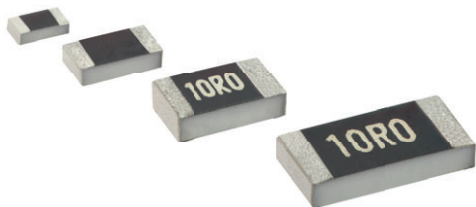


Commercial Precision Thin Film Chip Resistor, Surface-Mount Chip

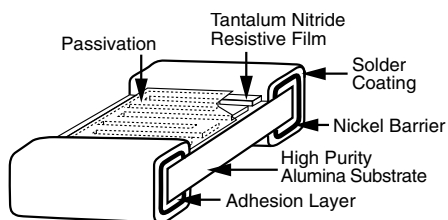


LINKS TO ADDITIONAL RESOURCES



These chip resistors are available in “wraparound” termination style 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.

CONSTRUCTION



FEATURES

- Moisture resistant
- High purity alumina substrate
- Will pass +85 °C, 85 % relative humidity and 10 % rated power
- Sulfur resistant (per ASTM B809-95 humid vapor test)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



TYPICAL PERFORMANCE

	ABSOLUTE
TCR	10
TOL.	0.1



ATTENTION!
Observe Precautions for
Handling Electrostatic Sensitive Devices!

STANDARD ELECTRICAL SPECIFICATIONS

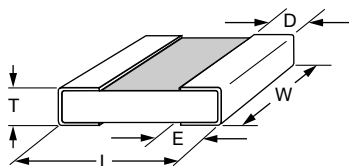
TEST	SPECIFICATIONS	CONDITIONS
Material	Tantalum nitride	-
Resistance range	10 Ω to 1 MΩ	E24 and E96
TCR: absolute	10 ppm to 50 ppm	-55 °C to +125 °C
Tolerance: absolute	0.1 % ± 1 %	+25 °C
Stability: absolute	$\Delta R \pm 0.25 \%$	1000 h at 70 °C
Working voltage	50 V to 200 V	-
Operating temperature range	-55 °C to +155 °C	-
Storage temperature range	-55 °C to +155 °C	-

COMPONENT RATINGS

CASE SIZE	POWER RATING (mW)	WORKING VOLTAGE (V) ⁽¹⁾	RESISTANCE RANGE (Ω)
0402	62.5	50	40 to 35K
0603	150	75	40 to 130K
0805	200	100	10 to 350K
1206	400	200	10 to 1M

Note

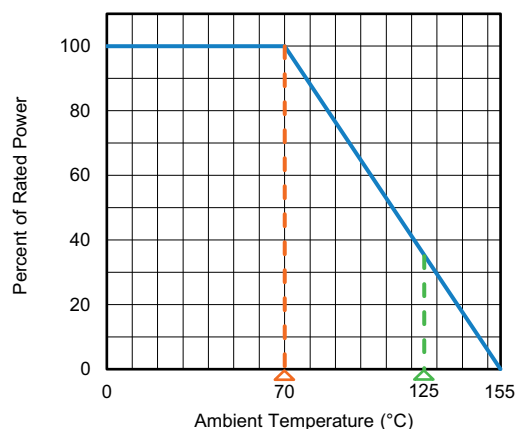
⁽¹⁾ Working voltage = $\sqrt{P \times R}$ or maximum working voltage listed above, whichever is lower

DIMENSIONS in inches (millimeters)


CASE SIZE	L	W	T	D	E	WEIGHT (gm)
0402	0.042 ± 0.008 (1.067 ± 0.203)	0.022 ± 0.005 (0.559 ± 0.127)	0.012 to 0.033 (0.305 to 0.533)	0.010 ± 0.005 (0.254 ± 0.127)	0.010 ± 0.005 (0.254 ± 0.127)	0.002
0603	0.064 ± 0.006 (1.626 ± 0.152)	0.032 ± 0.005 (0.813 ± 0.127)	0.020 max. (0.508 max.)	0.012 ± 0.005 (0.305 ± 0.127)	0.015 ± 0.005 (0.381 ± 0.127)	0.003
0805	0.080 ± 0.006 (2.032 ± 0.152)	0.050 ± 0.005 (1.270 ± 0.127)	0.015 to 0.033 (0.381 to 0.457)	0.016 ± 0.008 (0.406 ± 0.203)	0.015 ± 0.005 (0.381 ± 0.127)	0.005
1206	0.126 ± 0.008 (3.200 ± 0.203)	0.063 ± 0.005 (1.600 ± 0.127)	0.015 to 0.033 (0.381 to 0.457)	0.020 + 0.005 / - 0.010 (0.508 + 0.127 / - 0.254)	0.020 + 0.005 / - 0.010 (0.508 + 0.127 / - 0.254)	0.009

ENVIRONMENTAL TESTS

ENVIRONMENTAL TEST	TYPICAL VISHAY PERFORMANCE
Thermal shock ΔR	± 0.2 %
Short time overload ΔR	± 0.10 %
High temperature exposure ΔR	± 0.15 %
Resistance to soldering heat ΔR	± 0.2 %
Moisture resistance ΔR	± 0.2 %
Life +70 °C at 1000 h ΔR	± 0.25 %

DERATING CURVE


**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: VTN1206E1002BSTF

V	T	N	1	2	0	6	E	1	0	0	2	B	S	T	F
GLOBAL MODEL VTN	CASE SIZE 0402 0603 0805 1206	TCR CHARACTERISTIC Y = ± 10 ppm/ $^{\circ}$ C D = ± 15 ppm/ $^{\circ}$ C E = ± 25 ppm/ $^{\circ}$ C H = ± 50 ppm/ $^{\circ}$ C	RESISTANCE 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 k Ω				TOLERANCE B = ± 0.1 % C = ± 0.25 % D = ± 0.5 % F = ± 1 %	TERMINATION S = wraparound electroplated 100 % pure matte tin RoHS-compliant - e3				PACKAGING TAPE AND REEL TF = full reel: 0402 = 20 000 pcs min., 10 000 pcs mult. 0603 = 20 000 pcs min., 5000 pcs mult. 0805 = 20 000 pcs min., 5000 pcs mult. 1206 = 20 000 pcs min., 5000 pcs mult.			

MARKING

0402: not part marked.

0603: 3 DIGIT MARKING FOR E96Examples: 59X = 40.2 Ω , 01A = 100 Ω , 25B = 1.78 k Ω , 49C = 31.6 k Ω , 12D = 130 k Ω 

CODE	E96	CODE	E96	CODE	E96	CODE	E96
01	100	25	178	49	316	73	562
02	102	26	182	50	324	74	576
03	105	27	187	51	332	75	590
04	107	28	191	52	340	76	604
05	110	29	196	53	348	77	619
06	113	30	200	54	357	78	634
07	115	31	205	55	365	79	649
08	118	32	210	56	374	80	665
09	121	33	215	57	383	81	681
10	124	34	221	58	392	82	698
11	127	35	226	59	402	83	715
12	130	36	232	60	412	84	732
13	133	37	237	61	422	85	750
14	137	38	243	62	432	86	768
15	140	39	249	63	442	87	787
16	143	40	255	64	453	88	806
17	147	41	261	65	464	89	825
18	150	42	267	66	475	90	845
19	154	43	274	67	487	91	866
20	158	44	280	68	499	92	887
21	162	45	287	69	511	93	909
22	165	46	294	70	523	94	931
23	169	47	301	71	536	95	953
24	174	48	309	72	549	96	976
CODE	X	A	B	C	D		
MULTIPLIER	10 ⁻¹	10 ⁰	10 ¹	10 ²	10 ³		



0603: 3 DIGIT MARKING FOR E24

Examples: 101 = 100 Ω , 102 = 1 k Ω

E24	10	11	12	13	15	16	18	20	22	24	27	30	33	36	39	43	47	51	56	62	68	75	82	91
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Note

- 0603: only standard E24 and E96 values part marked. Non-standard values are not marked

0805 TO 1206: 4 DIGIT MARKING

Examples

RESISTANCE	100 Ω	2.2 k Ω	10 k Ω	49.9 k Ω	100 k Ω
MARKING	1000	2201	1002	4992	1003



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