

LVK Series

Four Terminal High Precision Current Sense

CURRENT SENSE

Current sense resistors enable the measurement of current flow in a circuit by monitoring a voltage drop across a precisely calibrated resistance. The LVK chip features four terminals, also known as a “Kelvin” configuration. This 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.

Isolating the voltage and current terminals (see schematic) facilitates a very accurate current measurement. Ohmite's proprietary technology offers an excellent Temperature Coefficient of Resistance (TCR) even for very low resistance values. The resistive element consists of a durable, anti-corrosive metal alloy that combines reliable performance with the ability to withstand harsh environments.



FEATURES

- Designed for automatic insertion
- Industry standard sizes
- High-precision kelvin connect capability in a small package

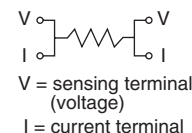
SERIES SPECIFICATIONS

Series	Pkg. Size	Power Rating (W @70°C)	Resistance Range (Ω)	TCR (ppm/°C)	Tolerance	Available Values
LVK12	1206	0.5W	0.01-0.05	50ppm	0.5%, 1%	E12
LVK20	2010	0.75W	0.01-0.05	50ppm	0.5%, 1%	E12
LVK24	2412	1.0W	0.01-0.05	50ppm	0.5%, 1%	E12
LVK25	1224	2.0W	0.001	300ppm	1%	1, 2, 3, 4,
			0.002-0.004	200ppm		5, 6, 7, 8,
			0.005-0.01	100ppm		9, 10mΩ

CHARACTERISTICS

Resistance Range	0.001Ω - 0.05Ω
Operating Temperature Range	-40°C to +125°C
Rated Ambient Temperature	+70°C
Resistance Tolerance	0.5% and 1% standard
Temperature Coefficient	LVK12, LVK20, LVK24: 50ppm standard LVK25: 100ppm, 200ppm, or 300ppm based on resistance value
Coating Material	epoxy resin
Terminals	100% matte tin

Schematic



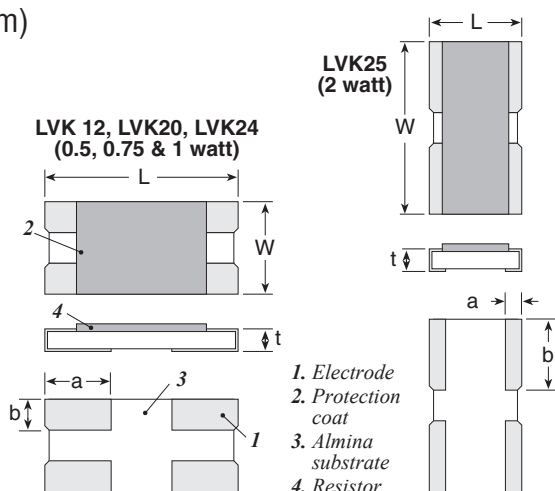
LVK Series

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CURRENT
SENSE

DIMENSIONS

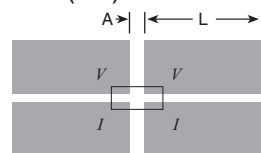
(mm)



Size	L	W	t	a	b
LVK12 (1206)	3.2 ±0.2	1.6 ±0.2	0.5 ±0.15	1.0 ±0.2	0.55 ±0.2
LVK20 (2010)	5.0 ±0.2	2.5 ±0.2	0.5 ±0.15	1.7 ±0.2	0.9 ±0.2
LVK24 (2412)	6.4 ±0.2	3.2 ±0.2	0.5 ±0.15	2.1 ±0.2	1.2 ±0.2
LVK25 (1224)	3.2 ±0.2	6.4 ±0.2	0.5 ±0.2	0.4 ±0.2	2.7 ±0.2

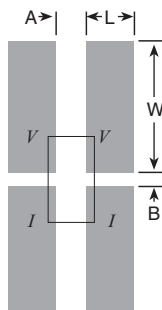
Land Pattern

LVK12 (1206)
LVK20 (2010)
LVK24 (2412)

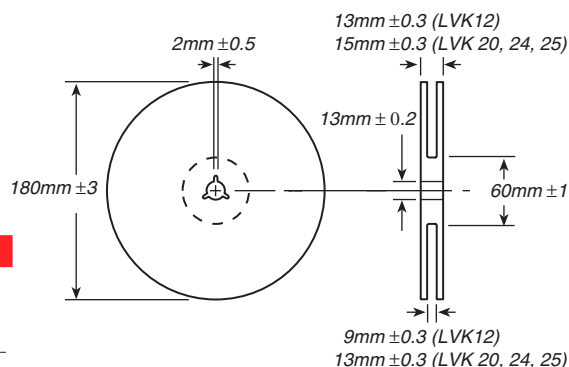


Series	L	W	A	B
LVK12	1.75	1.10	1.00	0.30
LVK20	2.55	1.55	1.40	0.50
LVK24	3.25	1.90	2.00	0.60
LVK25	1.40	3.30	2.20	1.00

LVK25 (1224)



Reel



PERFORMANCE CHARACTERISTICS

Test Items	Performance Requirements	Test Methods
Overload	±(0.5%+0.0005Ω)	Rated voltage x 1.5 for 5s
Endurance at 70°C	±(0.5%+0.0005Ω)	70°C±3°C, Rated voltage 1.5h ON, 0.5h OFF, 1000h
Moisture resistance	±(0.5%+0.0005Ω)	60°C±2°C, 90%~95% RH, Rated voltage 1.5h ON, 0.5h OFF, 1000h
Rapid change of temperature	±(0.5%+0.0005Ω)	-40°C (30min.)/+125°C (30min.), 5 cycles
Resistance to soldering heat	±(0.5%+0.0005Ω)	260°C±5°C for 10s±1s
Substrate bending	±(0.5%+0.0005Ω)	Bending width: 2mm for 10s±1s, Glass epoxy substrate with thickness of 1.6mm
Solderability	95% or more of the electrode surface shall be covered with new solder	245°C±5°C for 3s±0.5s

ORDERING INFORMATION

RoHS Compliant				
LVK25R005FER				
Series	Case Size	Ohms	Tolerance	Taping Code
12 = 1206	20 = 2010	R005 = 0.005	D = 0.5% F = 1%	R = 1,000 pc/reel
24 = 2412	25 = 1224			

Check product availability at www.ohmite.com

Standard values

LVK12	LVK20	LVK24	LVK25	LVK12	LVK20	LVK24
1% Tolerance				0.5% Tolerance		
0.01	0.01	0.01	0.001	0.01	0.01	0.01
0.012		0.012	0.002	0.02	0.02	0.02
	0.015	0.015	0.003	0.03	0.03	0.03
			0.005	0.05	0.05	0.05
0.02	0.02	0.02				
0.024	0.027					
0.03	0.03	0.03	0.01			
		0.039				
		0.039				
0.047		0.047				
0.05	0.05	0.05				