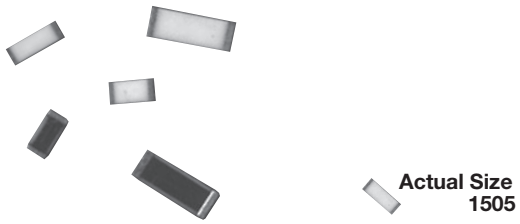
Commercial Thin Film Chip Resistor, Surface-Mount Chip



Actual Size
1505

LINKS TO ADDITIONAL RESOURCES

3D Models

These chip resistors are available as “wraparound” termination styles in a variety of sizes. They incorporate self passivated, enhanced tantalum nitride films, to give superior performance on moisture resistance, voltage coefficient, power handling, and resistance stability. The terminations consist of an adhesion layer, a leach resistant nickel barrier, and solder coating. This product will out-perform all requirements of characteristic E of MIL-PRF-55342.

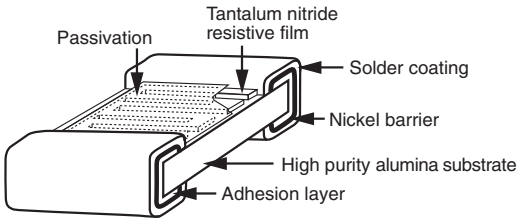
FEATURES

- Moisture resistant
- High purity alumina substrate
- Military, space level A and T available
- Will pass powered moisture resistance at 10 % rated power
- 100 % visual inspected per MIL-PRF-55342
- Non-inductive
- Very low noise and voltage coefficient (< -30 dB)
- Wraparound resistance less than 10 mΩ
- Tin lead solder terminations
- Sulfur resistant (per ASTM B809-95 humid vapor test)

TYPICAL PERFORMANCE

	ABSOLUTE
TCR	25
TOL.	0.1

CONSTRUCTION

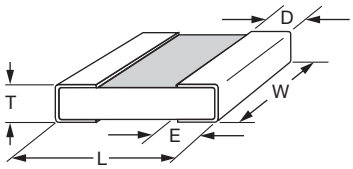


STANDARD ELECTRICAL SPECIFICATIONS		
TEST	**SPECIFICATIONS**	**CONDITIONS**
Material	Tantalum nitride	-
Resistance Range	10 Ω to 3 MΩ	-
TCR: Absolute	± 25 ppm/°C to ± 300 ppm/°C	-55 °C to +125 °C
Tolerance: Absolute	± 0.1 % to ± 10 %	+25 °C
Stability: Absolute	ΔR ± 0.03 %	2000 h at 70 °C
Stability: Ratio	Not applicable	-
Voltage Coefficient	0.1 ppm/V	-
Working Voltage	30 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	DLA PART NUMBER	POWER RATING (mW)	WORKING VOLTAGE (V)	RESISTANCE RANGE (Ω)
0402	04008	50	30	20 to 50K
0502	94025	50	40	20 to 66K
0505	94012	125	40	10 to 140K
0603	04009	100	50	10 to 130K
0705	94015	150	50	10 to 300K
1005	94013	200	75	10 to 360K
1010	94019	500	75	50 to 600K
1206	94016	250	100	10 to 1M
1505	94026	150	125	10 to 1M
2208	94014	225	175	10 to 1.75M
2010	94017	800	150	10 to 2M
2512	94018	1000	200	10 to 3M

DIMENSIONS in inches

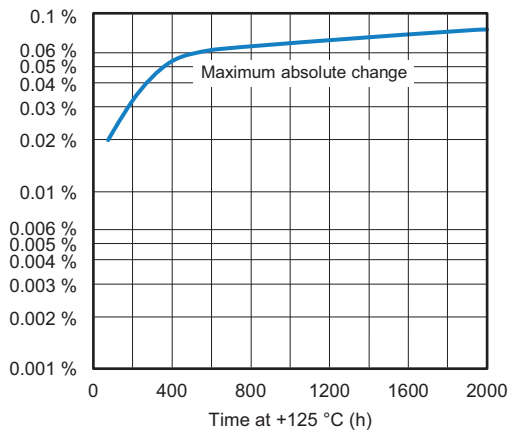


CASE SIZE	L	W	T	D	E
0402	0.042 ± 0.008	0.022 ± 0.005	0.012 to 0.033	0.010 ± 0.005	0.010 ± 0.005
0502	0.055 ± 0.006	0.025 ± 0.005	0.012 to 0.033	0.010 ± 0.005	0.015 ± 0.005
0505	0.055 ± 0.006	0.050 ± 0.005	0.012 to 0.033	0.010 ± 0.005	0.015 ± 0.005
0603	0.064 ± 0.006	0.032 ± 0.005	0.020 max.	0.012 ± 0.005	0.015 ± 0.005
0705	0.080 ± 0.006	0.050 ± 0.005	0.015 to 0.033	0.016 ± 0.008	0.015 ± 0.005
1005	0.105 ± 0.007	0.050 ± 0.005	0.015 to 0.033	0.015 ± 0.005	0.015 ± 0.005
1010	0.105 ± 0.007	0.100 ± 0.005	0.015 to 0.033	0.015 ± 0.005	0.015 ± 0.005
1206	0.126 ± 0.008	0.063 ± 0.005	0.015 to 0.033	0.020 + 0.005 / - 0.010	0.020 + 0.005 / - 0.010
1505	0.155 ± 0.007	0.050 ± 0.005	0.015 to 0.033	0.015 ± 0.005	0.015 ± 0.005
2010	0.209 ± 0.009	0.098 ± 0.005	0.015 to 0.033	0.020 ± 0.005	0.020 ± 0.005
2208	0.230 ± 0.007	0.075 ± 0.005	0.015 to 0.033	0.020 ± 0.005	0.020 ± 0.005
2512	0.259 ± 0.009	0.124 ± 0.005	0.015 to 0.033	0.020 ± 0.005	0.020 ± 0.005

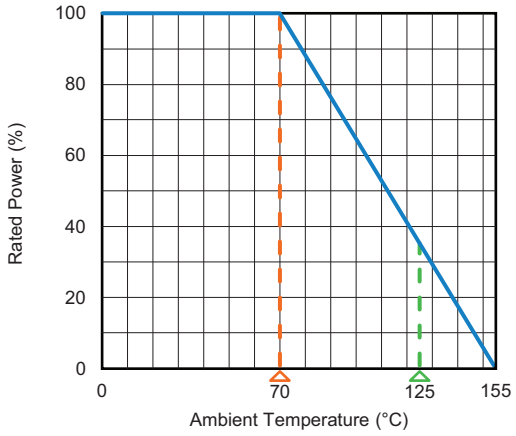
ENVIRONMENTAL TESTS (Vishay Performance vs. MIL-PRF-55342 Requirements)

ENVIRONMENTAL TEST		LIMITS MIL-PRF-55342 CHARACTERISTIC "E"	TYPICAL VISHAY PERFORMANCE
Resistance Temperature Characteristic		± 25 ppm/°C	± 15 ppm/°C
Max. Ambient Temp. at Rated Wattage		+70 °C	+70 °C
Max. Ambient Temp. at Power Derating		+150 °C	+150 °C
Thermal Shock	ΔR	± 0.1 %	± 0.040 %
Low Temperature Operation	ΔR	± 0.1 %	± 0.001 %
Short Time Overload	ΔR	± 0.10 %	± 0.002 %
High Temperature Exposure	ΔR	± 0.1 %	± 0.04 %
Resistance to Soldering Heat	ΔR	± 0.2 %	± 0.008 %
Moisture Resistance	ΔR	± 0.2 %	± 0.004 %
Life +70 °C at 1000 h	ΔR	± 0.50 %	± 0.02 %
Insulation Resistance		10 000 Ω minimum	> 100 000 MΩ

FILM LOAD LIFE STABILITY (at +125 °C)



DERATING CURVE



GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: 94015H8801BBTS

9	4	0	1	5	H	8	8	0	1	B	B		T	S

GLOBAL MODEL	TCR CHARACTERISTIC	RESISTANCE	TOLERANCE	TERMINATION	TEST CODE	PACKAGING
04008 (0402) **04009** (0603) **94012** (0505) **94013** (1005) **94014** (2208) **94015** (0705 / 0805) **94016** (1206) **94017** (2010) **94018** (2512) **94019** (1010) **94025** (0502) **94026** (1505)	**E** = ± 25 ppm/°C **H** = ± 50 ppm/°C **K** = ± 100 ppm/°C **M** = ± 300 ppm/°C	The first 3 digits are significant figures and the last digit specifies the number of zeros to follow. "R" designates the decimal point. Example: 10R0 = 10 Ω 1000 = 100 Ω 1001 = 1 kΩ	**B** = ± 0.1 % **F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **K** = ± 10 %	**B** = tin / lead solder alloy	**Blank** = std level **A** = space level code A **T** = space level code T	BULK BAG **BS** = 100 min., 1 mult. WAFFLE PACK **WS** = 100 min., 1 mult. **W0** = 100 min., 100 mult. **WI** = 100 min., 1 mult. (sales order item single lot date code) **WP** = 100 min., 1 mult. (package unit single lot date code) TAPE AND REEL **TS** = 100 min., 1 mult. **T0** = 100 min., 100 mult. **T1** = 1000 min., 1000 mult. (1) **T3** = 300 min., 300 mult. **T5** = 500 min., 500 mult. **TF** = full reel **TI** = 100 min., 1 mult. (sales order item single lot date code) **TP** = 100 min., 1 mult. (package unit single lot date code)

Historical Part Number Example: PTN0805H8801BBT (for reference purposes only)

PTN	0805	H	8801	B	B	T
STYLE	CASE SIZE	TCR CHARACTERISTIC	OHMIC VALUE	TOLERANCE	TERMINATION	PACKAGING

Notes

- A or T character after termination code on DLA part number indicates space level product

(1) Marketing preferred package code

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