

RSN Series

Thick Film Lead Free Surge Chip Resistors

TRIGON
COMPONENTS



FEATURES

- Small size and lightweight with size range per int'l standard
- Highly stable in auto-placement surface mounting application
- Suitable for withstanding circuit for surge voltage

APPLICATIONS

- CD-ROM
- Power supply
- Automotive industry
- Measurement instrument
- Medical or Military equipment
- Electronic watch and camera

ORDERING CODE

RSN 0805 J 103 T E
(1) (2) (3) (4) (5) (6)

(1) Series Name

(2) Size

0603, 0805, 1206, 2010, 2512

(3) Tolerance

J=±5%, K=±10%, L=±15%, M=±20%
Is available by request.

(4) Nominal Resistance

3 Digit Code (E24)
Ref. Appendix

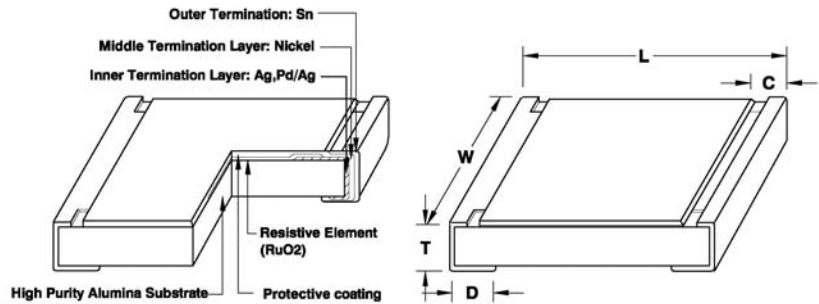
(5) Packing Style

T = Paper Tape (5Kpcs),
V = Paper Tape (10Kpcs)
W = Paper Tape (20Kpcs),
P = Plastic Tape (4Kpcs)
Y = Plastic Tape (16Kpcs)
B = Bulk Case

(6) Temp. Coefficient

Blank – Standard
Ref. Table below.

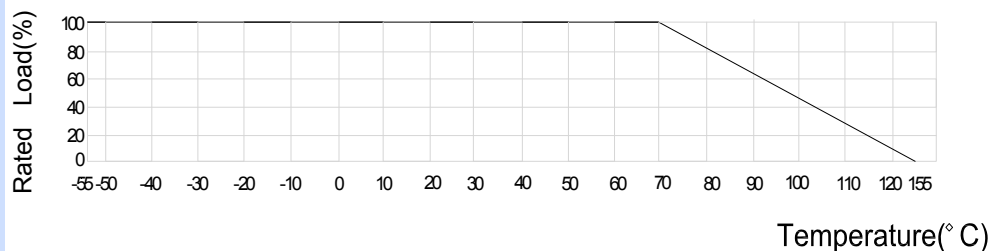
✳Please refer to complete
Ordering Code Document (RSN-Ord)
for more ordering options.



DIMENSIONS (mm)

SIZE	L	W	C	D	T
RSN0603	1.60±0.10	0.80±0.10	0.30 ±0.20	0.30 ±0.20	0.45±0.10
RSN0805	2.00±0.15	1.20±0.15	0.40 ±0.20	0.40 ±0.20	0.50±0.10
RSN1206	3.10 ±0.15	1.60 ±0.15	0.50 ±0.25	0.50 ±0.25	0.55±0.10
RSN2010	5.00 ±0.20	2.50 ±0.20	0.60 ±0.25	0.60 ±0.25	0.60±0.10
RSN2512	6.30 ±0.20	3.10 ±0.20	0.60 ±0.25	0.60 ±0.25	0.60±0.15

POWER DERATING CURVE



For resistors operated in ambient temperatures over 70° C ,
Power rating shall be derated in accordance with the curve above.

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SPECIFICATION AND TEST METHODS

ITEM	Test Method	SPECIFICATION
DC Resistance	IEC 60115 -1 4.5/JIS C 5202 5.1 Measure the resistance value	J: ±5%, K: ±10%, L: ±15%, M: ±20%
Short Time Overload	IEC 60115 -1 4.13/JIS C 5202 5.5 2.5 x Rated voltage or Max. Overload Voltage for 5 sec. Measure resistance after 30 minutes.	$\Delta R \leq \pm(2\%+0.1\Omega)$
Solderability	IEC 60115 -1 4.17/JIS C 5202 6.5 After immersing flux, dip in the 235 ± 5°C molten solder bath for 2 ±0.5 sec.	Over 95% of termination must be covered with solder.
Resistance to Solder Heat	IEC 60115 -1 4.18/JIS C 5202 6.4 With 260 ± 5°C for 10 ± 1 sec.	$\Delta R \leq \pm(1\%+0.1\Omega)$ No mechanical damage
Temperature Coefficient of Resistance (TCR)	IEC 60115 -1 4.8.4.2/JIS C 5202 5.2 T1 T2 Test Temperature: 25°C ~ -55°C 25°C ~ +125°C $TCR(\text{ppm}/^\circ\text{C}) = \frac{R2 - R1}{R1} \times \frac{1}{T2 - T1} \times 10^6$ T1: 25°C, T2: Test temperature R1: Resistance at reference temperature (T1) R2: Resistance at test temperature (T2)	±100 ppm/°C
Load Life Humidity	IEC 60115 -1 4.24.2/JIS C 5202 7.9 Maintain the temperature of the resistor at 40±2 °C and 90~95% R.H . with the rated voltage applied. Cycle ON for 1.5 hours and OFF for 0.5 hour for 1000+48/-0 hours. After 1~4 hours, measure the resistance value.	$\Delta R \leq \pm(3\%+0.1\Omega)$
Load Life	IEC 60115 -1 4.25.1/JIS C 5202 7.10 Permanent resistance change after 1000+48/-0 hours (1.5 hours ON,0.5 hours OFF) at RCWV or Max., Keep the resistor at 70 ±2°C ambient.	$\Delta R \leq \pm(3\%+0.1\Omega)$
Intermittent Overload	JIS-C-5202 5.8 4.0 X Rated voltage (Max. Overload Voltage), 1 sec ON, 25 sec OFF, test 10,000 cycles.	$\Delta R \leq \pm(5\%+0.1\Omega)$ No mechanical damage.
Temperature Cycle	IEC 60115 -1 4.19/JIS C 5202 7.4 Repeat 5 cycles as follows -55°C (30 min.) + 25°C (2~3 min.) +155°C (30 min.) + 25°C (2~3 min.)	$\Delta R \leq \pm(1\%+0.1\Omega)$ No mechanical damage
Insulation Resistance	IEC 60115 -1 4.6 1.1/JIS C 5202 5.6 Test voltage: 100 ± 15 V	Between termination and coating must be over 1,000MΩ
Bending Strength	IEC 60115 -1 4.33 Resistance change after bended on the 90mm PCB. Bend: 3mm for 0603、0805, 2mm for 1206、2010、2512	$\Delta R \leq \pm(1\%+0.1\Omega)$ No mechanical damage

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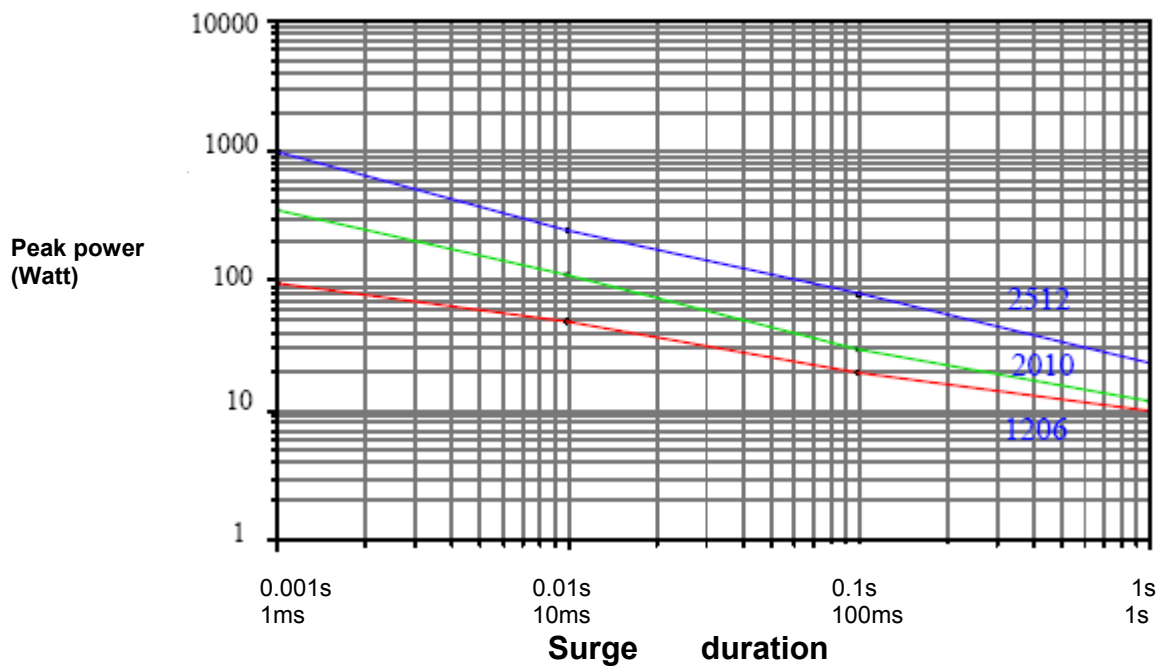
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Rating:

Type	Power Rating at 70 °C	Max RCWV	Max. Overload Voltage	Resistance Tolerance (%)	Temperature Coefficient (TCR; ppm/ °C)	Resistance Range		Standard Resistance Values
						Min.	Max.	
RSN0603	1/10W	50V	100V	±5% (J) ±10% (K) ±15% (L) ±20% (M)	±100	10Ω	1MΩ	E-24
RSN0805	1/8W	150V	300V					
RSN1206	1/4W	200V	400V					
RSN2010	1/2W	200V	400V					
RSN2512	1W	200V	400V					

Resistor

Surge performance 1206,2010,2512



Resistance Marking

E-24 SERIES



3 digit marking

Underline for identification surge resistors

Examples: 473 $47 \times 10^3 = 47 \text{ K}\Omega$

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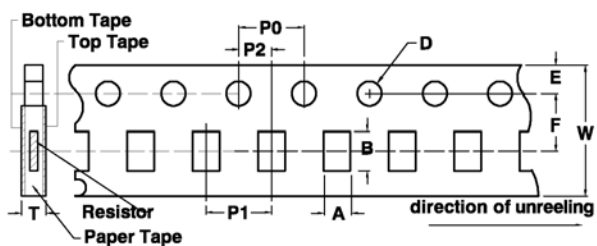
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SPECIFICATION

Tape And Reel Package

Taping specs are according to EIA RS-481

Paper Tape



Accumulated dimensional tolerance $40 \pm 0.2\text{mm}$

Paper Tape: mm

SIZE	A	B	W ± 0.30	F ± 0.05	E ± 0.10	P1 ± 0.10	P2 ± 0.05	P0 ± 0.10	D
RSN0603	1.10 ± 0.20	1.90 ± 0.20	8.00	3.50	1.75	4.00	2.00	4.00	1.50 +0.10/-0
RSN0805	1.65 ± 0.20	2.40 ± 0.20	8.00	3.50	1.75	4.00	2.00	4.00	1.50 +0.10/-0
RSN1206	2.00 ± 0.20	3.57 ± 0.20	8.00	3.50	1.75	4.00	2.00	4.00	1.50 +0.10/-0
RSN2010	2.80 ± 0.20	5.50 ± 0.20	12.00	5.50	1.75	4.00	2.00	4.00	1.50 +0.10/-0
RSN2512	3.50 ± 0.20	6.70 ± 0.20	12.00	5.50	1.75	4.00	2.00	4.00	1.50 +0.10/-0

Bulk configuration

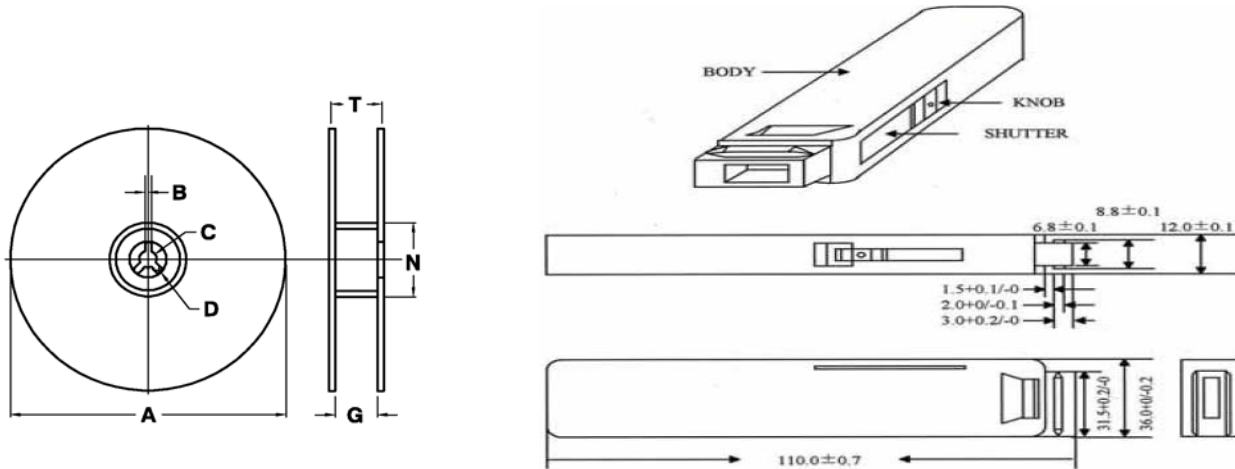
Size	Packaging Qty
0805	10KPCS/CASE
0603	25KPCS/CASE

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Reel Package



Reel Size: mm

SIZE	Packing Q'ty	A	N	C	D	B	G	T
RSN0603	5KPcs/Reel	178.0±2.0	60.0±0.5	13.0±0.5	20 min.	2.0±0.5	10.0±1.5	14.9Max
RSN0805	10KPcs/Reel	254.0±2.0	100.0±1.0	13.5±0.5	20 min.	2.0±0.5	10.0±1.5	14.9Max
RSN1206	20KPcs/Reel	330.0±2.0	100.0±1.0	13.5±0.5	20 min.	2.0±0.5	10.0±1.5	14.9Max
RSN2010	4KPcs/Reel	178.0±2.0	60.0±0.5	13.0±0.5	20 min.	2.0±0.5	13.8±1.5	16.7Max
RSN2512	16KPcs/Reel	330.0±2.0	60.0±0.5	13.5±0.5	20 min.	2.0±0.5	13.8±1.5	20.0Max