 7W and 10W packages, resistance values down to 0.001 ohm, with tolerances as tight as 0.50% and TCRs of 50ppm standard.

The 4 Lead Kelvin configurations enables current to be applied through two opposite terminals and a sensing voltage to be measured across the other two terminals, eliminating the resistance and temperature coefficient of the terminals for a more accurate current measurement.

With up to 10W power rating and TCRs as low as 50ppm/℃, the LRD 4-Lead Kelvin resistors deliver excellent performance, making them ideal for a variety of applications. The resistor is constructed using a low-resistance, low-inductance, high-impulse proprietary metal element that gives the device its extended power and temperature ratings.

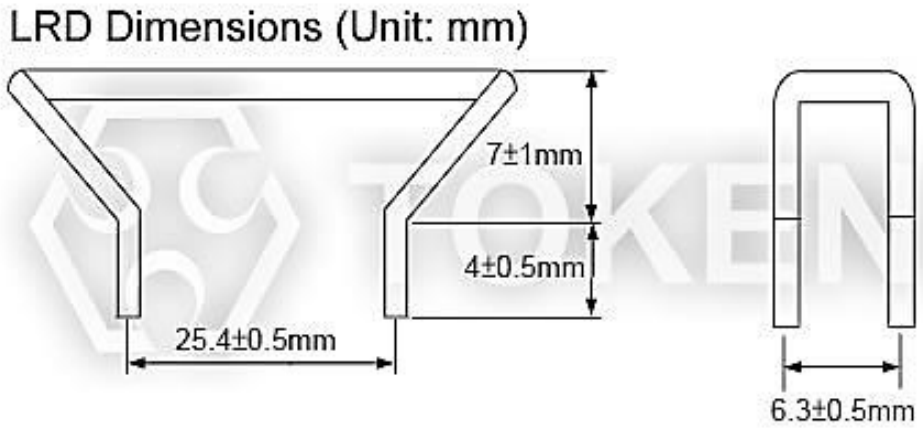
Continually upgrading its current sense resistors to take advantage of modern technologies and manufacturing methods, Token is now able to offer complete ranges of products which meet the RoHS requirements and in addition to detailing these, the component selector also provides designers with a comprehensive selection of application notes.

The Open Air (LRD) Kelvin 4-terminal Resistor can be manufactured to custom length/width for use as a current shunt. Token will also produce outside these specifications to meet customer requirements. Contact us with your specific needs, or link to Token official website "Current Sensing Resistors"for more information.

LRD Spec. & Dim

Specification & Dimensions (Unit: mm) (LRD)

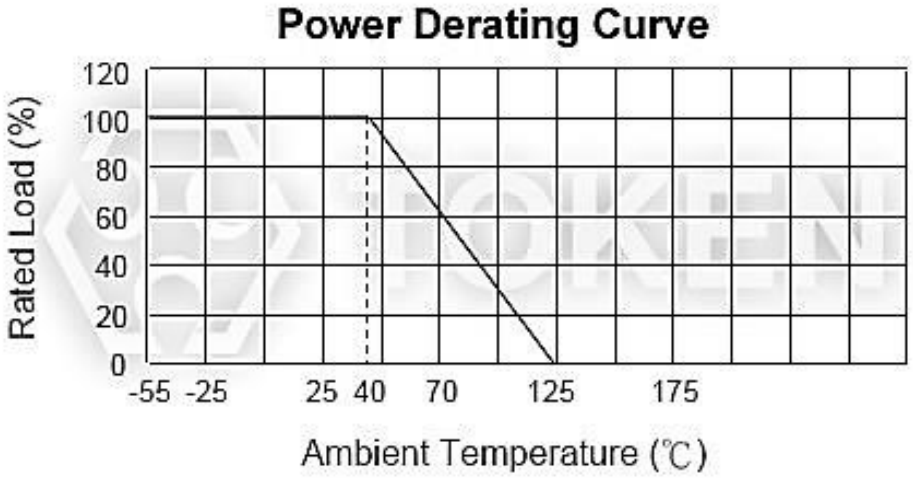
Type	Rating Current	Resistance Range (mΩ)	Tolerance (%)	TCR (ppm/℃)
LRD-1	1A	1 ~ 10 mΩ	D(±0.5%) F(±1%) G(±2%) J(±5%)	±10 ppm/℃ ±20 ppm/℃ ±25 ppm/℃ ±50 ppm/℃ ±100 ppm/℃
LRD-3	3A	1 ~ 10 mΩ		
LRD-5	5A	0.5 ~ 5 mΩ		
LRD-7	7A	0.3 ~ 3 mΩ		
LRD-10	10A	0.1 ~ 1 mΩ		



4-Terminal Current Sensing Open Air (LRD) Dimensions

Derating Curve

Power Derating Curve (LRD)

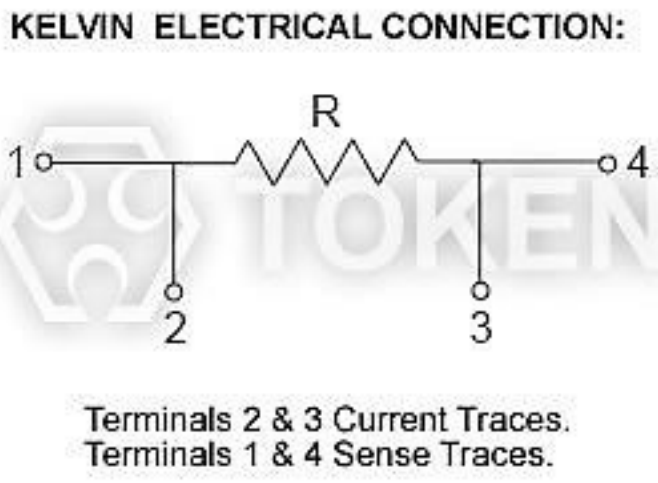


(LRD) Power Derating Curve

Characteristics

Characteristic Specification & 4-Lead Kelvin Connections (LRD)

Test Items	Test Method	Specification
Operating Temperature Range		-55℃ ~ 125℃
Maximum Working Voltage		(P40℃ x R)1/2
Terminal Tensile Strength	50N, 10s	ΔR≤±1.0%R
Withstand Voltage	1000V, 1 Min.	No damage on the appearance.
Short Time Overload	5 times rated power, 5s	ΔR≤±4.0%R
Thermal Shock	-55℃~+125℃, 5 cycles, 30 min.	ΔR≤±5.0%R
Load Life	70℃, 1000h 1.5 hours on, 0.5 hours off.	ΔR≤±5.0%R



4 Lead Kelvin Connections (LRD)

Order Codes

Order Codes (LRD)

LRD	-	5	R005	F	P

Part Number	Rated Current		Resistance Value (Ω)		Tolerance %		Package-Code	
LRD	1	1 A	R005	0.005Ω	D	±0.5%	P	Bulk
	3	3 A	R05	0.05Ω	F	±1%		
	5	5 A	R1	0.1Ω	G	±2%		
	7	7 A			J	±5%		
	10	10 A						

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.