Kelvin Four Terminal Resistors

Token (LSQ) Family Four Terminal Resistors handle high-wattage applications

Preview

Providing ultralow resistance values (to 0.01 ohm) for relatively high current requirements, new four-terminal cement filling resistors from Token combine the advantages of a Kelvin configuration with PC board mounting capability.

The Kelvin (or four-terminal) configuration 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.

The four terminal resistors are a new version of Token's (LSQ) Current Sense Family Series which was specially designed for use in a Kelvin configuration where a current is applied through two opposing leads and sensing voltage is measured across the other two leads. Token LSQ series is specifically designed for low resistance applications requiring the highest accuracy and temperature stability.

The advantages of Kelvin configuration enable the resistance and temperature coefficient of the leads to be effectively eliminated. The need to connect to the leads at precise test points is eliminated, allowing for tighter tolerance on the end application. Also results in a lower temperature coefficient of resistance and lower self-heating drift which may be experienced on two-terminal resistors.

Token will also produce low ohm resistor LSQ series outside these specifications to meet customer requirements. Contact us with your specific needs.

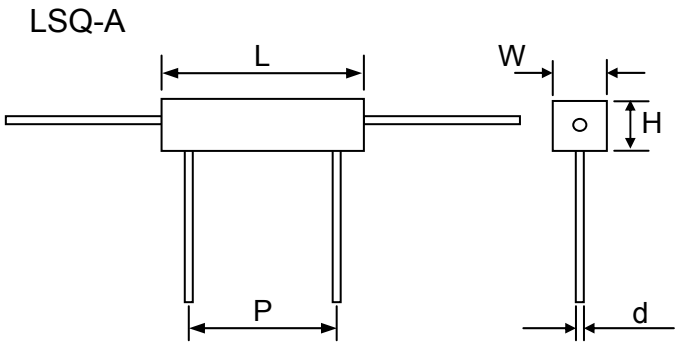
Features

- Welded & fireproof construction.
- Superior anti-surge capability & Low TCR.
- Thermal conductivity and moisture resistance.
- Special inorganic potting construction provides high moisture resistance and thermal conductivity.
- 4 leads for Kelvin connection with extremely low resistance values.

Applications

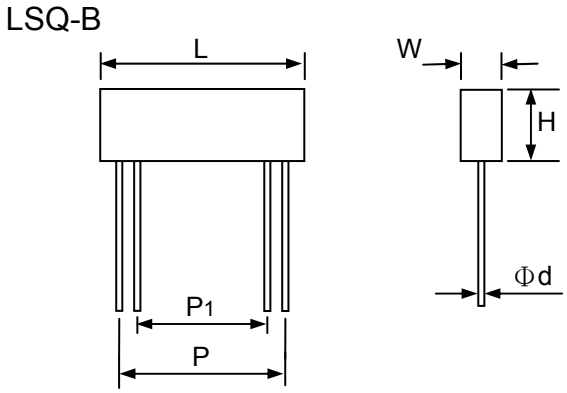
- Automatic Test Equipment.
- Current Sensing Application.
- High Precision Instrumentation.
- Industrial, Medical and Military.
- Measurement Instrumentation.

(LSQ-A) Specification & Dimensions (Unit: mm)



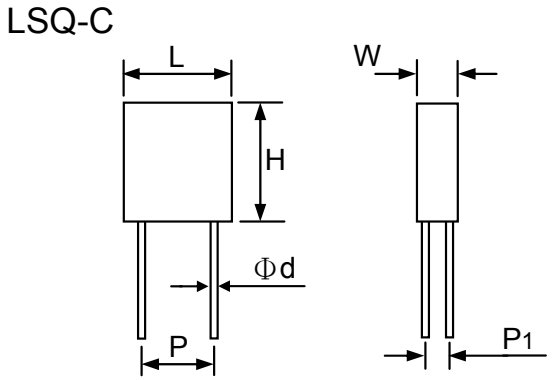
Type	Power (Watts)	Resistance Range (Ω)	Dimensions (Unit: mm)				
			L	W±1	H±1	P±1	d±0.5
LSQ-A-3	3	R01~R1	22±1.0	8	8	14	0.8
LSQ-A-5	5	R01~R1	22±1.5	9.5	9.5	14	0.8
LSQ-A-7	7	R01~R1	35±2.0	9.5	9.5	25	0.8
LSQ-A-10	10	R01~R1	48±2.0	9.5	9.5	36	0.8
LSQ-A-15	15	R01~R1	48±2.0	12.5	12.5	36	0.8

(LSQ-B) Specification & Dimensions (Unit: mm)



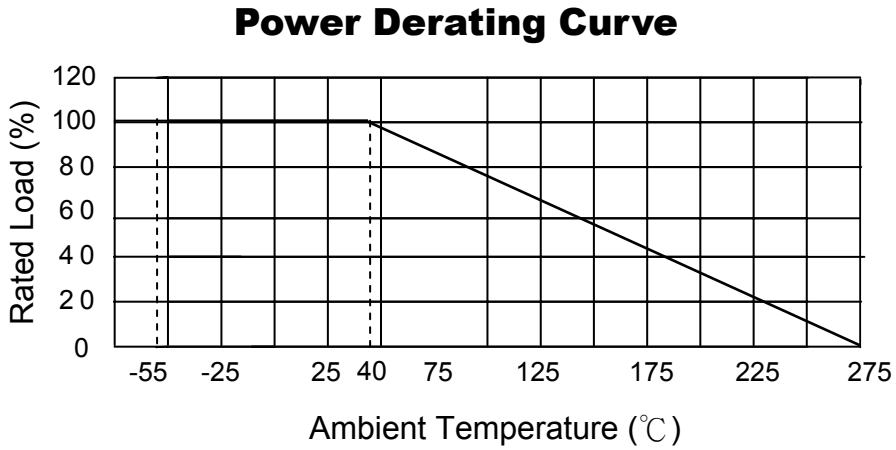
Type	Power (Watts)	Resistance Range (Ω)	Dimensions (Unit: mm)					
			L±2	W±1	H±1	P±1	P1±1	d±0.5
LSQ-B-5	5	R01~R1	26	5	10	20	12	0.8

(LSQ-C) Specification & Dimensions (Unit: mm)



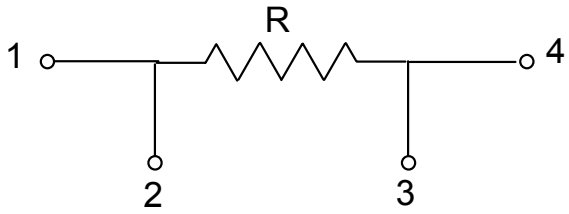
Type	Power (Watts)	Resistance Range (Ω)	Dimensions (Unit: mm)					
			L±2	W±1	H±1	P±1	P1±1	d±0.5
LSQ-C-10	10	R01~R1	18	10.5	20	12	5	1.0

Power Derating Curve



Characteristic Specification

KELVIN ELECTRICAL CONNECTION



TERMINALS 2 & 3 CURRENT TRACES.
TERMINALS 1 & 4 SENSE TRACES.

Test Items	Test Method	Specification
Resistance Tolerances		D(±0.5%), F(±1%), G(±2%), J(±5%)
Temperature Coefficients		±100 ppm/°C
Operating Temperature Range		-55°C~275°C
Maximum Working Voltage		(P40°C 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°C~+275°C, 5 cycles, 30 min.	ΔR≤±5.0%R
Load Life	40°C, 1000h 1.5 hours on, 0.5 hours off.	ΔR≤±5.0%R

How to Order

LSQ-A	15	R01	J	P
❶	❷	❸	❹	❺

❶ Part Number: LSQ-A, LSQ-B, LSQ-C

❷ Rated power

Code	Rated power
3	3 Watt
5	5 Watt
7	7 Watt
10	10 Watt
15	15 Watt

❸ Resistance Value (Ω)

Code	Resistance Value (Ω)
R01	0.01Ω
R05	0.05Ω
R1	0.1Ω

❹ Tolerance %

Code	Tolerance %
J	±5%

❺ Package-Code

Code	Package-Code
P	Bulk

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