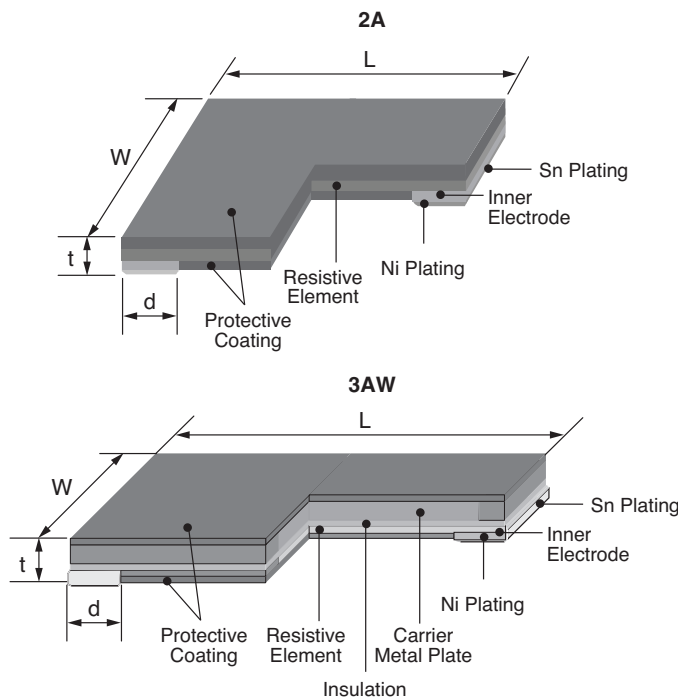




features

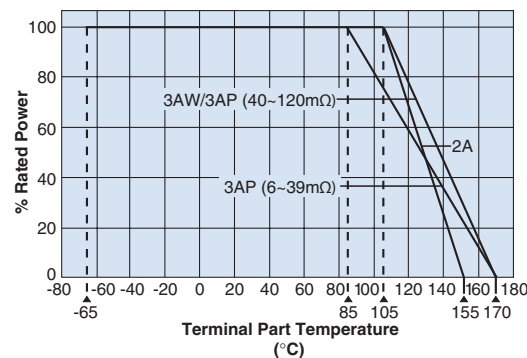
- SMD Type of small size, low resistance resistor for current detection
- Carrier metal plate inside, resistor of high radiation of heat structure (3AW, 3AP)
- High reliability and performance with low T.C.R.
- Automatic mounting machines are applicable
- Suitable for reflow soldering (Not suitable for flow soldering)
- Products with lead-free terminations meet EU RoHS requirements
- AEC-Q200 Qualified

dimensions and construction



| Size Code (Inch) | Resistance (Ω) | Dimensions inches (mm) | | | |
|------------------|----------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | L | W | d | t |
| TLRH 2A (0805) | 12m~100m | .079±.008 (2.00±0.20) | .049±.008 (1.25±0.20) | .014±.008 (0.35±0.20) | .010±.008 (0.25±0.20) |
| TLRH 3AW (2512) | 10m~270m | .248±.008 (6.30±0.20) | .126±.008 (3.20±0.20) | .030±.008 (0.75±0.20) | .020±.008 (0.50±0.20) |
| TLRH 3AP (2512) | 6m~39m | .248±.008 (6.30±0.20) | .126±.008 (3.20±0.20) | .071±.008 (1.8±0.20) | .020±.008 (0.50±0.20) |
| | 40m~120m | | | .051±.008 (1.3±0.20) | |

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" in the beginning of our catalog before use.

ordering information

| | | | | | |
|-------------|---|---------------------------|--|---|-----------|
| TLRH | 3AW | T | TE | 33L0 | F |
| Type | Power Rating | Terminal Surface Material | Packaging | Nominal Resistance | Tolerance |
| | 2A (12~27mΩ): 0.5W (33~50mΩ): 0.33W (56~100mΩ): 0.25W 3AW: 2.0W 3AP: (6~39mΩ): 5.0W (40~120mΩ): 4.0W | T: Sn | 2A: TD: 7" 4mm pitch punched paper 3AW, 3AP: TE: 7" punched plastic | ±1%: 4 digits All values less than 0.1Ω (100m) are expressed in mW with "L" as decimal Ex: 2mΩ = 2L00 2A: No marking | 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.

9/24/19

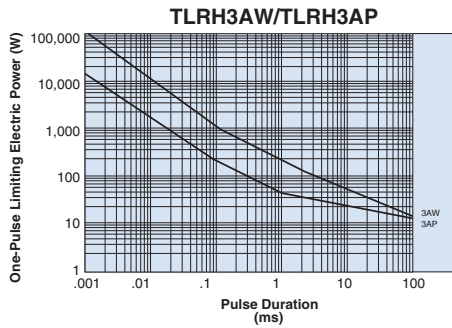
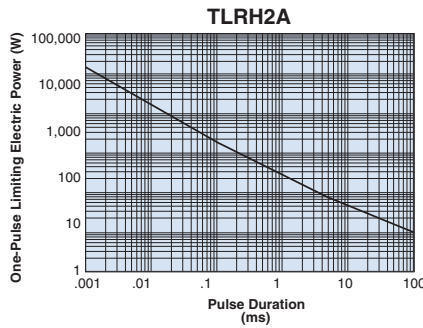
applications and ratings

current sense

| Part Designation | Power Rating | T.C.R. (x10 ⁻⁶ /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 |
| | 0.33W | | 33m ~ 50m | | | |
| | 0.50W | | 12m ~ 27m | | | |
| TLRH 3AW | 2.0W | ±75 | 10m~22m | | 85°C | -65°C~+170°C |
| | 2.0W | ±50 | 24m~270m | | | |
| TLRH 3AP | 4.0W | ±50 | 40m, 47m, 50m, 56m~120m | | | |
| | 5.0W | ±50 | 18m, 20m, 22m, 25m~39m | | | |
| | | ±75 | 6m, 7m, 8m, 9m, 10m, 12m | | | |

environmental applications

One-Pulse Limiting Electric Power



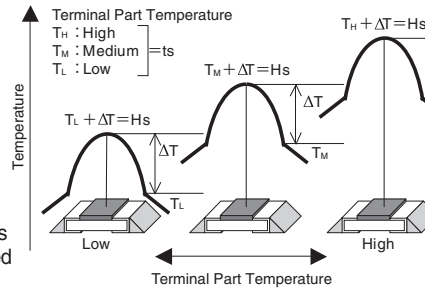
The maximum applicable voltage is equal to the max. overload voltage.
Please ask us about the resistance characteristic of continuous applied pulse.
The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

Thermal Resistance

| Type | Size | Resistance (Ω) | Rth (°C/W) |
|------|------|----------------|------------|
| TLRH | 2A | 27m | 123 |
| | | 50m | 195 |
| | | 100m | 280 |
| | 3AW | 10m | 5.2 |
| | | 270m | 7.4 |
| | | 18m | 7.4 |
| 3AP | 120m | 4.1 | |

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

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 $\Delta R\%$ | | 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, 3AP: +155°C, 1000 hours (6~12mΩ) 3AW, 3AP: +170°C±3°C, 1000 hours (18~120mΩ) |
| | ±2% | 3AP: ±0.2% | 3AP: +170°C±3°C, 1000 hours (6~12mΩ) |

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

11/22/19

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[KOA Speer:](#)

[TLRH2ATTD100F](#) [TLRH3AWTTE22L0F](#) [TLRH3AWTTER100F](#) [TLRH2ATTD10L0F](#) [TLRH3AWTTE39L0F](#)
[TLRH3AWTTE33L0F](#) [TLRH2ATTD27L0F](#) [TLRH3AWTTER120F](#) [TLRH2ATTD47L0F](#) [TLRH2ATTD56L0F](#)
[TLRH3AWTTE56L0F](#) [TLRH2ATTD39L0F](#) [TLRH2ATTD18L0F](#) [TLRH3AWTTE82L0F](#) [TLRH2ATTD15L0F](#)
[TLRH2ATTD22L0F](#) [TLRH3AWTTE68L0F](#) [TLRH2ATTD12L0F](#) [TLRH2ATTD33L0F](#) [TLRH3AWTTE47L0F](#)
[TLRH2ATTD82L0F](#) [TLRH3AWTTE15L0F](#) [TLRH3AWTTE10L0F](#) [TLRH3AWTTE12L0F](#) [TLRH3AWTTER180F](#)
[TLRH3AWTTE50L0F](#) [TLRH3AWTTE18L0F](#) [TLRH3AWTTER220F](#) [TLRH3AWTTER270F](#) [TLRH3APTTE40L0F](#)
[TLRH3APTTE50L0F](#) [TLRH3APTTE27L0F](#) [TLRH3APTTE20L0F](#) [TLRH3APTTE68L0F](#) [TLRH3APTTE82L0F](#)
[TLRH3APTTER120F](#) [TLRH3APTTE12L0F](#) [TLRH3APTTE47L0F](#) [TLRH3APTTER100F](#) [TLRH3APTTE39L0F](#)
[TLRH3APTTE6L00F](#) [TLRH3APTTE22L0F](#) [TLRH3APTTE33L0F](#) [TLRH3APTTE9L00F](#) [TLRH3APTTE56L0F](#)
[TLRH3APTTE18L0F](#)