



# Chip-Type Metal Plate Low-Resistance Resistor Type TLR

## 1. General

- Products with lead-free terminations meet RoHS requirements
- Metal alloy: superior corrosion & heat resistance
- Applications include current sensing, voltage division and pulse applications
- Ultra low resistance (1mΩ~20mΩ) suitable for large current detecting
- Ultra-low TCR ( $\pm 75\text{ppm}/^\circ\text{C}$ ) available
- Low inductance
- Products with lead-free terminations meet EU RoHS and China RoHS requirements
- AEC-Q200 Qualified: 2B, 2H, 3A & 3AW

## 2. Type Designation

The type designation shall be the following form:

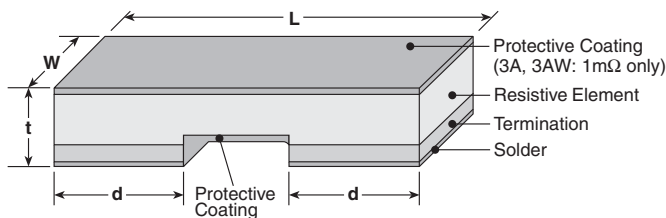
TLR	3A	D	TE	2L00	F	75
Type	Power Rating	Termination Material	Packaging	Nominal Resistance	Tolerance	T.C.R.
<p><b>New</b></p> <p>2BN: 0.5W</p> <p>2B: 0.5W</p> <p>2BW: 1W</p> <p>2H: 1W</p> <p><b>New</b></p> <p>2HW: 2W</p> <p>3A: 1W</p> <p>3AW: 2W</p> <p><b>New</b></p> <p>3AP: 3W</p>	<p>D: SnAgCu</p>	<p>TE: 7" 8mm pitch embossed plastic (3A, 3AW, 3AP: 2,000 pcs/reel)</p> <p>TE: 7" 4mm pitch embossed plastic (2H, 2HW only: 4,000 pcs/reel)</p> <p>TD: 4mm pitch punched paper (2B, 2BW: 5,000 pcs/reel paper)</p>	<p>F: 4 digits</p> <p>Ex: 2L00: 2mΩ</p>	<p>F: <math>\pm 1\%</math></p>	<p>50: 50ppm/<math>^\circ\text{C}</math></p> <p>75: 75ppm/<math>^\circ\text{C}</math></p> <p>Nil: 100ppm/<math>^\circ\text{C}</math></p> <p>Nil: 150ppm/<math>^\circ\text{C}</math></p> <p>Nil: 200ppm/<math>^\circ\text{C}</math></p>	

### 3. Standard Applications

Part Designation	Power Rating @ 70°C	T.C.R. (ppm/°C) Max.**	Standard Resistance (Ω)	Resistance Tolerance	Rated Ambient Temperature	Terminal Temperature under a Rated Load	Operating Temperature Range
TLR2B	1/2W (.5W)**	±75	2m,3m,4m,5m,6m,7m, 8m,9m,10m,11m,12m, 13m,15m,16m,18m,20m	F: ±1%	+70°C	—	-65°C to +155°C
<b>NEW</b> TLR2BW	1W	±75	2m,3m,4m,5m,6m,7m, 8m,9m,10m,11m,12m, 13m,15m,16m,18m,20m	F: ±1%	—	+120°C	-65°C to +155°C
TLR2H	1W	±75	1m,2m,3m,4m,5m, 6m,7m,8m,9m,10m	F: ±1%	+70°C	—	-65°C to +155°C
<b>NEW</b> TLR2HW	2W	±50 ±75	1m,2m,3m,4m,5m, 6m,7m,8m,9m,10m	F: ±1%	—	+120°C	-65°C to +155°C
TLR3A	1W	±150 ±200	1m, 2m 3m, 4m	F: ±1%	+70°C	—	-65°C to +170°C
TLR3AW	2W	±75 ±150	*0.5m,1m,1.5m,2m***, 3m,4m,5m,6m,7m, 8m,9m,10m	F: ±1%	+70°C	—	-65°C to +155°C
<b>NEW</b> TLR3AP	3W	±50 ±75	2m,3m,4m,5m 6m,7m,8m,9m,10m 0.5m,0.68m,0.82m,1m, 1.5m,2m,3m,4m,5m,6m, 7m,8m,9m,10m	F: ±1%	—	0.5m ~ 8m: +110°C 9m, 10m: +90°C	-65°C to +155°C

\* Contact factory for values less than 1mΩ \*\* Please contact factory for T.C.R.: ±50ppm/°C \*\*\* Contact factory for 2mΩ dimensions

### 4. Dimensions & Construction

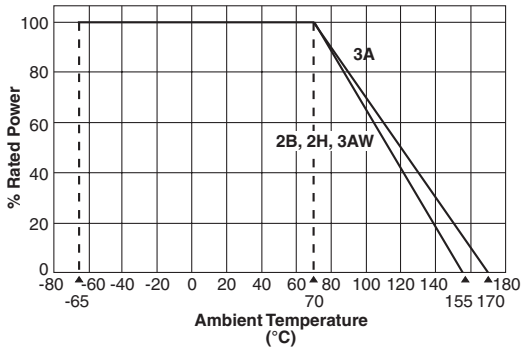


Size Code	Resistance	Dimensions inches (mm)			
		L	W	d	t
TLR2B	2m,3m,4m,5m, 6m,7m,8m,9m, 10m,11m,12m, 13m,15m,16m, 18m,20m	.126±.008 (3.20±0.20)	.063±.008 (1.60±0.20)	.020±.008 (0.50±0.20)	.024±.008 (0.60±0.20)
<b>NEW</b> TLR2BW	1mΩ 2mΩ - 20mΩ	.126±.008 (3.20±0.20)	.063±.008 (1.60±0.20)	.051±.008 (1.30±0.20) .020±.008 (0.50±0.20)	.024±.008 (0.60±0.20)
<b>NEW</b> TLR2H TLR2HW	1mΩ 2mΩ - 6mΩ 7mΩ - 10mΩ	.200±.008 (5.00±0.20)	.100±.008 (2.50±0.20)	.071±.008 (1.80±0.20) .060±.008 (1.50±0.20) .020±.008 (0.50±0.20)	.026±.008 (0.65±0.20) .024±.008 (0.60±0.20)

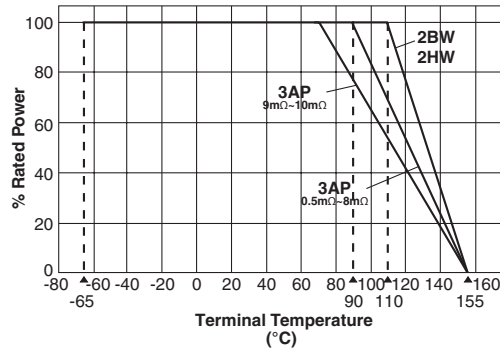
Size Code	Resistance	Dimensions inches (mm)			
		L	W	d	t
TLR3A	1mΩ	.25±.01 (6.35±0.25)	.125±.01 (3.18±0.25)	.087±.01 (2.20±0.25)	.024±.01 (0.62±0.25)
	2mΩ			.047±.01 (1.20±0.25)	
	3mΩ			.073±.01 (1.85±0.25)	
	4mΩ			.047±.01 (1.20±0.25)	
TLR3AW	0.5mΩ	.25±.01 (6.35±0.25)	.125±.01 (3.18±0.25)	.107±.01 (2.725±0.25)	.024±.01 (0.60±0.25)
	1mΩ, 1.5mΩ, 2mΩ, 3mΩ, 4mΩ			.087±.01 (2.20±0.25)	
	5mΩ, 6mΩ, 7mΩ, 8mΩ			.047±.01 (1.20±0.25)	
	9mΩ, 10mΩ			.030±.01 (0.77±0.25)	
<b>NEW</b> TLR3AP	0.5m	.25±.01 (6.35±0.25)	.125±.01 (3.18±0.25)	.107±.01 (2.725±0.25)	.024±.01 (0.60±0.25)
	0.68m, 0.82m			.105±.01 (2.675±0.25)	
	1m, 1.5m, 3m, 4m			.087±.01 (2.20±0.25)	
	2m			.098±.01 (2.50±0.25)	
	5m, 6m, 7m, 8m			.047±.01 (1.20±0.25)	
	9m, 10m			.030±.01 (0.77±0.25)	

## 5. Derating Curve

Ambient Temperature - TLR2B/2H/3A/3AW



Terminal Temperature - TLR2BW/2HW/3AP

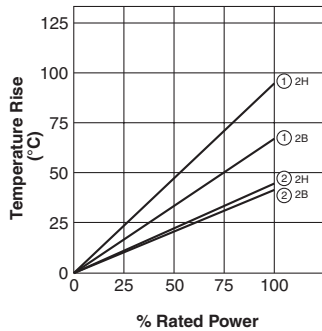


For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

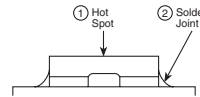
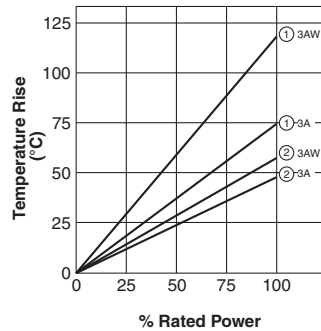
## 6. Temperature Rise

### Temperature Rise

TLR2B/2H 8mΩ



TLR3A/3AW 4mΩ

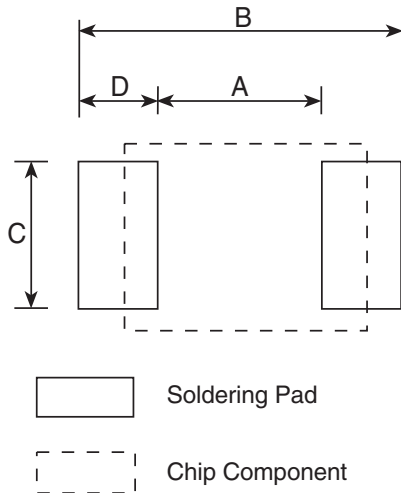


Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

## 7. Characteristics

Parameter	Requirement $\Delta R \pm\%$		Test Method
	Limit	Typical	
Resistance	Within regulated tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+100°C
Resistance to Solder Heat	$\pm 0.5\%$	$\pm 0.3\%$	260°C $\pm 5^\circ\text{C}$ , 10 ~ 12 seconds
Rapid Change of Temperature	$\pm 0.5\%$	$\pm 0.4\%$	-55°C (15 minutes), +150°C (15 minutes), 1000 cycles
Moisture Resistance	$\pm 0.5\%$	$\pm 0.1\%$	MIL-STD-202, Method 106, 0% power, 7a and 7b not required
Biased Humidity	$\pm 0.5\%$	$\pm 0.1\%$	85°C $\pm 2^\circ\text{C}$ , 85% RH, 1000 hours, 10% bias; 2BW: maintain in -65°C+3°C for 24 hrs
Endurance (Ambient Temp.)	$\pm 1.0\%$	$\pm 0.3\%$	70°C $\pm 2^\circ\text{C}$ , 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance (Terminal Temp.)	$\pm 1.0\%$	$\pm 0.3\%$	120°C (TLR2BW/2HW), 110°C (3AP 0.5m-8mΩ), 90°C (3AP) 9m-10mΩ, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	$\pm 1.0\%$	$\pm 0.6\%$	$\pm 155^\circ\text{C}$ (2B, 2BW, 2H, 3AW, 3AP), $\pm 170^\circ\text{C}$ (3A), 1000 hours

## 8. Solder Pad Dimensions

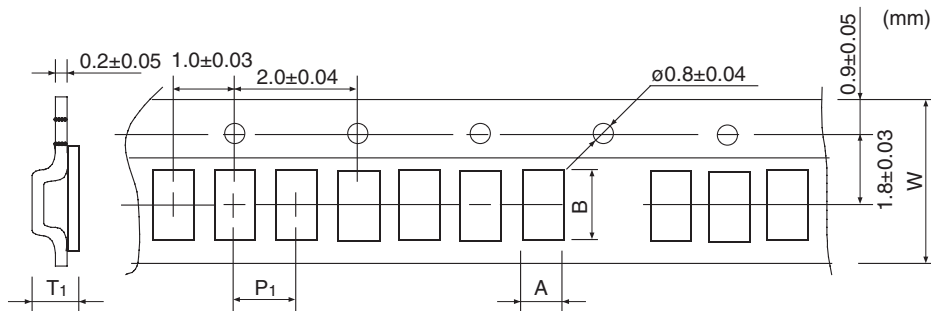


Type	Style	Dimensions millimeters				
		Component Size	A	B	C	D
TLR	1E	1.0 X 0.5	0.2	1.3	0.6	0.55
	2A	2.0 X 1.25	0.5	2.5	1.3	1.0
	2BN, 2B	3.2 X 1.6	1.4	4.0	1.8	1.3
	2H(1mΩ)	5.0 X 2.5	1.0	6.1	3.0	2.55
	2H (2mΩ-6mΩ)	5.0 X 2.5	1.3	6.1	3.0	2.4
	2H (7mΩ-10mΩ)	5.0 X 2.5	3.3	6.1	3.0	1.4
	3A(1mΩ)	6.35 X 3.18	1.45	7.55	3.83	3.05
	3A(2mΩ)	6.35 X 3.18	3.45	7.55	3.83	2.05
	3A(3mΩ)	6.35 X 3.18	2.45	7.55	3.83	2.70
	3A(4mΩ)	6.35 X 3.18	3.45	7.55	3.83	2.05
	3AW (1mΩ-4mΩ)	6.35 X 3.18	1.45	7.55	3.83	3.05
	3AW (5mΩ-8mΩ)	6.35 X 3.18	3.45	7.55	3.83	2.05
	3AW (9mΩ-10mΩ)	6.35 X 3.18	4.40	7.55	3.83	1.575

## 9. Packaging

### 9.1 Dimensions of Carrier Tape

● Carrier Tape: TX



Type	Component Size (mm)			Carrier Tape	Quantity/ Reel (Pieces)	Taping (mm)					Reel Size	
	L	W	T			A	B	W	P1	T1		
TLR	1E	1.0	0.5	0.25	TP	10000	1.15±0.05	0.65±0.05	8	2	0.40±0.1	178
	1J	1.6	0.8	0.45	TD	5000	1.10±0.1	1.9	8	4	0.6±0.05	178
	2A	2.0	1.25	0.25	TD	5000	2.4±0.1	1.65±0.1	8	4	0.42+0.02/-0	178
	3A, 3AW	6.4	3.2	0.6	TE	2000	3.55±0.1	6.75±0.2	12.0±0.1	8.0±0.2	1.0±0.1	180
	2B, 2BN	3.2	1.6	0.6	TD	5000	2.0±0.2	3.5±0.2	8.0±0.2	4.0±0.1	0.75+0.2/-0	180
	2H	5.0	2.5	0.6	TE	4000	2.9±0.1	5.35±0.2	12.0±0.1	4.0±0.1	1.0±0.15	180

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [koa speer manufacturer](#):*

Other Similar products are found below :

[RK73H1JTDD8662F](#) [SR732BTK001KIT](#) [RN73H1JTDD2700B25](#) [MF1/4CC1001F](#) [SR732ATK001KIT](#) [WK73S2HTTE20LJ](#)  
[TLR2BWDTD18L0F75](#) [RN73H2ATTD3902B25](#) [RN731JTDD3602B25](#) [RN73H2ATTD6802B25](#) [RN732ATTD1601B25](#) [HV73TK001KIT](#)  
[SG73TK001KIT](#) [RK73Z1JTDD](#) [RN731JTDD3902B25](#) [RN732ATTD2102B25](#) [MF1/4DC3300F](#) [SL1TTE15L0F](#) [TLR2BPDTD10L0F75](#)  
[WK73S3A3TTE1R50F](#) [SR73W3ATTER100F](#) [RN73H2ATTD1201B25](#) [RN732ATTD6202B25](#) [RN73H1JTDD1102B25](#) [RN731JTDD1800B25](#)  
[SR733ATK001KIT](#) [TLR2ATTD2L00F](#) [RK73H1FTK001KIT](#) [CF1/4C104J](#) [RK73H3ATTE24R9F](#) [CF1/4C112J](#) [SR731JTK001KIT](#)  
[SR73W2HTTER680F](#) [SLN5TTED16L9F](#) [MOSX3CT631R1R0J](#) [RK73H1HTTC75R0F](#) [MOS1CT52R111J](#) [SL1TTER33J](#)  
[RN732ATTD8202B25](#) [RN73H2ATTD9102B25](#) [RN731ETTP1600B25](#) [MF1/2CC3322F](#) [RK73H1JTDD1502F](#) [RN732BTDD6191B25](#)  
[SLZ1TTE](#) [RN732ATTDK2002B10](#) [RN73H1JTDD5601B25](#) [MOS1CT528R560J](#) [SR731ETTPR560F](#) [RN732ATTD43R0B25](#)