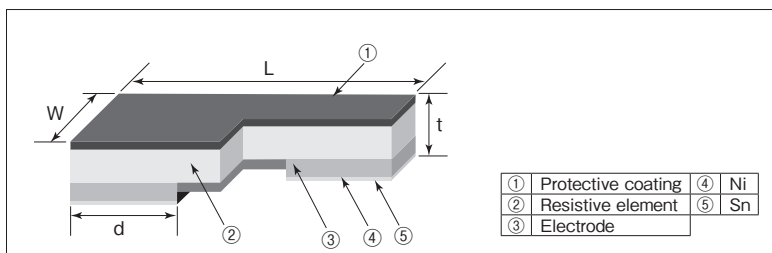


## TLR Metal Plate Chip Type Low Resistance Resistors



Coating color : Black

### Construction



### Features

- SMD type of small size, metal plate low resistance resistor for current detection.
- Low height suitable for use of Small equipment such as mobile phone.
- High reliability and performance with T.C.R.  $\pm 100 \times 10^{-6}/K$
- Suitable for reflow soldering. (Not suitable for flow soldering.)
- Products meet EU-RoHS requirements.
- AEC-Q200 qualified.

### Applications

- Mobile phones, PDAs, Media players, Computers etc.

### Reference Standards

IEC 60115-1  
JIS C 5201-1

### Dimensions

Type (Inch Size Code)	Resistance	Dimensions (mm)				Weight (g) (1000pcs)
		L	W	d	t	
2A(0805)	2m $\Omega$	2.0 $\pm$ 0.2	1.25 $\pm$ 0.2	0.60 $\pm$ 0.20	0.30 $\pm$ 0.15	5.6
	3m $\Omega$				0.25 $\pm$ 0.15	4.0
	4m $\Omega$			0.45 $\pm$ 0.20		3.7
	5m $\Omega$			0.65 $\pm$ 0.20		4.8
	6m $\Omega$			0.55 $\pm$ 0.20	0.30 $\pm$ 0.15	4.7
	7m $\Omega$			0.50 $\pm$ 0.20		4.6
	8m $\Omega$			0.50 $\pm$ 0.20		3.8
	9m $\Omega$			0.45 $\pm$ 0.20	0.26 $\pm$ 0.15	3.7
	10m $\Omega$			0.35 $\pm$ 0.20		3.6

### Type Designation

Example

TLR	2A	T	TD	10L0	F
Product Code	Power Rating	Terminal Surface Material	Taping	Nominal Resistance	Resistance Tolerance
	2A : 1.0W	T : Sn	TD : 4mm pitch punch paper BK : Bulk	F : 4 digits	F : $\pm 1\%$

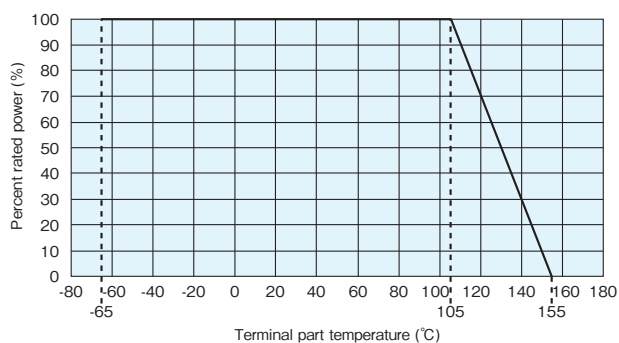
Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

For further information on taping, please refer to APPENDIX C on the back pages.

### Ratings

Type	Power Rating	T.C.R. ( $\times 10^{-6}/K$ )	Resistance Range ( $\Omega$ )	Resistance Tolerance	Rated Terminal Part Temp.	Operating Temp. Range	Taping & Q'ty/Reel (pcs)
TLR 2A	1.0W	$\pm 100$	2m, 3m, 4m 5m, 6m, 7m, 8m, 9m, 10m	F : $\pm 1\%$	105 $^{\circ}$ C	-65 $^{\circ}$ C ~ +155 $^{\circ}$ C	TD 5,000

## Derating Curve



When the terminal part temperature of the resistor exceeds the rated terminal part temperature shown above, the power shall be derated according to the derating curve.

※Please refer to "Introduction of the derating curves based on the terminal part temperature" on the beginning of our catalog before use.

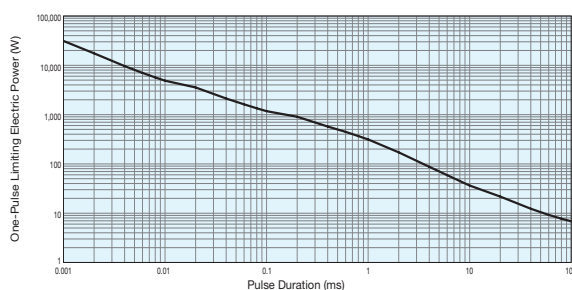
## One-Pulse Limiting Electric Power

The maximum applicable voltage is equal to the max. overload voltage.

Please ask us about the resistance characteristic of continuous applied pulse.

The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

TLR2A



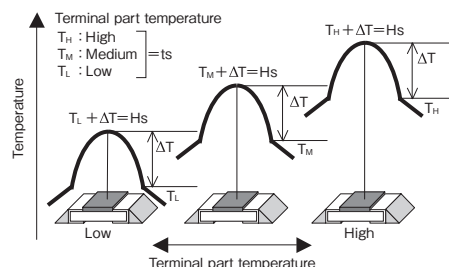
## Thermal Resistance

Type	Resistance (Ω)	Rth (°C/W)
TLR2A	2m	26.1
	10m	54.7

$$R_{th} = (H_s - t_s) / \text{Power}$$

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. Please refer to us before use.

The temperature of the resistor will increase the same  $\Delta T$  from the standard terminal part temperature regardless of the ambient temperature when the same power is applied. This is because there is hardly any heat dissipation from the resistor surface to the ambient air.



## Performance

Test Items	Performance Requirements $\Delta R\%$		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+125°C
Overload (Short time)	1	0.05	Rated power $\times 2.5$ for 5s
Resistance to soldering heat	1	0.01	260°C $\pm 5^\circ\text{C}$ 10~12秒
Rapid change of temperature	1	0.2	-55°C (15min.) / +150°C (15min.) 1000 cycles
Moisture resistance	1	0.3	85°C, 85%RH, 1000h, 10% Bias
Endurance at 105°C and less of terminal part temperature	1	0.4	Terminal part temp. : 105°C, 1000h, 1.5h ON/0.5h OFF cycle
Low temperature exposure	1	0.05	-65°C, 96h
High temperature exposure	1 (2m~4m, 7m~10m) 2 (5m, 6m)	0.5 (2m~4m, 7m~10m) 0.8 (5m, 6m)	155°C 1000h

## Precautions for Use

- In case of using the low ohm resistors as shunt resistors, please lay out a pattern considering the electromagnetic induction with surrounding inductors.
- For resistance values of TLR the resistance value after soldering may change depending on the size of pad pattern or solder amount. Make sure the effect of decline/increase of resistance value before designing.