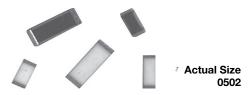


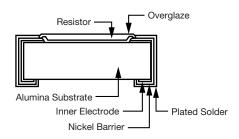


High Reliability Thick Film Resistor, Surface-Mount Chip



Utilizing proven expertise in thick and thin film resistors to satisfy your manufacturing needs, Vishay provides a high rel chip with the same reliability and stability found in military grade resistors. These chips are available in the widest range of sizes, values, and performance characteristics. And manufactured on the MIL-PRF-55342 qualified controlled production line. All product is 100 % electrical tested for tolerance and after thermal shock testing and typically meet the requirements of group A in MIL-PRF-55342 performance.

CONSTRUCTION



FEATURES

 High purity alumina substrate for high power dissipation (2 W max.)



 Wraparound terminations featuring a thin film adhesion layer covered with a leach resistant nickel barrier layer for +150 °C operating conditions



(5-2008)

- High speed laser trimming for high volume requirements
- Ruthenium based cermet thick film for dependable performance
- Fired-on glass passivation
- Tape and reel packaging standard; static-free waffle pack available
- Active trim and 0 Ω chips
- Sulfur resistant (per ASTM B809-95 humid vapor test)
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

Note

This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

TYPICAL PERFORMANCE

| • | ABSOLUTE |
|----------|----------|
| TCR | 100 |
| TOL. | 1 |

| STANDARD ELECTRICAL SPECIFICATIONS | | | | | |
|------------------------------------|------------------------------|-------------------|--|--|--|
| TEST | SPECIFICATIONS | CONDITIONS | | | |
| Material | Ruthenium | - | | | |
| Resistance Range | 1 Ω to 25 MΩ | - | | | |
| TCR: Absolute | ± 100 ppm/°C to ± 300 ppm/°C | -55 °C to +125 °C | | | |
| Tolerance: Absolute | ± 0.5 % to ± 10 % | - | | | |
| Stability: Absolute | ΔR ± 0.15 % | - | | | |
| Stability: Ratio | - | - | | | |
| Voltage Coefficient | - | - | | | |
| Working Voltage | 30 V to 200 V | - | | | |
| Operating Temperature Range | -65 °C to +155 °C | - | | | |
| Storage Temperature Range | -65 °C to +155 °C | - | | | |
| Noise | < -35 dB (typical) - | | | | |
| Shelf Life Stability: Absolute | - | - | | | |



Vishay Dale Thin Film

| COMPONEN | COMPONENT RATINGS | | | | | | |
|---------------|----------------------|------------------------|----------------------|--------------------|-------------------|--|--|
| CASE SIZE (1) | POWER RATING (mW) | WORKING VOLTAGE (V) | RESISTANCE RANGE (Ω) | TOLERANCE (± %) | TCR (± ppm/°C) | | |
| 0402 | | | 1 to 10 | 2, 5, 10 | 200, 300 | | |
| | 100 | 30 | 10 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 10 to 10M | 0.5 | 100, 200, 300 | | |
| 0502 | 100 | 40 | 1 to 10 | 2, 5, 10 | 200, 300 | | |
| | | | 10 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 10 to 10M | 0.5 | 100, 200, 300 | | |
| | 125 | 40 | 1 to 10 | 2, 5, 10 | 200, 300 | | |
| 0504 | | | 10 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 10 to 10M | 0.5 | 100, 200, 300 | | |
| | | 50 | 1 to 10 | 2, 5, 10 | 200, 300 | | |
| 0505 | 125 | | 10 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 10 to 10M | 0.5 | 100, 200, 300 | | |
| | | | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 0603 | 150 | 50 | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | | | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 0705 | 200 | 70 | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | | | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 0805 | 200 | 70 | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | 250 | 100 | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 1005 | | | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | 500 | 100 | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 1010 | | | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | 330 | 100 | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 1206 | | | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | 350 | 125 | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 1505 | | | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | 1000 | 200 | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 2010 | | | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | 750 | 200 | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 2208 | | | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |
| | 2000 | 200 | 1 to 6 | 2, 5, 10 | 200, 300 | | |
| 2512 | | | 6 to 25M | 1, 2, 5, 10 | 100, 200, 300 | | |
| | | | 5.62 to 10M | 0.5 | 100, 200, 300 | | |

Notes

[•] Consult factory for nominals above 25 $M\Omega$

^{(1) 0705} and 0805 are the same (only use 0805 when ordering)

Vishay Dale Thin Film

 0.015 ± 0.005

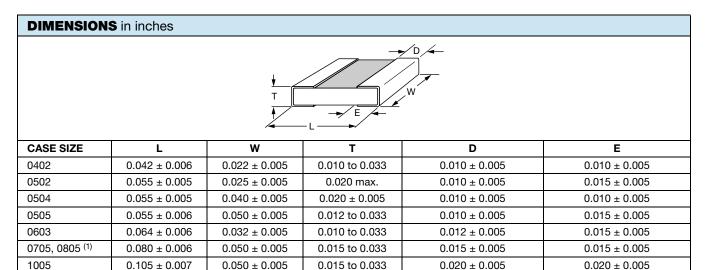
0.020 + 0.005 / - 0.010

 0.020 ± 0.005

 0.015 ± 0.005

 0.015 ± 0.005

 0.020 ± 0.005



0.015 to 0.033

 0.015 ± 0.005

0.020 + 0.005 / - 0.010

 0.020 ± 0.005

 0.015 ± 0.005

 0.015 ± 0.005

 0.020 ± 0.005

2512 **Note**

1010

1206

1505

2010

2208

 0.105 ± 0.007

 0.126 ± 0.008

 0.155 ± 0.007

 0.197 ± 0.006

 0.230 ± 0.007

 0.250 ± 0.006

 0.100 ± 0.005

 0.063 ± 0.005

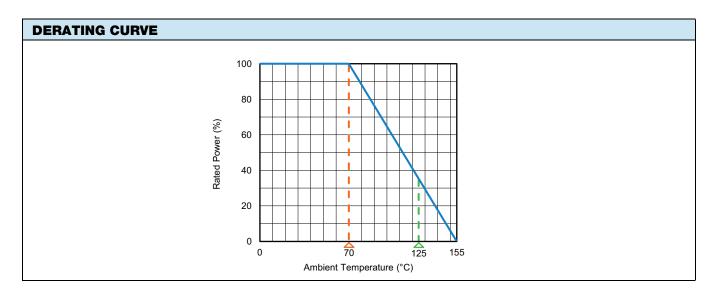
 0.050 ± 0.005

 0.098 ± 0.005

 0.075 ± 0.005

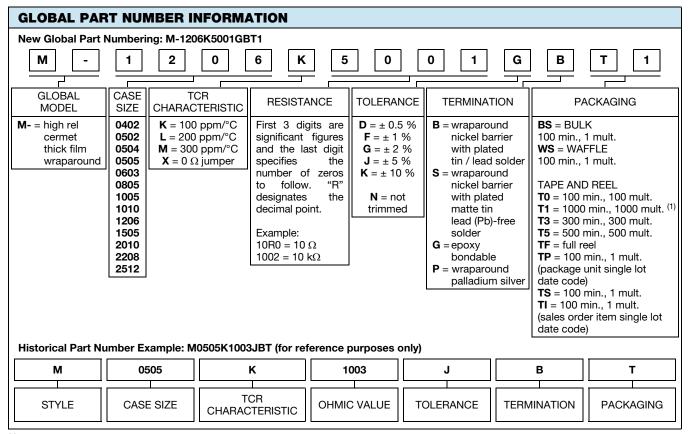
 0.124 ± 0.005

| ENVIRONMENTAL TESTS | | | | | |
|---------------------------|---------------|-----------------|--|--|--|
| ENVIRONMENTAL TEST | 10 Ω ΔR ± (%) | 100 kΩ ΔR ± (%) | | | |
| Thermal Shock | 0.02 | 0.03 | | | |
| Short Term Overload | 0.02 | 0.02 | | | |
| Low Temperature Operation | 0.03 | 0.04 | | | |
| Resistance to Solder Heat | 0.06 | 0.02 | | | |
| Moisture Resistance | 0.10 | 0.08 | | | |
| High Temperature Exposure | 0.02 | 0.02 | | | |



^{(1) 0705} and 0805 are the same (only use 0805 when ordering)

Vishay Dale Thin Film



Note

⁽¹⁾ Preferred packaging code



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Vishay

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