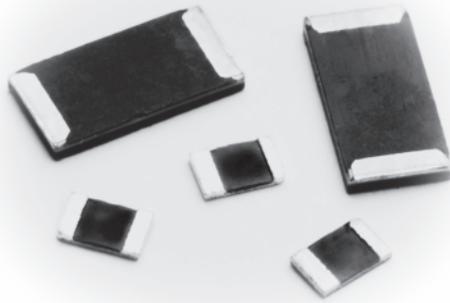
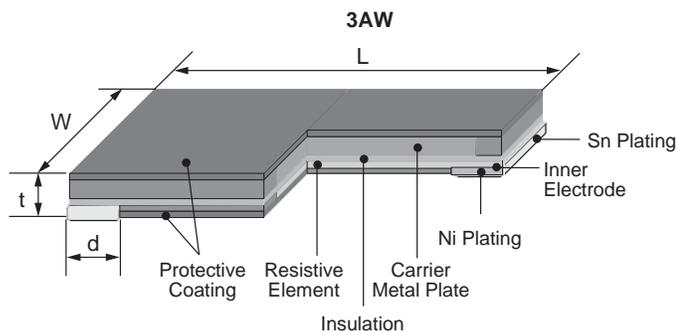
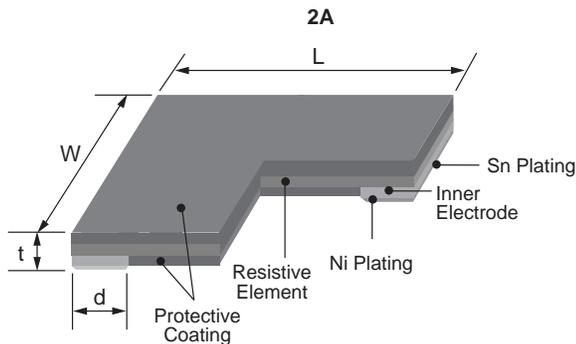


## features

- SMD Type of small size, low resistance resistor for current detection
- Carrier metal plate inside, resistor of high radiation of heat structure (3AW, 3AP)
- High reliability and performance with low T.C.R.
- Automatic mounting machines are applicable (Not applicable for flow soldering)
- Body color: Black protective top coating, 2A: no marking; 3AW 4 digit marking
- Products with lead-free terminations meet EU RoHS requirements
- AEC-Q200 Qualified



## dimensions and construction



Size Code (Inch)	Dimensions inches (mm)			
	L	W	d	t
TLRH 2A (0805)	.079±.008 (2.00±0.20)	.049±.008 (1.25±0.20)	.014±.008 (0.35±0.20)	.010±.006 (0.25±0.15)
TLRH 3AW (2512)	.248±.008 (6.30±0.20)	.126±.008 (3.20±0.20)	.030±.008 (0.75±0.20)	.020±.008 (0.50±0.20)
NEW TLRH 3AP (2512)	.248±.008 (6.30±0.20)	.126±.008 (3.20±0.20)	.071±.008 (1.8±0.20)	.020±.008 (0.50±0.20)
			.051±.008 (1.3±0.20)	

## ordering information

New Part #	TLRH	3AW	T	TE	33L0	F
Type						
Power Rating		2A (10~27mΩ): 0.5W (33~50mΩ): 0.33W (56~100mΩ): 0.25W 3AW: 2.0W New 3AP: (6~39mΩ): 5.0W (40~120mΩ): 4.0W				
Terminal Surface Material			T: Sn			
Packaging				2A: TD: 7" 4mm pitch punched paper 3AW, 3AP: TE: 7" punched plastic		
Nominal Resistance					±1%: 4 digits Example 33L0: 33mΩ R100: 100mΩ 2A: no marking	
Tolerance						F: ±1%

For further information on packaging, please refer to Appendix A.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

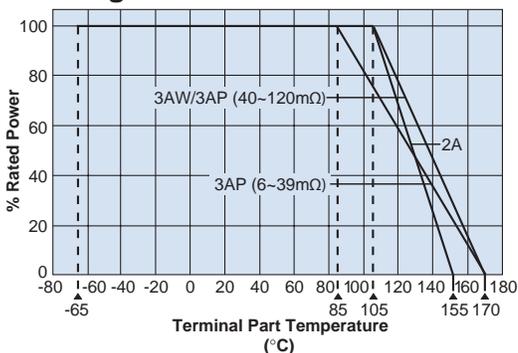
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## applications and ratings

Part Designation	Power Rating	T.C.R. (x10 <sup>-6</sup> /K)	Resistance Range (Ω) F: ±1% (E12)	Tolerance	Rated Terminal Part Temperature	Operating Temperature Range
TLRH 2A	0.25W	±75	56m~100m	F: ±1%	+105°C	-65°C~+155°C
	<b>New</b> 0.33W		33m ~ 50m			
	<b>New</b> 0.50W		10m ~ 27m			
TLRH 3AW	2.0W	±75	10m~22m		85°C	-65°C~+170°C
		±50	24m~270m			
TLRH 3AP	4.0W	±50	40m, 47m, 50m, 56m~120m		85°C	
	5.0W	±50	18m, 20m, 22m, 25m~39m			
		±75	6m, 7m, 8m, 9m, 10m, 12m			

## environmental applications

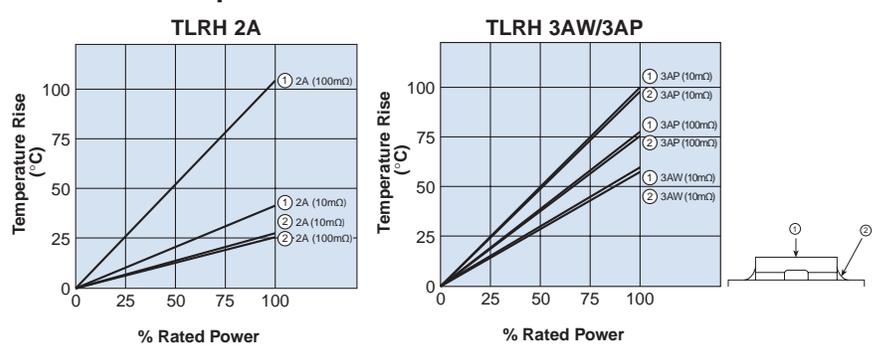
### Derating Curve



For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve.

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

### Temperature Rise



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 contact factory prior to use.

## Performance Characteristics

Parameter	Requirement Δ R%		Test Method
	Limit	Typical	
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+100°C
Overload (Short time)	±0.5%	2A: ±0.05% 3AW,3AP: ±0.2%	2A, 3AW: Rated power x 2.5 for 5 seconds 3AP: Rated power x 8W for 5 seconds
Resistance to Soldering Heat	±0.5%	±0.1%	260°C ±5°C, 10 seconds ~ 12 seconds
Rapid Change of Temperature	±0.5%	2A: ±0.2% 3AW,3AP: ±0.1%	-55°C (15min.)/+150°C (15min.) 1000 cycles
Moisture Resistance	±0.5%	±0.1%	85°C ±2°C, 85% RH, 1000 hours, 10% Bias
Endurance at 105°C and Less of Terminal Part Temperature	±1%	2A: ±0.45% 3AW,3AP: ±0.3%	2A, 3AW, 3AP (40~120mΩ): 105°C, ±2°C; 3AP (6~39mΩ): 85°C ±2°C 1000 hours, 1.5 hours ON/0.5 hour OFF cycle
Low Temperature Exposure	±0.5%	2A: ±0.05% 3AW,3AP: ±0.02%	-65°C, 96 hours
High Temperature Exposure	±1%	2A: ±0.5% 3AW,3AP: ±0.2%	2A: +155°C, 1000 hours (6~12mΩ) 3AW, 3AP: +170°C±3°C, 1000 hours (18~120mΩ)
	±2%		3AP: +170°C±3°C, 1000 hours (6~12mΩ)

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3/07/16