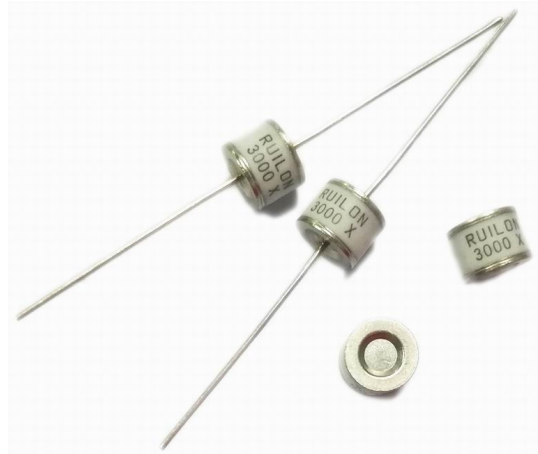


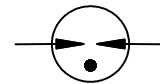
**Description**

2R-8 Gas Discharge Tubes (GDT) series provides high levels of protection against fast rising transients caused by lightning disturbances. Offered in a miniature surface mount package, it has a surge rating of 10KA/5KA/3KA 8/20µs.

2R-8 GDTs are high voltage (1000-5000V) components designed for surge protection and high isolation applications. It is also suitable for applications for which bias voltage or signal levels of several hundred volts are normally present. 2R-8 GDTs can be used in conjunction with MOVs (Metal Oxide Varistors) to provide superior protection performance for AC applications.



**Electrical symbol**



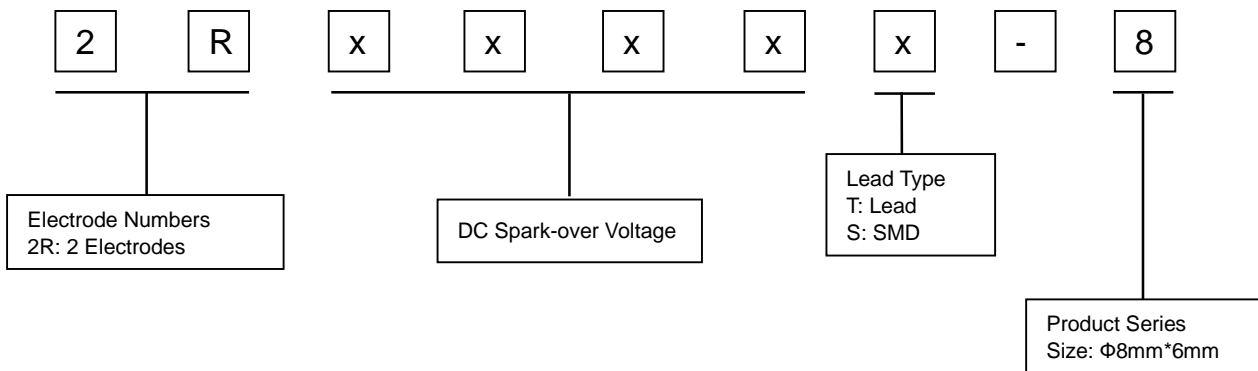
**Features**

- I Voltage Ranges 1000V to 5000V
- I Excellent response to fast rising transients
- I 8/20µs Impulse current capability: 10KA/5KA/3KA
- I Non-Radioactive
- I Ultra Low capacitance (<1.5pF)
- I Lead-free and RoHS compliant
- I UL 1449 Recognized: E479668
- I Size: Φ8mm\*6mm & Φ8mm\*8mm
- I Storage and operational temperature: -40~+90°C

**Applications**

- |  |  |
|--|--|
| <p><b>Automotive:</b></p> <ul style="list-style-type: none"> <li>I On-board chargers</li> <li>I Vehicle charging stations</li> </ul> | <p><b>Others:</b></p> <ul style="list-style-type: none"> <li>I LED lighting</li> <li>I Power supply</li> <li>I Photovoltaic</li> <li>I Air conditioning</li> </ul> |
|--|--|

**Part Number Code**



Electrical Characteristics

Part Number		DC Spark-over Voltage <sup>1)2)</sup> @100V/S	Impulse Spark-over Voltage		Insulation Resistance <sup>3)</sup>	Capacitance @1MHz	Glow Voltage @10mA	Arc Voltage @1A	AC withstand voltage @0.5mA 1Min	Life Ratings		
			100V/μS	1KV/μS						Impulse Discharge Current @8/20μS		AC Discharge Current @50Hz 1S
			Max	Max						Nominal ±5 times	Max 1 time	Nominal 5 times
DIP	SMD	V	V	V	GΩ	pF	V	V	V	KA	KA	A
2R1000T-8	2R1000S-8	1000±20%	1600	1800	1	1.5	160	15	500	10	15	10
2R1200T-8 <sup>4)</sup>	2R1200S-8 <sup>4)</sup>	1200±20%	1800	2000	1	1.5	160	15	600	10	15	10
2R1400T-8	2R1400S-8	1400±20%	2200	2400	1	1.5	235	18	700	5	6	5
2R1600T-8	2R1600S-8	1600±20%	2400	2600	1	1.5	235	18	800	5	6	5
2R2000T-8	2R2000S-8	2000±20%	2800	3000	1	1.5	260	30	1000	5	6	5
2R2400T-8	2R2400S-8	2400±20%	2200	3500	1	1.5	260	30	1200	5	6	5
2R2500T-8	2R2500S-8	2500±20%	3300	3600	1	1.5	260	30	1300	5	6	5
2R2700T-8	2R2700S-8	2700±20%	3500	3800	1	1.5	260	30	1400	5	6	5
2R3000T-8	2R3000S-8	3000±20%	3900	4200	1	1.5	260	30	1600	5	6	5
2R3500T-8	2R3500S-8	3500±20%	4700	5000	1	1.5	260	30	1800	5	6	5
2R3600T-8	2R3600S-8	3600±20%	4700	5000	1	1.5	260	30	1900	5	6	5
2R4000T-8	2R4000S-8	4000±20%	5000	5500	1	1.5	280	35	2100	3	5	3
2R4500T-8	2R4500S-8	4500±20%	5500	6000	1	1.5	280	35	2300	3	5	3
2R5000T-8	2R5000S-8	5000±20%	5900	6400	1	1.5	280	35	2600	3	5	3
Glow to Arc transition Current.....						~0.5A						
Weight.....						~1.5g						
Operation and storage temperature.....						-40~90°C						
Climatic category (IEC 60068-1).....						40/090/21						
Marking, black.....						<b>RUILON</b> xxxx <b>X</b> xxxx -Nominal voltage X -Year of production						
Surface treatment.....						DIP -Nickel Plated SMD -Matte-tin plated						

<sup>1)</sup> At delivery AQL 0.65 level II, DIN ISO 2859.

<sup>2)</sup> In ionized mode.

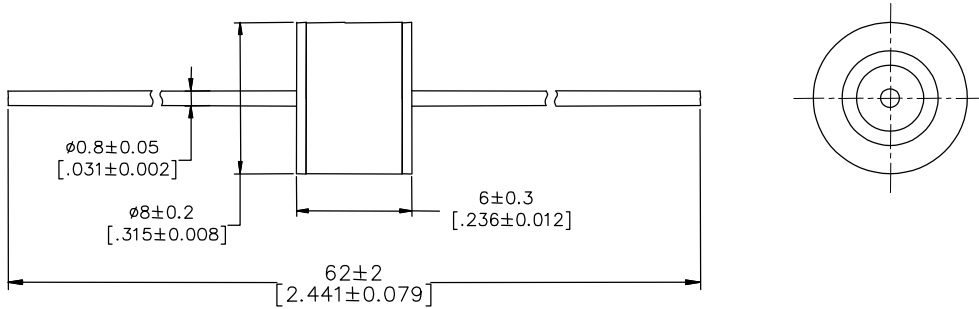
<sup>3)</sup> Insulation Resistance Measuring Voltage at DC 100V.

<sup>4)</sup> No UL 1449 Recognized.

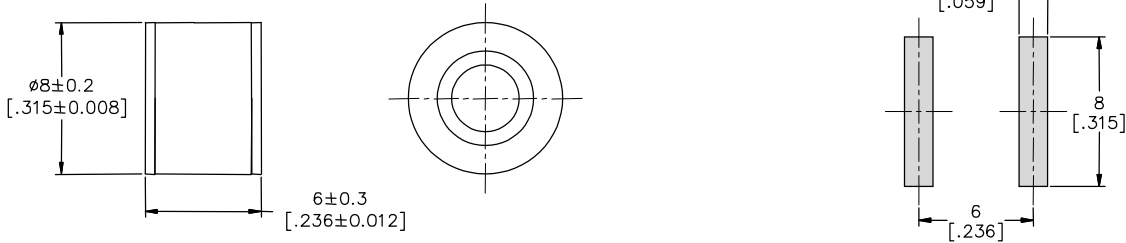
Terms in accordance with ITU-T Rec. K.12, IEC 61643-311, GB/T 9043.

**Dimensions (Unit: mm/inch)**

**DIP Series (2RxxxxT-8)**



**SMD Series (2RxxxxS-8)**

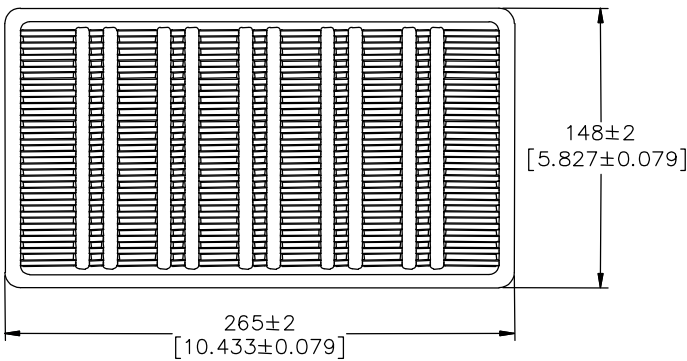


Recommended Soldering Pad Layout

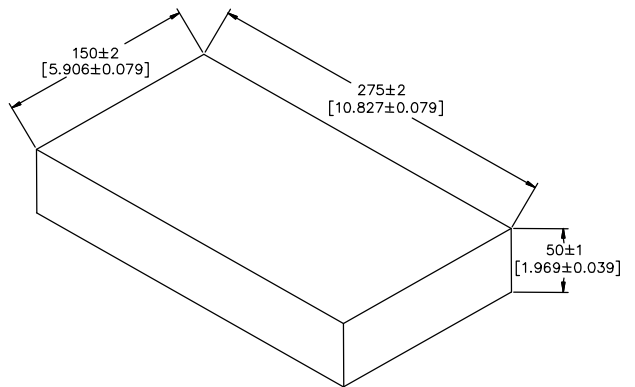
**Packaging Information (Unit: mm/inch)**

**Axial Packaging (Bulk)**

**Plastic Tray**



**Inner box**



**Packaging Quantity:**

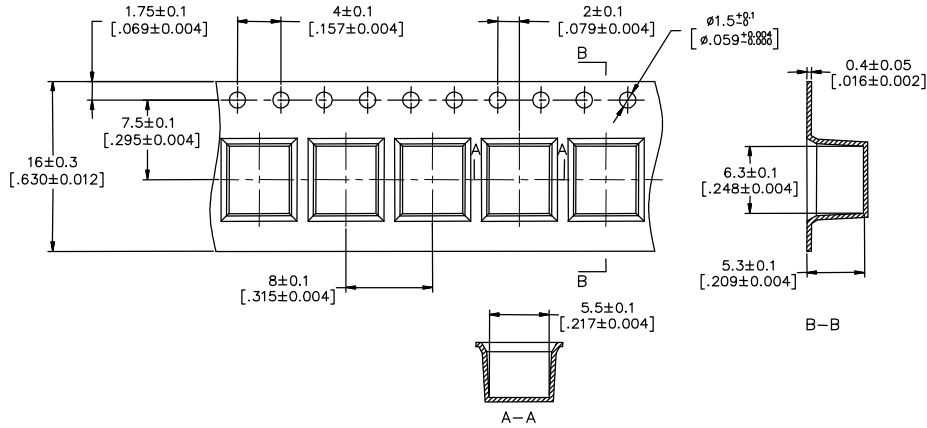
100 PCS per Plastic Tray

5 Plastic Trays per inner box

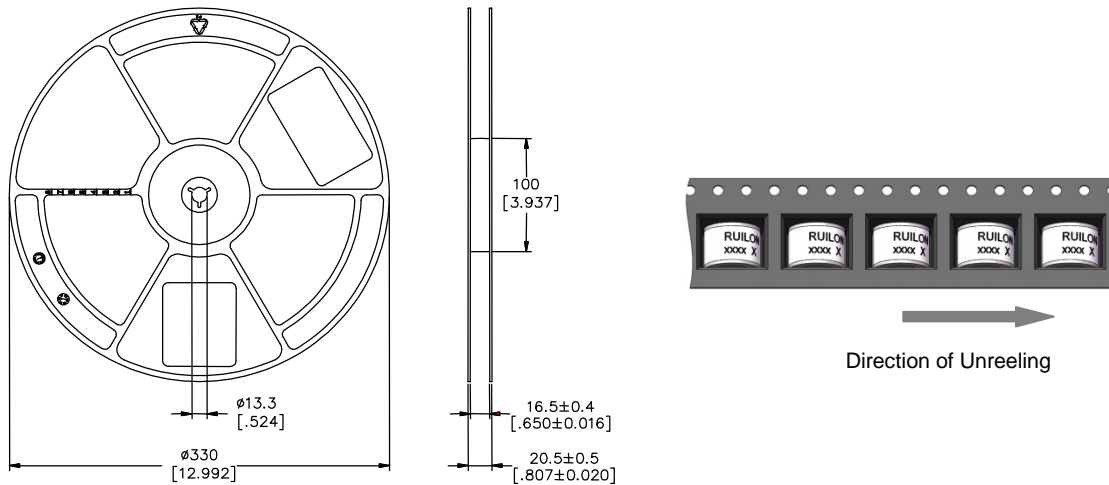
500 PCS per inner box

SMD Packaging (Tape & Reel)

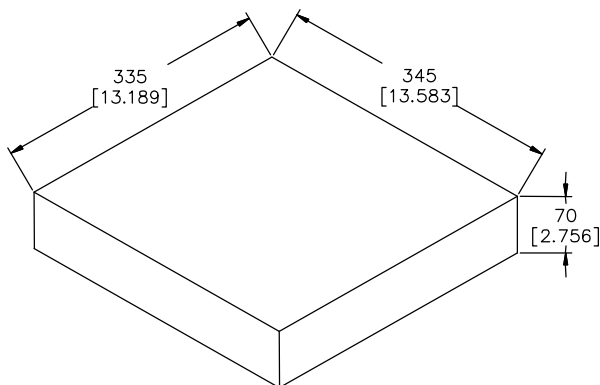
Tape



Reel



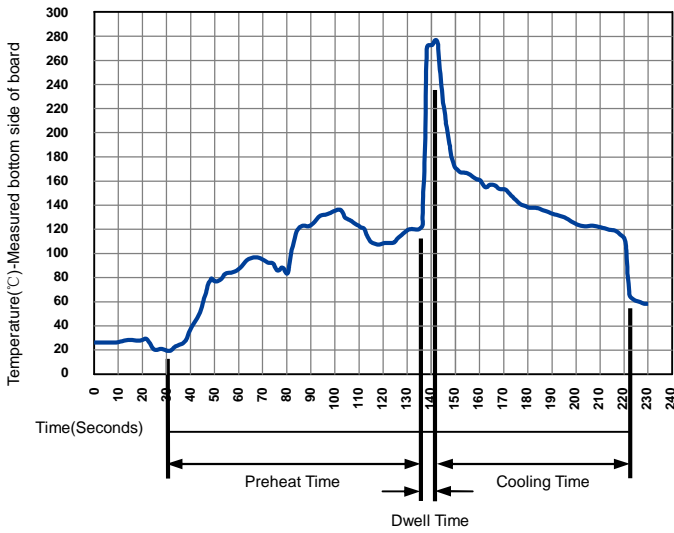
Inner box



Packaging Quantity:

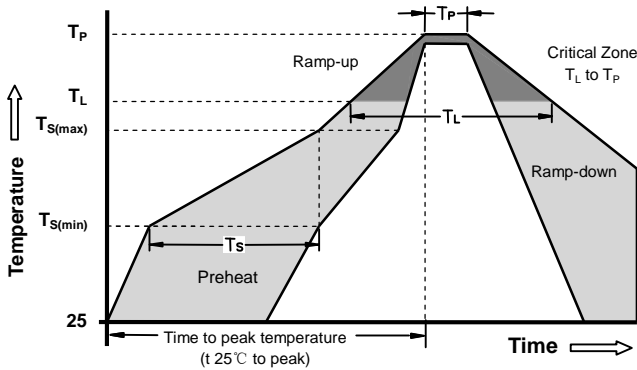
- 1,000 PCS per reel (13")
- 3 reels per inner box
- 3,000 PCS per inner box

**Soldering Parameters - Wave soldering (Thru-Hole Devices)**



Wave Soldering Condition		Pb-Free assembly
Preheat at	Temperature Min	100°C
	Temperature Max	150°C
	Time (Min to Max)	60-180 Seconds
Solder Pot Temperature		280°C Max
Solder Dwell Time		2-5 Seconds

**Soldering Parameters - Reflow Soldering (Surface Mount Devices)**



Reflow Condition		Pb - Free assembly
Preheat at	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 -180 Seconds
Average ramp up rate ( Liquids Temp $T_L$ ) to peak		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		5°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquids)	217°C
	- Time (min to max) ( $t_s$ )	60 -150 Seconds
Peak Temperature ( $T_P$ )		260 +0/-5°C
Time within 5°C of actual peak Temperature ( $t_p$ )		10 - 30 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_P$ )		8 minutes Max
Do not exceed		260°C

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