

LVM Series

Current Sensing Metal Chip Resistor



APPLICATIONS

- Power Management Applications
- Switching Power Supply
- Over Current Protection in Audio Applications
- Voltage Regulation Module (VRM)
- DC-DC Converter, Battery Pack, Charger, Adaptor

FEATURES

- SMD Type designed for automatic insertion
- High overload rating in small size (5 times rated wattage for 5 seconds)
- Metal foil construction ensures high reliability and performance with very low TCR values
- Designed for current sense circuits in power electronic systems
- Pb-Free to meet RoHS requirements

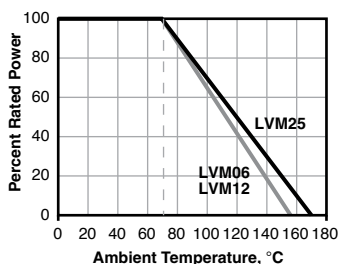
SERIES SPECIFICATIONS

Series	Power Rating	Resistance Range*	TCR ppm/°C	Tolerance
LVM06	0.125W	10m-19m	100	±1% ±2% ±5%
		20m- 100m	50, 100	
LVM12	0.5W	10m-19m	100	±1% ±2% ±5%
		20m- 100m	50, 100	
LVM25	1.0W	7m-100m	75	±0.5% ±1% ±5%
		15m- 100m	50	

CHARACTERISTICS

Rated Cont. Working Volts	$\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower
Derating	100% @ 70°C, Derates Linearly to Zero @ 155°C (170°C for LVM25)
Operating temp. range	-55°C ~ +155°C (LVM25, -55°C ~ +170°C)
Storage Temperature	25° ±3°C C; Humidity < 80%RH

Derating



PERFORMANCE DATA

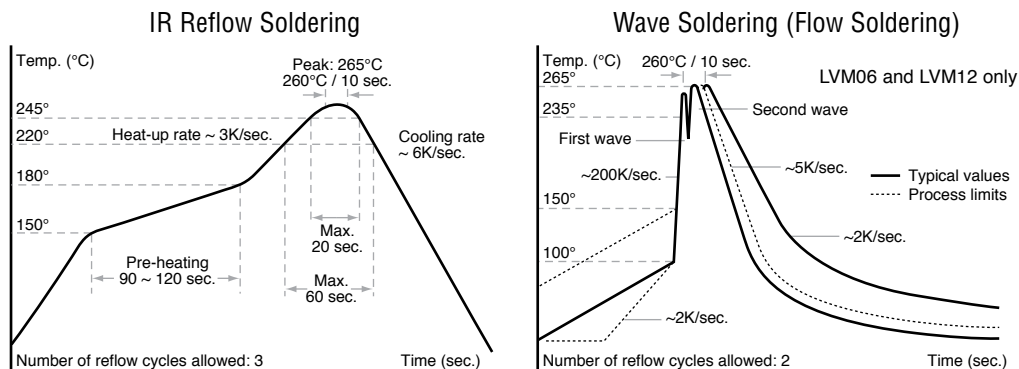
Item	Requirements	Test Method
TCR	As Spec.	JIS-C-5201-1 4.8, IEC-60115-1 4.8, -55°C~+125°C, 25°C is the reference temperature
Short Time Overload	±(0.5%+0.05Ω)	JIS-C-5201-1 4.13, IEC-60115-1 4.13, 5 X Rated Power for 5 seconds
Insulation Resistance	≥10G (100M for LVM25)	JIS-C-5201-1 4.6, IEC-60115-1 4.6, Max. Overload voltage for 1 minute
Endurance	±(1.0%+0.05Ω)	JIS-C-5201-1 4.25, IEC-60115-1 4.25.1, 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(1.0%+0.05Ω) (LVM06 & 12 only)	JIS-C-5201-1 4.24, 40±2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	±(0.5%+0.05Ω) (1% for LVM25)	JIS-C-5201-1 4.23, IEC-60115-1 2.23.2, at +155°C for 1000 hrs
Bending Strength	±(1.0%+0.05Ω)	JIS-C-5201-1 4.33, IEC-60115-1 4.33, Bending once for 5 seconds with 3mm, 2010, 2512 sizes: 2mm
Solderability	95% min. coverage	JIS-C-5201-1 4.17, IEC-60115-1 4.17, 245±5°C for 3 seconds
Resistance to Soldering Heat	±(0.5%+0.05Ω) (LVM06 & 12 only)	JIS-C-5201-1 4.18, IEC-60115-1 4.18, 260±5°C for 10 seconds
Voltage Proof	No breakdown or flashover (LVM06 & 12 only)	JIS-C-5201-1 4.7, IEC-60115-1 4.7, 1.42 times Max. Operating Voltage for 1 minute
Leaching	Individual leaching area ≤5%, Total leaching area ≤10% (LVM06 & 12 only)	JIS-C-5201-1 4.18, IEC-60068-2-58 8.2.1, 260±5°C for 30 seconds
Rapid Change of Temp.	±(0.5%+0.05Ω) 1% for LVM25	JIS-C-5201-1 4.18, IEC-60115-1 4.18, -55°C to +155°C, 5 cycles

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CHARACTERISTICS

Soldering condition

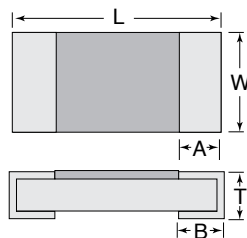


- (1) Time of IR reflow soldering at maximum temperature point 260°C, 10 sec.
- (2) Time of wave soldering at maximum temperature point 260°C, 10 sec.
- (3) Time of soldering iron at maximum temperature point 410°C, 5 sec.

DIMENSIONS

(mm)

Series	Size	Res. mΩ	L	W	T	A	B
LVM06	0603	10-29	1.55 ± 0.10	0.85 ± 0.10	0.40 ± 0.10	0.30 ± 0.15	0.45 ± 0.15
	30-100		1.55 ± 0.10	0.85 ± 0.10	0.40 ± 0.10	0.30 ± 0.15	0.35 ± 0.15
LVM12	1206	10-29	3.05 ± 0.15	1.55 ± 0.15	0.58 ± 0.15	0.50 ± 0.25	0.90 ± 0.25
	30-100		3.05 ± 0.15	1.55 ± 0.15	0.55 ± 0.15	0.50 ± 0.25	0.60 ± 0.25
LVM25	2512	7-100	6.40 ± 0.25	3.20 ± 0.25	0.70 ± 0.20	0.90 ± 0.30	0.90 ± 0.30



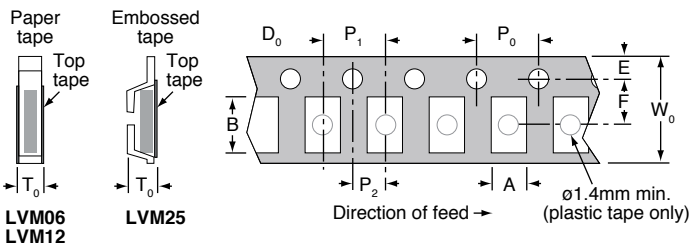
Land Pattern

A	B	C
0.40	1.20	0.9
0.70	1.05	0.9
0.9	1.70	1.70
1.50	1.40	1.70
4.00	2.00	3.50

REEL SPECIFICATIONS

(mm)

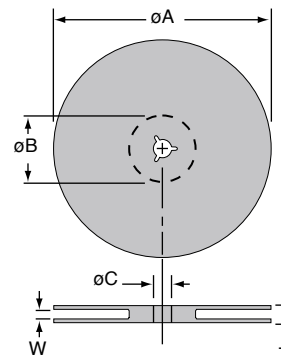
Tape



Series	A	B	W0	E	F	P0	P1	P2	φD0	T0
LVM06	1.10±0.10	1.90±0.10	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.70±0.10
LVM12	1.90±0.10	3.50±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10
LVM25	3.50±0.10	6.70±0.10	12.0±0.30	1.75±0.10	5.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.1,-0	1.20 max.

Reel

Series	φA	φB	φC	W	T	Qty.
LVM06	178.0±1.0	60.0±1.0	13.5±0.7	9.5±0.1	11.5±1.0	5,000
LVM12	178.0±1.0	60.0±1.0	13.5±0.7	9.5±0.1	11.5±1.0	5,000
LVM25	178.0±1.5	60.0±1.0	13.0±0.5	13.0±1.0	15.5±0.5	4,000



ORDERING INFORMATION

Not all TCR's available in all resistance values. Please see characteristics chart above.

TCR
Z = 75ppm
V = 50ppm
T = 100ppm

RoHS Compliant

LVM06FTR050E-TR

Series	Case Size	Tolerance	Ohms	Packaging
	06 = 0603	D = 0.5%	R030 = 0.030	TR = Tape and reel
	12 = 1206	F = 1%	R100 = 0.100	
	25 = 2512	G = 2%		
		J = 5%		

Standard Part Numbers

LVM06FTR010E-TR	LVM12FTR010E-TR	LVM25FZR010E-TR
LVM06FTR015E-TR	LVM12FTR015E-TR	LVM25FVR015E-TR
LVM06FTR025E-TR	LVM12FTR025E-TR	LVM25FVR020E-TR
LVM06FTR050E-TR	LVM12FTR050E-TR	LVM25FVR025E-TR
LVM06FTR100E-TR	LVM12FTR100E-TR	LVM25FVR030E-TR
		LVM25FVR050E-TR
		LVM25FVR100E-TR