

# TEMPERATURE SENSITIVE METAL FILM RESISTORS

TC'S FROM +150 TO +7000 PPM

**MLP SERIES** +155°C MELF

**LP SERIES** +155°C AXIAL

**LPT SERIES** +300°C AXIAL



## FEATURES

- Economically priced PTC sensors
- Wide resistance range: 1.5Ω - 100K
- High stability, excellent linearity
- Standard tolerance: ±5% (1%, 2%, 10% available)
- Marked with color bands or alpha-numeric
- Resistance value is measured at 25°C (0°C available)
- Flat chip available, refer to FLP series



## STANDARD TEMPERATURE COEFFICIENTS

(Boldfaced items indicate most popular TC's)

TCR* (ppm/°C)	TCR* Tolerance	Standard Resistance Range	
		LP12 & MLP12	LP25 & MLP25
150	±50 ppm/°C	51Ω - 51KΩ	100Ω - 100KΩ
250		51Ω - 51KΩ	100Ω - 100KΩ
350		51Ω - 51KΩ	100Ω - 100KΩ
450		51Ω - 51KΩ	100Ω - 100KΩ
550		51Ω - 51KΩ	100Ω - 100KΩ
650	±10%	51Ω - 43KΩ	100Ω - 82KΩ
750		51Ω - 43KΩ	100Ω - 82KΩ
850		51Ω - 43KΩ	100Ω - 82KΩ
950		51Ω - 43KΩ	100Ω - 82KΩ
1000		51Ω - 27KΩ	100Ω - 51KΩ
1200		51Ω - 27KΩ	100Ω - 51KΩ
1400		51Ω - 27KΩ	100Ω - 51KΩ
1600		51Ω - 10KΩ	100Ω - 27KΩ
1800		51Ω - 10KΩ	100Ω - 27KΩ
2000		51Ω - 9.1KΩ	100Ω - 22KΩ
2200	51Ω - 9.1KΩ	100Ω - 22KΩ	
<b>2500</b>	±5%	51Ω - 9.1KΩ	100Ω - 22KΩ
3000		10Ω - 5.1KΩ	20Ω - 10KΩ
3300		10Ω - 5.1KΩ	20Ω - 10KΩ
3600		10Ω - 5.1KΩ	1.5Ω - 10KΩ
<b>4000</b>		10Ω - 3.3KΩ	1.5Ω - 10KΩ
<b>4500</b>	10Ω - 680Ω	10Ω - 10KΩ	
<b>5000</b>	10Ω - 680Ω	10Ω - 10KΩ	
7000**	±10%	10Ω - 10KΩ	10Ω - 10KΩ

<sup>1</sup> 1% tol avail in limited resis.range

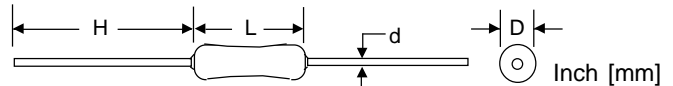
<sup>2</sup> LPT resis. may also be specified at 0°C (e.g. "101@0", "1001@0")

\* T.C. measured at 25°C and 65°C.

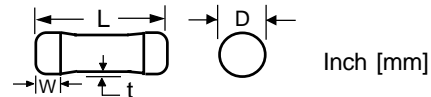
\*\* 7000 ppm parts are marked alphanumerically. Operating temp. range is -65 to +125°C, resis. tol. is 5% or 10%, hermetically sealed silicon

## Linear positive temperature coefficients:

LP & MLP temperature sensitive resistors feature linear positive T.C.'s in a wide range of R/T slopes. The series was developed as a low cost substitute for wirewound sensors. Various temperature coefficients are obtained by adjusting the film composition. LPT features platinum film for improved linearity, interchangeability and +300°C operating temp. Small sizes result in fast response times, typically 6 seconds for LP/MLP12 & LPT, 9 seconds for LP/MLP25 (in still air).



TYPE	L ±.031 [.8]	D ± .02 [.5]	d ± .003 [.08]	H Min.
LP12	.140 [3.56]	.064 [1.6]	.020 [.5]	1.00 [25.4]
LP25	.270 [6.86]	.090 [2.3]	.024 [.6]	1.18 [30]
LPT	.157 [4]	.064 [1.6]	.018 [.46]	1.00 [25.4]



TYPE	L±.01 [.25]	D±.008 [.2]	W (Min.)	t (Max.)
MLP12	.135 [3.4]	.057 [1.45]	.012 [.3]	.006 [.15]
MLP25	.225 [5.7]	.085 [2.15]	.020 [.5]	.008 [.2]

## PERFORMANCE

	LP12 & MLP12	LP25 & MLP25	LPT
TC (25 - 65°C)	+150~ +5000ppm/°C	+150~ +5000ppm/°C	+3500ppm/°C
Resis. Range	10 ohm to 51K	1.5 ohm to 100K	10 to 500 ohm
Wattage @25°C	1/8W	1/4W	1/16W
Voltage Rating	150V	250V	150V
Operating Temp.	-55°C to +155°C	-55°C to +155°C	-55°C to +300°C
Derating >25°C	.77%/°C (W&V)	.77%/°C (W&V)	.364%/°C (W&V)
Thermal Diss.	2.5 mW/°C	4.5mW/°C	2mW/°C
1000-hr Load Life	1.0% Max.	1.0% Max.	0.5% Max.
1 Year Shelf Life	0.3% Max.	0.3% Max.	0.2% Max.
High Temp. Exposure	±1% after 1000hrs@125°C	±1% after 1000hrs@125°C	±0.5% after 1000hrs@150°C
Linearity	±0.5% 0~100°C ±1.5% -50~150°C	±0.5% 0~100°C ±1.5% -50~150°C	±0.2% 0~100°C ±0.5% -50~150°C ±1.5% -50~300°C

## P/N DESIGNATION:

RCD Type (LP12, MLP12, LP25, MLP25, LPT) — **LP25 - 101 - J T 151 W**

**Resis. @25°C<sup>2</sup>:** If ≥2% tol. use 2 signif. figures & multiplier, (1R0=1Ω, 100=10Ω, 101=100Ω, 102=1K, 103=10K, etc.); If ≤1% tol. use 3 signif. digits & multiplier (1R00=1Ω, 10R0=10Ω, 1000=100Ω, 1001=1K, 1002=10K, 1003=100K)

**Tolerance:** F=1%, G= 2%, J= 5% (std), K=10%

**Packaging:** B = Bulk, T = Tape & Reel

**TC:** Use 3-digit code (151=150ppm, 102=1000ppm, 452=4500ppm)

**Termination:** W=Pb-free, Q=SnPb (leave blank if either is acceptable)