COMPLIANT

HALOGEN

FREE GREEN

(5-2008)

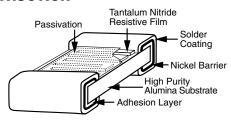


Precision Automotive Thin Film Chip Resistors, AEC-Q200 Qualified, 2 kV ESD Rating



These chip resistors are available in wraparound terminations styles in 8 case sizes. They incorporate self passivated enhanced tantalum nitride resistor film to give superior performance on moisture resistance, electrostatic discharge, voltage coefficient, power handling and resistance stability. The terminations consist of an adhesion layer, a leach resistant nickel barrier, and solder coating (lead (Pb)-free). This product will out-perform all requirements of AEC-Q200.

CONSTRUCTION



FEATURES

- Resistance range: 2.5 Ω to 3 M Ω
- AEC-Q200 qualified
- AEC-Q200 ESD rated class 1C (2 kV)
- · Laser trimmed to any value
- Moisture resistant to MIL-STD-202, method 202
- Tantalum nitride resistor film on high purity alumina substrate
- 100 % visual inspected per MIL-PRF-55342
- Laser-trimmed tolerances to ± 0.1 %
- Load life stability < 0.05 % at 1000 h at 70 °C
- Very low noise and voltage coefficient (< -30 dB, < 0.1 ppm/V)
- Sulfur resistant (per ASTM B809-95 humid vapor test)
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL PERFORMANCE

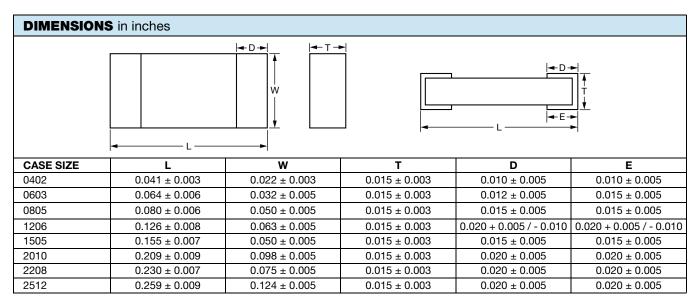
	ABSOLUTE
TCR	25
TOL.	0.1

TEST STANDARD ELECTRICAL SPI	SPECIFICATIONS	CONDITIONS
IESI	SPECIFICATIONS	CONDITIONS
Material	Tantalum nitride	-
Resistance Range	2.5 Ω to 3 M Ω	-
TCR: Absolute	\pm 25 ppm/°C to \pm 100 ppm/°C	-55 °C to +125 °C
Tolerance: Absolute	± 0.1 % to ± 1.0 %	+25 °C
Stability: Absolute	± 0.05 %	2000 h at 70 °C rated power
Stability: Ratio	Not applicable	-
Voltage Coefficient	Less than 0.1 ppm/V	-
Working Voltage	75 V to 200 V	-
Operating Temperature Range	-55 °C to +155 °C	-
Storage Temperature Range	-55 °C to +155 °C	-
Noise	< -30 dB	-
Shelf Life Stability: Absolute	100 ppm	1 year at 25 °C

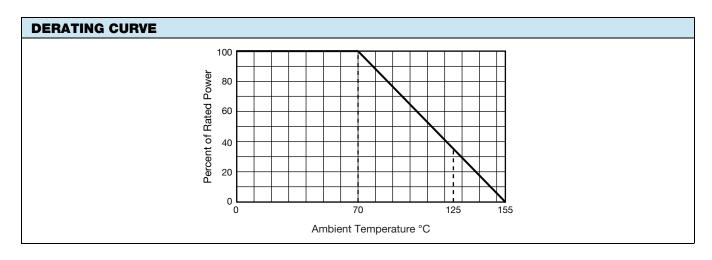
COMPONENT RATINGS				
CASE SIZE	POWER RATING (mW)	WORKING VOLTAGE (V)	RESISTANCE RANGE (Ω)	
0402	50	75	20 to 51K	
0603	150	75	2.5 to 130K	
0805	200	100	10 to 301K	
1206	400	200	10 to 1M	
1505	400	150	10 to 1M	
2208	750	150	10 to 1.75M	
2010	800	200	10 to 2M	
2512	1000	200	10 to 3M	

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Vishay Dale Thin Film

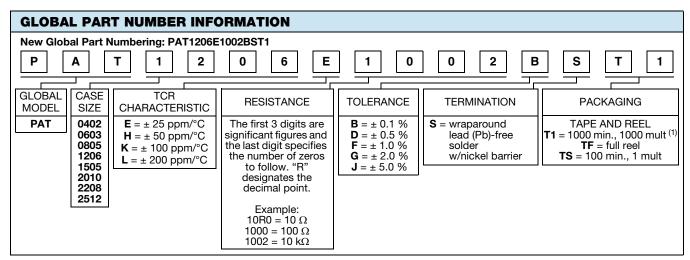


ENVIRONMENTAL TESTS (Vishay Performance vs. AEC-Q200 Requirements)				
ENVIRONMENTAL TEST		CONDITIONS	LIMITS PER AEC-Q200	TYPICAL VISHAY PERFORMANCE
Resistance Temperature Chara	cteristic	-55 °C to +125 °C	± 50 ppm/°C	± 35 ppm/°C
Max. Ambient Temp. at Rated V	Vattage		+70 °C	+70 °C
Max. Ambient Temp. at Power I	Derating		+150 °C	+150 °C
High Temperature Storage	ΔR	MIL-STD-202, 108, 1000 h at 125 °C	± 0.1 %	+ 0.016 %
Temperature Cycling	∆ R	JESD22, JA-104, 1000 cycles, -55 °C to +125 °C	± 0.15 %	+ 0.013 %
Moisture Resistance	Δ R	MIL-STD-202, 106	± 0.20 %	+ 0.0010 %
Biased Humidity	∆ R	MIL-STD-202, 103, 1000 h at 85 °C, 85 % RH, 10 % P	± 0.10 %	+ 0.004 %
Life	∆ R	MIL-STD-202, 108 at 125 °C, 1000 h	± 0.1 %	+ 0.0220 %
Mechanical Shock	Δ R	MIL-STD-202, method 213, condition C	± 0.1 %	+ 0.004 %
Vibration	Δ R	MIL-STD-202 method 204, 10 Hz to 2 kHz	± 0.1 %	+ 0.0030 %
Resistance to Soldering Heat	∆ R	MIL-STD-202 method 210, condition D	± 0.10 %	+ 0.0150 %
Electrostatic Discharge	Δ R	AEC-Q200-002 at 2 kV, human body	± 0.10 %	- 0.032 %
Solderability	Visual	J-STD-002, method B and B1	95 %	Acceptable
Terminal Strength	∆ R	AEC-Q200-006 at 1 kg for 60 s	± 0.10 %	+ 0.009 %
Flame Retardance	Visual	AEC-Q200-001 para 4.0		Acceptable





Vishay Dale Thin Film



Note

(1) Preferred packaging code

RESISTANCE	TCR (ppm/°C)	TOLERANCE (%)
10 Ω to 1 M Ω	25, 50, 100, 200	0.1, 0.5, 1, 2, 5
5Ω to 10Ω	100, 200	1, 2, 5
1.0 Ω to 5 Ω	200	1, 2, 5



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