LVT Series

Low Value Current Sense



The Ohmite LVT series is s metal alloy strip resistor providing good TCR ratings. Low value stability is important when using a current sense resistor. The LVT offers TCR ratings down to 50ppm with tolerances down to 1%. The LVT series provides a resistance range from 2m to 20m ohms. TCR stability with tight tolerances and wide resistance range makes the LVT series suited for most current sense applications.

SERIE SPECIFICATIONS

Series	Pkg. Size	Power Rating (W @70°C)	Resistance Range (mΩ)	TCR (ppm/°C)	Tolerance
LVT02	0201	0.25W	10	±200	±1% (F)
			20	±100	±0.5% (D)
					±1% (F)
LVT04	0402	0.33W	2.5	±150	±3% (H)
			3 ~ 4	±150	±2% (G)
			5 ~ 20	±100	±1% (F)
LVT06	0603	0.33W	2	±150	±3% (H)
			3 ~ 4	±150	±2% (G)
			5 ~ 20	±100	±1% (F)

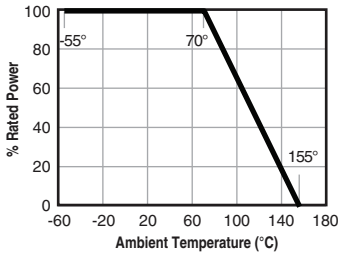
Series	Pkg. Size	Power Rating (W @70°C)	Resistance Range (mΩ)	TCR (ppm/°C)	Tolerance
LVT08	0805	0.5W	2	±100	±3% (H)
			3	±100	±2% (G)
			4	±75	±2% (G)
			5 ~ 10	±75	±1% (F)
			11 ~ 20	±50	±1% (F)
LVT12	1206	1.0W	2	±100	±3% (H)
			3	±100	±2% (G)
			4	±75	±2% (G)
			5 ~ 10	±75	±1% (F)
			11 ~ 20	±50	±1% (F)

CHARACTERISTICS

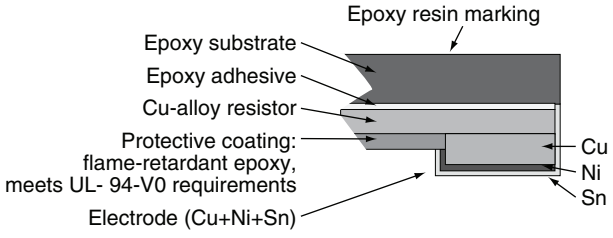
Res. Range	0.002- 0.020 dependent on size and TCR value
Operating Temp. Range	-55°C ~ 155°C
Rated Ambient Temperature	+70°C
Resistance Tolerance	3%, 2% and 1% based on resistance value
Temperature Coefficient	±150, 100, 75, or 50 ppm based on resistance
Coating Material	epoxy resin
Terminals	100% matte tin
Storage conditions	2 years airtight, +10°C ~ 40°C, relative humidity ≤75%. Without dew, +10°C ~ 60°C, relative humidity 95%, maximum value for 30 days.

Derating

Power rating is based on continuous full load operation at rated ambient temperature of 70ºC. For resistors operated at ambient temp. in excess of 70 ºC, the max. load shall be derated in accordance with the following curve.



Construction



LVT Series

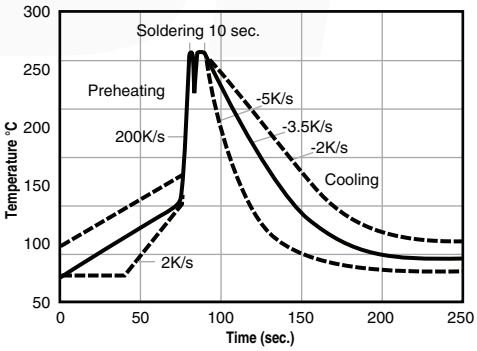
Low Value Current Sense

PERFORMANCE CHARACTERISTICS

Parameter	Condition	Requirement
Short Time Overload	2.5Pr; 5±2°C, 5sec.	±(1.0%+0.5mΩ); IEC60115-1 4.13
High Temp. Exposure	+155±2°C, 1000h	±(1.0%+0.5mΩ); IEC60115-1 4.25
Low Temp. Storage	-55±2°C, 1000h	±(1.0%+0.5mΩ); IEC60115-1 4.25
Moisture Load Life	60°C, 95% RH; Vtest = Vmax; 60±2°C; RH=95%; 90min ON, 30min OFF, 1000h	±(2.0%+0.5mΩ); IEC60115-1 4.25
Thermal Shock	-55°C 30min., R.T. 3min.. +155°C 30min., R.T. 3min, 100 Cycles	±(1.0%+0.5mΩ); IEC60115-1 4.19
Load Life at 70°C	Vtest = Vmax; 70±2°C; 90min ON, 30min OFF, 1000h	±(2.0%+0.5mΩ); IEC60115-1 4.25
Solderability	Dip into solder at 245 ±5°C, 3±0.5sec.,	covered area 95%; IEC60115-1 4.17
Resistance to Solder Heat	Through Reflow, 275 ±5°C, 20 ±1sec.	±(1.0%+0.5mΩ); IEC60115-1 4.18
Mechanical Shock	100G, 11ms, 5x	±(1.0%+0.5mΩ); IEC60115-1 4.21
Substrate Bending	Span between fulcrums; 90mm; Bend Width 2mm; Test board Glass-Epoxy Board; Thickness 1.6mm	±(1.0%+0.5mΩ); IEC60115-1 4.33

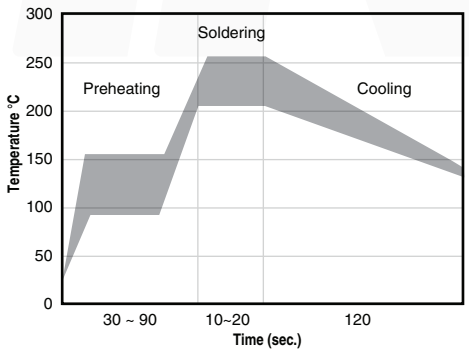
SOLDERING

Wave



Preheating : 100°C ~ 130°C, max.100 sec.
Soldering: 250°C ~ 265°C max. 10 sec.
Maximum temperature : 260°C ±5, max. 10 sec.

Reflow



Preheating : 145°C ±15, max.120 sec.
Soldering : min. 220°C, max. 60 sec.
Maximum temperature : 260°C ±5, max. 10 sec.

Rework temperature

(hot air equipment) 350°C, 3 ~ 5 seconds

Recommended reflow methods

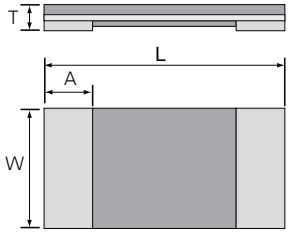
IR, vapor phase oven, or hot air oven. If reflow temperatures exceed the recom - mended profile, devices may not meet the performance requirements.

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DIMENSIONS

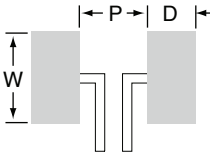
(mm)



Part	Res. Range	W	L	T	A
LVT02	R010~R020	0.30 ±0.10	0.60 ±0.10	0.25 +0.1/-0.05	0.15 ±0.10
LVT04	R0025~R004	0.55 ±0.10	1.00 ±0.10	0.30 ±0.05	0.30 ±0.10
LVT04	R005~R020	0.55 ±0.10	1.00 ±0.10	0.30 ±0.05	0.23 ±0.10
LVT06	R002	0.80 ±0.25	1.60 ±0.25	0.40 ±0.25	0.45 ±0.20
LVT06	R003	0.80 ±0.25	1.60 ±0.25	0.40 ±0.25	0.35 ±0.20
LVT06	R004~R020	0.80 ±0.25	1.60 ±0.25	0.40 ±0.25	0.30 ±0.20
LVT08	R002	1.25 ±0.25	2.00 ±0.25	0.40 ±0.25	0.60 ±0.20
LVT08	R003~R020	1.25 ±0.25	2.00 ±0.25	0.40 ±0.25	0.40 ±0.20
LVT12	R002	1.60 ±0.25	3.20 ±0.25	0.40 ±0.25	1.05 ±0.30
LVT12	R003	1.60 ±0.25	3.20 ±0.25	0.40 ±0.25	0.80 ±0.30
LVT12	R004~R020	1.60 ±0.25	3.20 ±0.25	0.40 ±0.25	0.60 ±0.30

Solder pad

Part	Res. Range	P	W	D
LVT02	R010~R020	0.25mm	0.33mm	0.20mm
LVT04	R0025~R020	0.40mm	0.60mm	0.60mm
LVT06	R002	0.50mm	0.92mm	1.35mm
LVT06	R003~R020	0.60mm	0.92mm	1.30mm
LVT08	R002	0.50mm	1.44mm	1.55mm
LVT08	R003~R020	0.80mm	1.44mm	1.40mm
LVT12	R002	0.60mm	1.84mm	2.10mm
LVT12	R003~R020	1.20mm	1.84mm	1.80mm

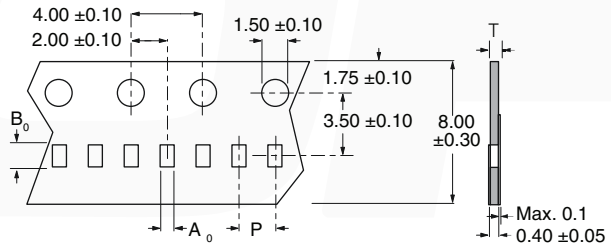


TAPE AND REEL

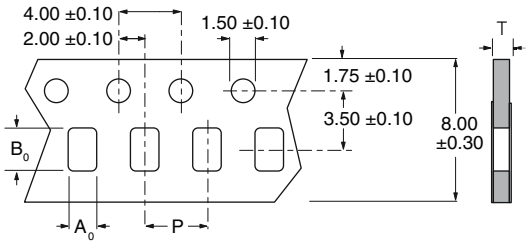
(mm)

Tape

LVT04

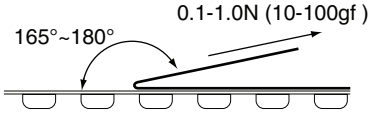


LVT06, 08 & 12

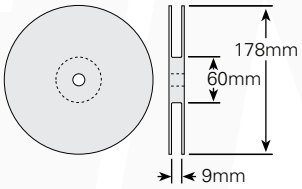


Part	P	A0	B0	T
LVT02	2.00 ±0.10	0.38 ±0.10	0.68 ±0.10	0.45 ±0.05
LVT04	2.00 ±0.10	0.75 ±0.20	1.25 ±0.20	0.50 ±0.05
LVT06	4.00 ±0.10	1.18 ±0.20	1.98 ±0.20	0.75 ±0.10
LVT08	4.00 ±0.10	1.55 ±0.20	2.30 ±0.20	0.75 ±0.20
LVT12	4.00 ±0.10	2.05 ±0.20	3.65 ±0.20	0.75 ±0.20

Peeling strength



Reel



Part	Qty/reel	Weight (g)
LVT02	10,000	100 ±30
LVT04	10,000	100 ±30
LVT06	5,000	110 ±30
LVT08	5,000	120 ±30
LVT12	5,000	140 ±30

ORDERING INFORMATION

RoHS Compliant

L V T 0 4 R 0 0 2 5 H E R

- **Series**
- **Case Size**: 02 = 0201, 04 = 0402, 06 = 0603, 08 = 0805, 12 = 1206
- **Ohms**: R005 = 0.005
- **Tolerance**: D = 0.5%, F = 1%, G = 2%, H = 3%
- **Tape & Reel**

Standard part numbers

LVT02R0100FER	LVT06R0020HER	LVT08R0010JER	LVT12R0010JER
LVT02R0200FER	LVT06R0030GER	LVT08R0015JER	LVT12R0020HER
LVT04R0025HER	LVT06R0050FER	LVT08R0020HER	LVT12R0030GER
LVT04R0030GER	LVT06R0100FER	LVT08R0025HER	LVT12R0050FER
LVT04R0050FER	LVT06R0150FER	LVT08R0030GER	LVT12R0100FER
LVT04R0100FER	LVT06R0200FER	LVT08R0050FER	LVT12R0150FER
LVT04R0150FER		LVT08R0100FER	LVT12R0200FER
LVT04R0200FER		LVT08R0150FER	
LVT04R0250FER		LVT08R0200FER	
LVT04R0500FER			

Marking

Resistance (mΩ)	Series LVT06	Series LVT08	Series LVT12
2	02	002	
5			R005
5.1			5M10
10	10	010	R010

(no marking on LVT04)