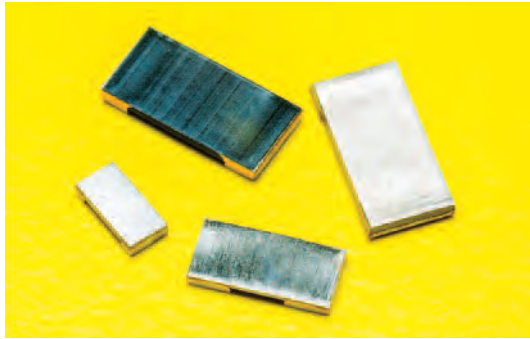




**THE DATASHEET OF
TLR3APDTE5L00F50**

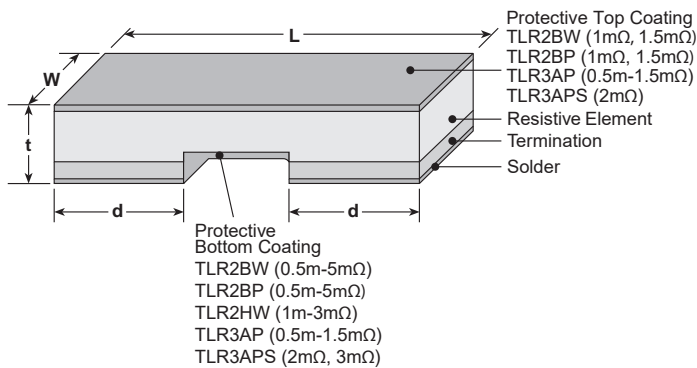




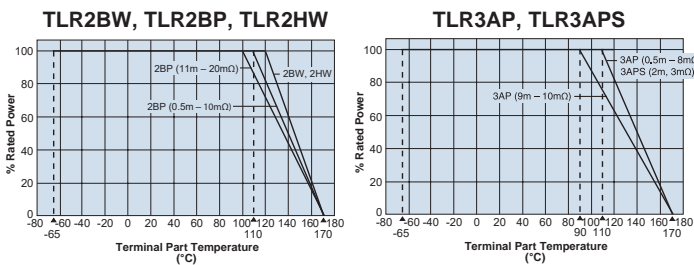
features

- Ultra low height with a thickness of 0.6mm, suitable for use of small equipment
- Ultra low resistances (0.5mΩ~), suitable for large current sensing
- Suitable for reflow soldering (Not suitable for flow soldering)
- Products meet EU RoHS requirements
- AEC-Q200 Tested

dimensions and construction



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 in the terminal part temperature" in the beginning of our catalog before use.

| Size Code | Resistance | Dimensions inches (mm) | | | |
|-----------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | L | W | d | t |
| TLR2BW | 0.5mΩ | | | .049±.008 (1.25±0.20) | .028±.008 (0.70±0.20) |
| | 1mΩ 1.5mΩ | .126±.008 (3.20±0.20) | .063±.008 (1.60±0.20) | .043±.008 (1.10±0.20) | .024±.008 (0.60±0.20) |
| | 2mΩ - 20mΩ | | | .020±.008 (0.50±0.20) | |
| TLR2BP | 0.5mΩ | | | .049±.008 (1.25±0.20) | .028±.008 (0.70±0.20) |
| | 1mΩ, 1.5mΩ | .126±.008 (3.20±0.20) | .063±.008 (1.60±0.20) | .043±.008 (1.10±0.20) | .024±.008 (0.60±0.20) |
| | 2mΩ - 20mΩ | | | .020±.008 (0.50±0.20) | |
| TLR2HW | 0.5mΩ | | | .075±.008 (1.90±0.20) | .028±.008 (0.70±0.20) |
| | 1mΩ | .200±.008 (5.00±0.20) | .100±.008 (2.50±0.20) | .071±.008 (1.80±0.20) | .026±.008 (0.65±0.20) |
| | 1.5mΩ | | | | |
| | 2mΩ - 6mΩ | | | .060±.008 (1.50±0.20) | .024±.008 (0.60±0.20) |
| TLR3AP | 0.5mΩ | | | .107±.01 (2.725±0.25) | .024±.01 (0.60±0.25) |
| | 0.68mΩ, 0.75mΩ, 0.82mΩ | | | .105±.01 (2.675±0.25) | |
| | 1mΩ, 1.5mΩ, 3mΩ, 4mΩ | .25±.01 (6.35±0.25) | .125±.01 (3.18±0.25) | .087±.01 (2.20±0.25) | |
| | 2mΩ | | | .098±.01 (2.50±0.25) | |
| | 5mΩ, 6mΩ, 7mΩ, 8mΩ | | | .047±.01 (1.20±0.25) | |
| | 9mΩ, 10mΩ | | | .030±.01 (0.77±0.25) | |
| TLR3APS | 2mΩ, 3mΩ | .25±.01 (6.35±0.25) | .125±.01 (3.18±0.25) | .047±.01 (1.20±0.25) | .024±.01 (0.60±0.25) |

ordering information

| TLR | 2BW | D | TD | 10L0 | F | 75 |
|------|--|----------------------|---|---|-----------|------------------------------|
| Type | Power Rating | Termination Material | Packaging | Nominal Resistance | Tolerance | T.C.R. |
| | 2BW: 1W 2BP: 1.5W, 3W 2HW: 2W 3AP: 3W, 5W 3APS: 3W | D: SnAgCu | TD: 7" 4mm pitch punched paper TE: 7" 4mm embossed plastic | ±1%: 4 digits All values less than 0.1Ω (100m) are expressed in mΩ with "L" as decimal Ex: 2mΩ = 2L00 | F: ±1% | 50: 50ppm/°C 75: 75ppm/°C |

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.

11/28/22

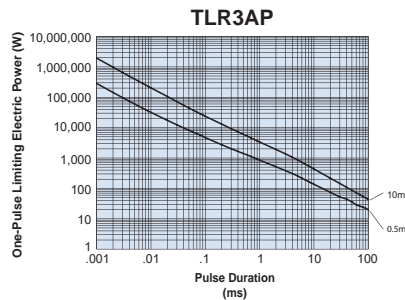
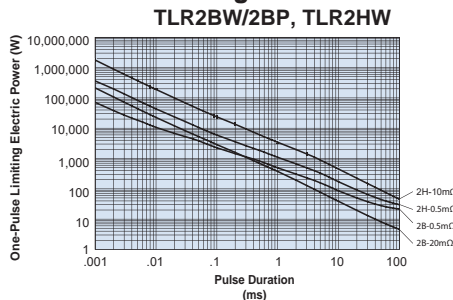
applications and ratings

current sense

| Part Designation | Power Rating | T.C.R. (ppm/°C) Max. | Standard Resistance (Ω) | Resistance Tolerance | Rated Terminal Part Temperature | Operating Temperature Range |
|------------------|--------------|----------------------|--|----------------------|---------------------------------|-----------------------------|
| TLR2BW | 1W | ±50 | 2m,3m,4m,5m,6m,7m,8m,9m,10m,11m,12m,13m,15m,16m,18m,20m | F: ±1% | +120°C and less | -65°C to +170°C |
| | | ±75 | 0.5m,1m,1.5m,2m,3m,4m,5m,6m,7m,8m,9m,10m,11m,12m,13m,15m,16m,18m,20m | | | |
| TLR2BP | 1.5W | ±50 | 5m,6m,7m,8m,9m,10m 11m,12m,13m,15m,16m,18m,20m | F: ±1% | +110°C and less | -65°C to +170°C |
| | | ±75 | 5m,6m,7m,8m,9m,10m 11m,12m,13m,15m,16m,18m,20m | | +100°C and less | |
| | 3W | ±50 | 2m,3m,4m | F: ±1% | +110°C and less | |
| | | ±75 | 0.5m,1m,1.5m,2m,3m,4m | | +100°C and less | |
| TLR2HW | 2W | ±50 ±75 | 0.5m,1m,1.5m,2m,2.5m,3m,4m,5m,6m,7m,8m,9m,10m | F: ±1% | +120°C and less | -65°C to +170°C |
| TLR3AP | 3W | ±50 | 5m,6m,7m,8m,9m,10m | F: ±1% | 5m ~ 8m: +110°C and less | -65°C to +170°C |
| | | ±75 | | | 9m, 10m: +90°C and less | |
| | 5W | ±50 | 2m,3m,4m | F: ±1% | 0.5m~1m, 2m~4m: +110°C and less | -65°C to +170°C |
| | | ±75 | 0.5m,0.68m,0.75m,0.82m,1m,1.5m,2m,3m,4m | | 1.5m: +90°C and less | |
| TLR3APS | 3W | ±50, ±75 | 2m,3m | F: ±1% | +110°C and less | -65°C to +170°C |

environmental applications

One-Pulse Limiting Electric Power



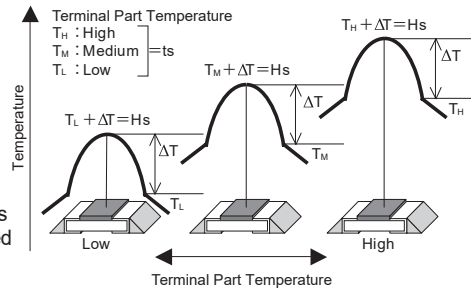
Please ask us about the resistance characteristic of continuous applied pulse. The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

Thermal Resistance

| Type | Size | Resistance (Ω) | Rth (°C/W) |
|------|---------|----------------|------------|
| TLR | 2BW/2BP | 0.5m | 7.2 |
| | | 20m | 116 |
| | 2HW | 0.5m | 9 |
| | | 10m | 61.1 |
| | 3AP | 0.5m | 6 |
| | | 10m | 62 |

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

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 ΔT 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 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/+125°C |
| Resistance to Solder Heat | ±0.5% | ±0.3% | 260°C ± 5°C, 10 ± 2 seconds |
| Rapid Change of Temperature | ±0.5% | ±0.3% | -55°C (15 minutes), +150°C (15 minutes), 1000 cycles |
| Moisture Resistance | ±0.5% | ±0.1% | MIL-STD-202-106, 0% power, 7a and 7b not required |
| Biased Humidity | ±0.5% | ±0.1% | 85°C ± 2°C, 85% RH, 1000 hours, 10% bias |
| Endurance of Rated Terminal Part Temperature | ±1.0% | ±0.3% | 120°C ± 2°C (2BW, 2HW), 110°C ± 2°C (3AP 0.5m~1mΩ, 2m~8mΩ) 90°C ± 2°C (3AP 1.5mΩ, 9mΩ~10mΩ), 110°C ± 2°C (2BP 0.5mΩ~10mΩ) 100°C ± 2°C (2BP 11mΩ~20mΩ), 110°C ± 2°C (3APS 2mΩ, 3mΩ) 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| High Temperature Exposure | ±1.0% | ±0.6% | ±155°C, 1000 hours |
| | ±2.0% | ±0.8% | ±170°C, 1000 hours |

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7/21/23

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