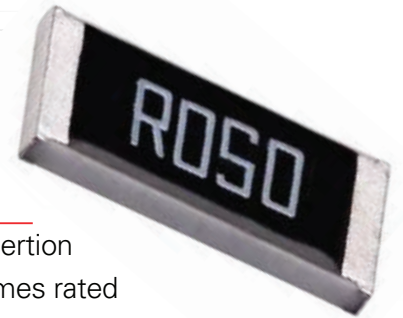


# LVM Series

## 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 electronics systems
- Pb-Free to meet RoHS requirements

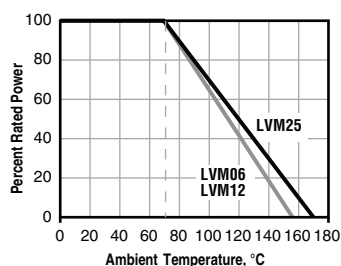
## SERIES SPECIFICATIONS

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

### CHARACTERISTICS

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

### Derating



### PERFORMANCE DATA

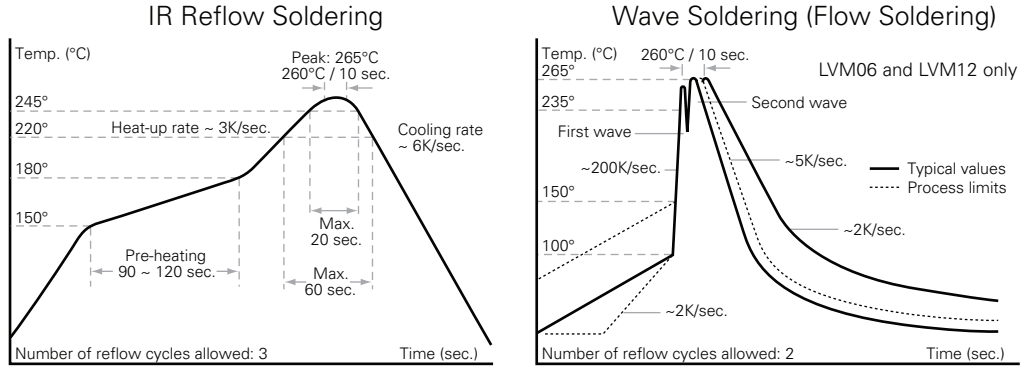
Item	Requirement	Test Method
<b>TCR</b>	As Spec.	JIS-C-5201-1 4.8, IEC-60115-1 4.8, -55°C~+125°C, 25°C is the reference temperature
<b>Short Time Overload</b>	±(0.5%+0.05Ω)	JIS-C-5201-1 4.13, IEC-60115-1 4.13, 5 X Rated Power for 5 seconds
<b>Insulation Resistance</b>	≥10G (100M for LVM25)	JIS-C-5201-1 4.6, IEC-60115-1 4.6, Max. Overload voltage for 1 minute
<b>Endurance</b>	±(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"
<b>Damp Heat with Load</b>	±(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"
<b>Dry Heat</b>	±(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
<b>Bending Strength</b>	±(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
<b>Solderability</b>	95% min. coverage	JIS-C-5201-1 4.17, IEC-60115-1 4.17, 245±5°C for 3 seconds
<b>Resistance to Soldering Heat</b>	±(0.5%+0.05Ω) (LVM06 & 12 only)	JIS-C-5201-1 4.18, IEC-60115-1 4.18, 260±5°C for 10 seconds
<b>Voltage Proof</b>	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
<b>Leaching</b>	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
<b>Rapid Change of Temp.</b>	±(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

# LVM Series

## Current Sensing Metal Chip Resistor

### CHARACTERISTICS

#### Soldering condition

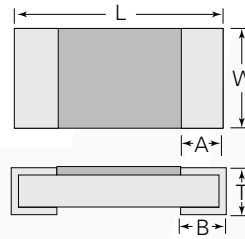


- (1) Time of IR reflow soldering at maximum temperature point 260°C, 10 sec.
- (2) Time of wave soldering at maximum temperature point 260°C, 10 sec.
- (3) Time of soldering iron at maximum temperature point 410°C, 5 sec.

### 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



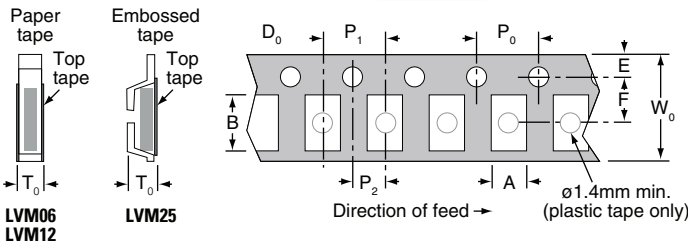
#### Land Pattern

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)

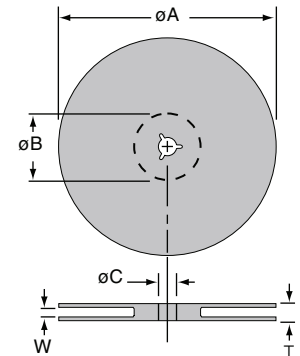
#### Tape



Series	A	B	W0	E	F	P0	P1	P2	øD0	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	øA	øB	øC	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 resistive values. Please see characteristics chart above.

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

RoHS Compliant

**L V M 0 6 F T R 0 5 0 E - T R**

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