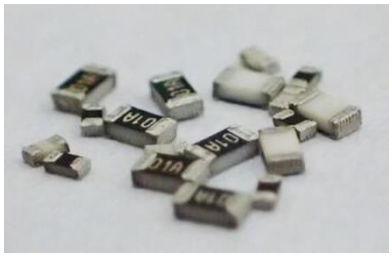
Features:

- TaN thin film resistor
- Self-passivating technology is impervious to moisture
- Sulfur resistant (per ASTM B809-95 humid vapor test)
- Meets or exceeds 85°C/85% R.H. at 10% rated power humidity test
- AEC-Q200 qualified
- RoHS compliant and halogen-free



Applications:

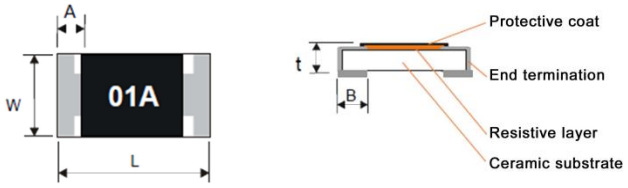
- Automotive electronics
- Medical equipment
- Measuring instrumentation
- Communication devices

Electrical Specifications

Type / Code	Power Rating (Watts) @ 85ºC	Maximum Working Voltage(1)	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance
					0.05%, 0.1%, 0.25%, 0.5%, 1%
RTAN0402	0.063W	50V	100V	±10ppm/ºC ±15ppm/ºC ±25ppm/ºC ±50ppm/ºC	40 - 35K
RTAN0603	0.15W	75V	150V		40 - 130K
RTAN0805	0.2W	100V	200V		10 - 350K
RTAN1206	0.4W	200V	400V		10 - 1M

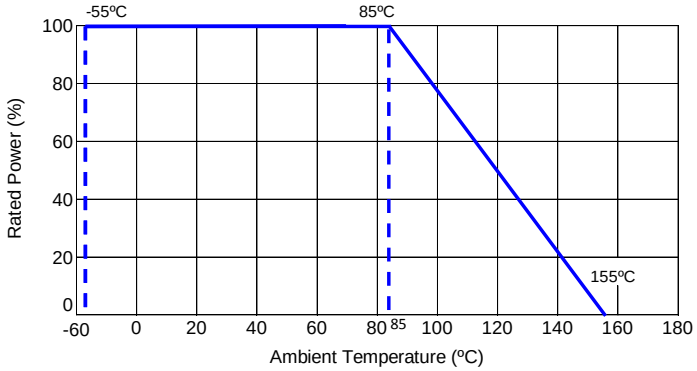
Operating Temperature: -55 ~ +155°C
(1) Lesser of √P*R or maximum working voltage.

Mechanical Specifications



Type / Code	L	W	A	B	t	Unit
RTAN0402	0.039 ± 0.004 1.00 ± 0.10	0.020 ± 0.002 0.50 ± 0.05	0.010 ± 0.006 0.25 ± 0.15	0.012 ± 0.004 0.30 ± 0.10	0.012 ± 0.004 0.30 ± 0.10	inches mm
RTAN0603	0.061 ± 0.004 1.55 ± 0.10	0.031 ± 0.004 0.80 ± 0.10	0.012 ± 0.008 0.30 ± 0.20	0.012 ± 0.006 0.30 ± 0.15	0.018 ± 0.006 0.45 ± 0.15	inches mm
RTAN0805	0.079 ± 0.004 2.00 ± 0.10	0.049 ± 0.004 1.25 ± 0.10	0.014 ± 0.008 0.35 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	0.020 ± 0.006 0.50 ± 0.15	inches mm
RTAN1206	0.122 ± 0.004 3.10 ± 0.10	0.063 ± 0.004 1.60 ± 0.10	0.016 ± 0.008 0.40 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	0.024 ± 0.006 0.60 ± 0.15	inches mm

Power Derating Curve:



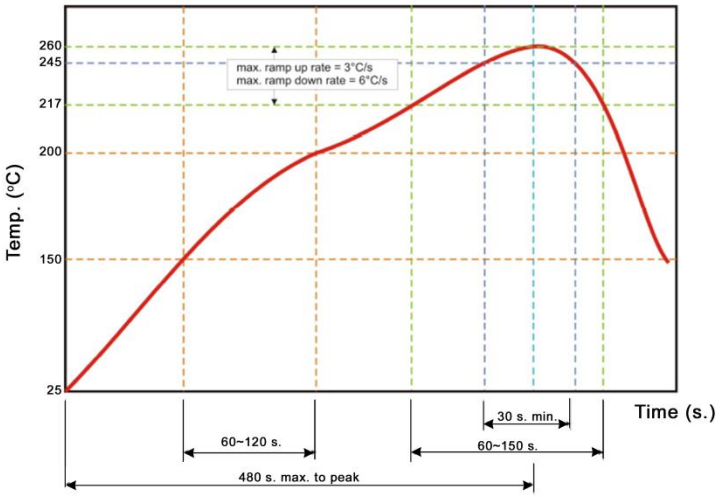
Performance Characteristics			
Test	Test Method	Test Specification	Test Condition
Electrical Characteristics	IEC-60115-1 4.8	Within the specified tolerance	DC resistance values measurement Temperature Coefficient of Resistance (TCR) Natural resistance change per change in degree centigrade $\frac{R_2 - R_1}{R_1 (t_2 - t_1)} \times 10^6$ (ppm/°C) t_1: 20°C +5°C/-1°C R1: Resistance at reference temperature (20°C +5°C/-1°C) R2: Resistance at test temperature (-55°C or +125°C)
Short Time Overload	IEC-60115-1 4.13	ΔR/R max. ± (0.1%+0.02Ω)	Permanent resistance change after a 5 second application of a voltage 2.5 times RCWV or the maximum overload voltage specified in the above list, whichever is less.
Resistance to Soldering Heat	AEC-Q200-15	No visible damage ΔR/R max. ± (0.1%+0.02Ω)	Un-mounted chips completely immersed for 10±1 second in a SAC solder bath at 260±5°C
Solderability	IEC-60068-2-58	Good tinning (>95% covered) No visible damage	Un-mounted chips completely immersed for 2±0.5 seconds in a SAC solder bat at 235±5°C
Thermal Shock	MIL-STD-202 Method 107	No visible damage ΔR/R max. ± (0.1%+0.02Ω)	Test -55 to 125°C /dwell time 15 minutes/max. transfer time 20 seconds 1000 cycles
Load Life and Moisture	AEC-Q200-7	ΔR/R max. ± (0.1%+0.02Ω)	1000 +48/-0 hours, loaded with 10% rated power in humidity chamber controller at +85°C /85% R.H.
Load Life	IEC-60115-1 4.25	ΔR/R max. ± (0.1%+0.02Ω)	1000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 85±2°C, 1.5 hours ON and 0.5 hours OFF
High Temperature Load Life	AEC-Q200-8 MIL-STD-202-108	ΔR/R max. ± (0.1%+0.02Ω)	1000 hours at 125±2°C, loaded with rated power continuously
High Temperature Exposure	AEC-Q200-3	ΔR/R max. ± (0.1%+0.02Ω)	1000 hours at 125°C, unpowered
Biased Humidity	AEC-Q200-6 MIL-STD-202 Method 106	ΔR/R max. ± (0.1%+0.02Ω)	65±2°C, 80~100% R.H., 10 cycles, 24 hours/cycle
Mechanical Shock	MIL-STD-202 Method 213	ΔR/R max. ± (0.1%+0.02Ω)	1/2 Sine Pulse / 150g Peak / Velocity 15.4 foot/second
Vibration	MIL-STD-202 Method 204	ΔR/R max. ± (0.1%+0.02Ω)	5 g's for 20 minutes, 12 cycles each of 3 orientations
Terminal Strength	AEC-Q200-6	No breaking	1 Kg. for 60 seconds
Bending Strength	AEC-Q200-21	ΔR/R max. ± (0.1%+0.02Ω)	Bending 2mm for 60 seconds

Storage conditions: Temperature 5 to 40°C. Humidity: 20 to 70% R.H.

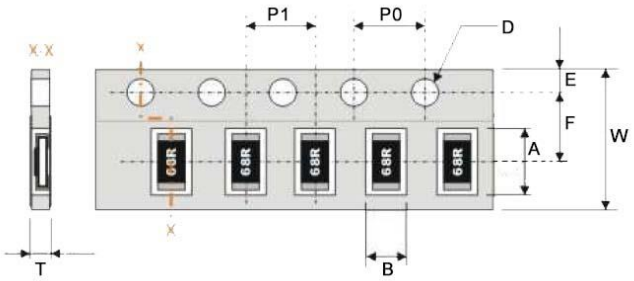
Soldering Condition:

The robust construction of chip resistors allows them to be completely immersed in a solder bath of 260°C for 10 seconds. Therefore, it is possible to mount surface mount resistors on one side of a PCB and other discrete components on the reverse (mixed PCBs).

Surface mount resistors are tested for solderability at 235°C during 2 seconds within lead-free solder bath. The test condition for no leaching is 260°C for 30 seconds. Typical examples of soldering profile and condition that provide reliable joints without any damage are given on the picture on the right.

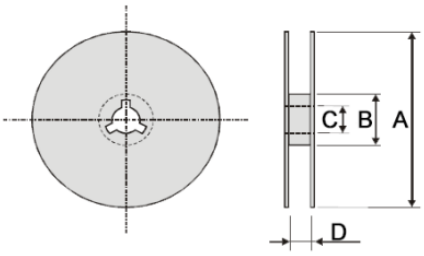


Packaging Specifications



Type / Code	A	B	W	F	E	P1	P0	D	T	Unit
RTAN0402	0.047 ± 0.004	0.028 ± 0.004	0.315 ± 0.012	0.138 ± 0.008	0.069 ± 0.004	0.079 ± 0.004	0.157 ± 0.004	0.059 ± 0.004	0.016 ± 0.002	inches
	1.20 ± 0.10	0.70 ± 0.10	8.00 ± 0.30	3.50 ± 0.20	1.75 ± 0.10	2.00 ± 0.10	4.00 ± 0.10	1.50 ± 0.10	0.40 ± 0.05	mm
RTAN0603	0.075 ± 0.008	0.043 ± 0.008	0.315 ± 0.012	0.138 ± 0.008	0.069 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.059 ± 0.004	0.026 ± 0.002	inches
	1.90 ± 0.20	1.10 ± 0.20	8.00 ± 0.30	3.50 ± 0.20	1.75 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	1.50 ± 0.10	0.65 ± 0.05	mm
RTAN0805	0.094 ± 0.008	0.065 ± 0.008	0.315 ± 0.012	0.138 ± 0.008	0.069 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.059 ± 0.004	0.039 max.	inches
	2.40 ± 0.20	1.65 ± 0.20	8.00 ± 0.30	3.50 ± 0.20	1.75 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	1.50 ± 0.10	1.00 max.	mm
RTAN1206	0.142 ± 0.008	0.079 ± 0.008	0.315 ± 0.012	0.138 ± 0.002	0.069 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.059 ± 0.004	0.039 max.	inches
	3.60 ± 0.20	2.00 ± 0.20	8.00 ± 0.30	3.50 ± 0.05	1.75 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	1.50 ± 0.10	1.00 max.	mm

Reel Specifications



Type / Code	A	B	C	D	Unit
All Sizes	7.008 ± 0.079	2.362 ± 0.039	0.512 ± 0.008	0.354 ± 0.020	inches
	178.00 ± 2.00	60.00 ± 1.00	13.00 ± 0.20	9.00 ± 0.50	mm

Part Marking Specifications

1% Marking
The nominal resistance is marked on the surface of the overcoating with the use of 4 digit markings.
0402 are not marked

5% Marking
The nominal resistance is marked on the surface of the oercoating with the use of 3 digit markings.
0402 are not marked

For shared E24/E96 values, 1% tolerance product may be marked with three digit marking instead of the standard four digit marking for all other E96 values. All E24 values available in 1% tolerance are also marked with three digit marking.

Mark Instructions for 0603 1% Chip Resistors (per EIA-J)

A two-digit number is assigned to each standard R-Value (E96) as shown in the chart below. This is followed by one alpha character which is used as a multiplier. Each letter from "Y" to "F" represents a specific multiplier as follows:

Y = 0.1	B = 100	E = 100,000
X = 1	C = 1,000	F = 1,000,000
A = 10	D = 10,000	

EXAMPLE:

Chip Marking	Explanation	Value
01B	01 means 10.0 and B = 100	10.0 x 100 = 1 K ohm
25C	25 means 17.8 and C = 1,000	17.8 x 1,000 = 17.8 K ohm
93D	93 means 90.9 and D = 10,000	90.9 x 10,000 = 909 K ohm

E96											
1%	#	1%	#	1%	#	1%	#	1%	#	1%	#
10.0	01	14.7	17	21.5	33	31.6	49	46.4	65	68.1	81
10.2	02	15.0	18	22.1	34	32.4	50	47.5	66	69.8	82
10.5	03	15.4	19	22.6	35	33.2	51	48.7	67	71.5	83
10.7	04	15.8	20	23.2	36	34.0	52	49.9	68	73.2	84
11.0	05	16.2	21	23.7	37	34.8	53	51.1	69	75.0	85
11.3	06	16.5	22	24.3	38	35.7	54	52.3	70	76.8	86
11.5	07	16.9	23	24.9	39	36.5	55	53.6	71	78.7	87
11.8	08	17.4	24	25.5	40	37.4	56	54.9	72	80.6	88
12.1	09	17.8	25	26.1	41	38.3	57	56.2	73	82.5	89
12.4	10	18.2	26	26.7	42	39.2	58	57.6	74	84.5	90
12.7	11	18.7	27	27.4	43	40.2	59	59.0	75	86.6	91
13.0	12	19.1	28	28.0	44	41.2	60	60.4	76	88.7	92
13.3	13	19.6	29	28.7	45	42.2	61	61.9	77	90.9	93
13.7	14	20.0	30	29.4	46	43.2	62	63.4	78	93.1	94
14.0	15	20.5	31	30.1	47	44.2	63	64.9	79	95.3	95
14.3	16	21.0	32	30.9	48	45.3	64	66.5	80	97.6	96

RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status

Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
RTAN	Tantalum Nitride Thin Film Chip Resistor	SMD	YES	100% Matte Sn	Always	Always

"Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R	T	A	N	0	8	0	5	C	T	E	1	0	R	0

Product Series	
RTAN	Tantalum Nitride Thin Film

Size
Code
0402
0603
0805
1206

Tolerance		
Code	Tol	Value[1]
A	0.05%	E24, E96
B	0.1%	
C	0.25%	
D	0.5%	
F	1%	

Packaging			
Code	Description	Size	Quantity
T	Reel Paper Tape	0402	10,000
		0603, 0805, 1206	5,000
K	Reel Paper Tape	All sizes	1,000

TCR	
Code	ppm/ºC
C	±50
E	±25
S	±15
T	±10

Resistance Value
Four characters with the multiplier used as the decimal holder.
10 ohm = 10R0 130 Kohm = 130K 1 Mohm = 1M00

(1) E192 values may be available.

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