

Gas Discharge Tubes(GDT)

3RB-8S Series

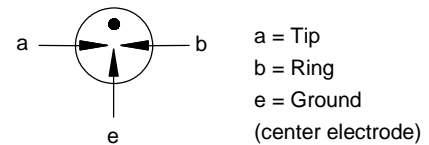
Description

GDT is placed in front of, and in parallel with, sensitive telecom equipment such as power lines, communication lines, signal lines and data transmission lines to help protect them from damage caused by transient surge voltages that may result from lightning strikes and equipment switching operations. These devices do not influence the signal in normal operation. However, in the event of an overvoltage surge, such as a lightning strike, the GDT switches to a low impedance state and diverts the energy away from the sensitive equipment.

Our GDT offer a high level of surge protection, a broad voltage range, low capacitance, and many form factors including new surface mount devices, which makes them suitable for applications such as Main Distribution Frame (MDF) modules, high data-rate telecom applications (e.g. ADSL, VDSL), and surge protection on power lines. Their low capacitance also results in less signal distortion. When used in a coordinated circuit protection solution with PolySwitch devices, they can help equipment manufacturers meet stringent safety regulatory standards.



Electrical symbol



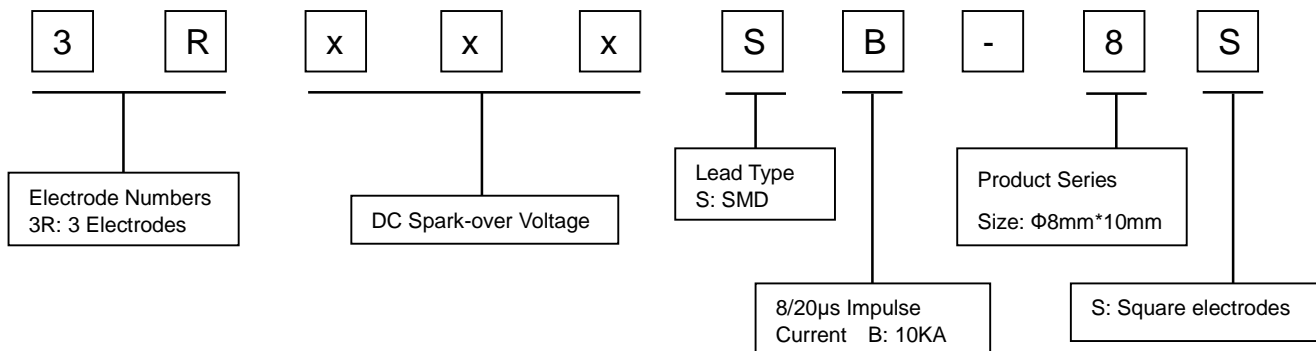
Features

- I Excellent response to fast rising transients
- I Stable breakdown voltage
- I GHz working frequency
- I 8/20 μ s Impulse current capability: 10KA
- I Non-Radioactive
- I Ultra Low capacitance (<1.5pF)
- I High insulation resistance
- I Size: Φ 8mm*10mm
- I Storage and operational temperature: -40~+90°C

Applications

- I Communication equipment
- I CATV equipment
- I Data lines
- I Power supplies
- I Telecom SLIC protection
- I Broadband equipment
- I ADSL equipment, including ADSL2+
- I XDSL equipment
- I Satellite and CATV equipment
- I Test equipment
- I Consumer electronics

Part Number Code



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Electrical Characteristics

Part Number	DC Spark-over Voltage ^{1) 2) 3)} @100V/S	Impulse Spark-over Voltage ³⁾		Insulation Resistance ⁴⁾	Capacitance @1MHz	Glow Voltage @10mA	Arc Voltage @1A	Life Ratings			
		100V/μS	1KV/μS					Impulse Discharge Current @8/20μs ⁵⁾		Alternating Discharge Current @50Hz 1S ⁵⁾	Impulse Life @10/1000μS
		Max	Max					±5 times	1 time		
		V	V					GΩ	pF	V	V
3R075SB-8S	75±20%	500	600	1	1.5	60	10	10	20	10	200
3R090SB-8S	90±20%	500	600	1	1.5	60	10	10	20	10	200
3R150SB-8S	150±20%	500	600	1	1.5	60	10	10	20	10	200
3R230SB-8S	230±20%	600	700	1	1.5	60	10	10	20	10	200
3R250SB-8S	250±20%	600	700	1	1.5	60	10	10	20	10	200
3R350SB-8S	350±20%	800	900	1	1.5	60	10	10	20	10	200
3R420SB-8S	420±20%	850	950	1	1.5	60	10	10	20	10	200
3R470SB-8S	470±20%	900	1000	1	1.5	135	15	10	20	10	200
3R600SB-8S	600±20%	1100	1200	1	1.5	135	15	10	20	10	200
3R800SB-8S	800±20%	1200	1400	1	1.5	135	15	10	20	10	200

Glow to Arc transition Current..... ~1A

Operation and storage temperature..... -40~+90°C

Climatic category (IEC60068-1)..... 40/90/21

Marking, blue negative.....
RUILON
xxx Y
 xxx -Nominal voltage
 Y -Year of production

Weight..... ~2.0g

Surface treatment..... Matte-tin plated

¹⁾ At delivery AQL 0.65 level II, DIN ISO 2859

²⁾ In ionized mode

³⁾ Tip or ring electrode to center electrode

⁴⁾ Insulation Resistance Measuring Voltage:

75V~150V at DC 50V

Other at DC 100V

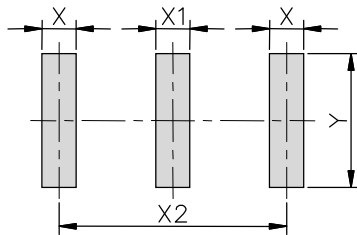
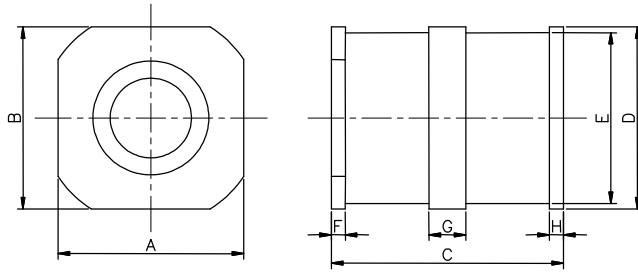
⁵⁾ Total current through center electrode, half value through tip respectively ring electrode.

Terms in accordance with ITU-T Rec. K.12, IEC 61643-311, GB/T18802.311, GB/T 9043.

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Dimensions

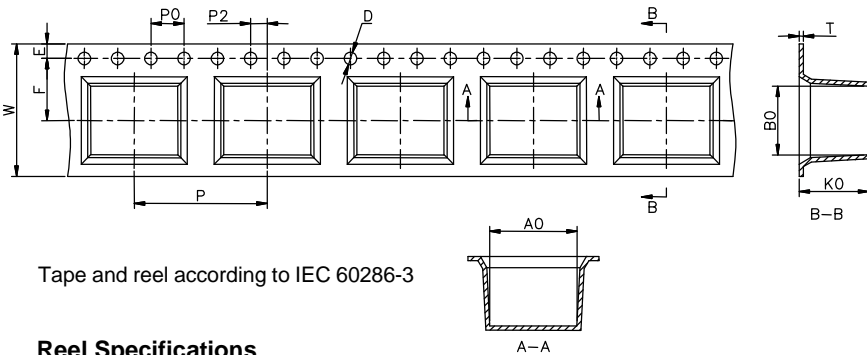


Recommended Soldering Pad Layout

Symbol	Millimeters	Inches
A	8±0.2	0.315±0.008
B	8±0.2	0.315±0.008
C	10±0.3	0.394±0.012
D	Φ8±0.2	Φ0.315±0.008
E	Φ7.2±0.1	Φ0.283±0.004
F	0.5±0.1	0.020±0.004
G	1.5±0.1	0.059±0.004
H	0.5±0.1	0.020±0.004
X	1.5	0.059
X1	1.5	0.059
X2	10.0	0.394
Y	6.0	0.236

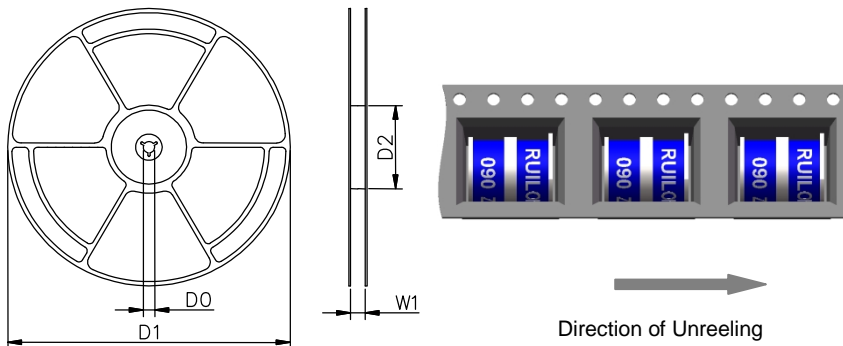
Packaging Information

Tape Specifications



Tape and reel according to IEC 60286-3

Reel Specifications



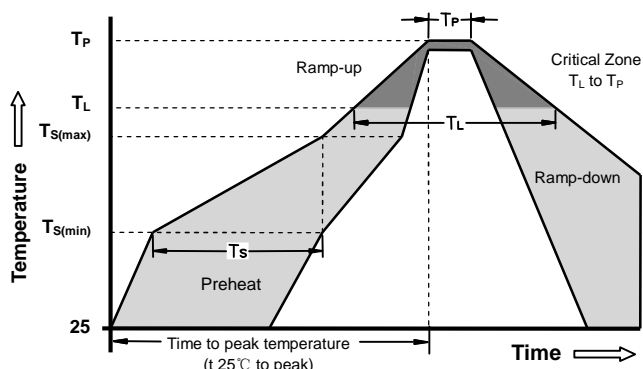
Symbol	Millimeters	Inches
W	16±0.3	0.630±0.012
A0	10.5±0.1	0.413±0.004
B0	8.3±0.1	0.327±0.004
K0	8.4±0.1	0.331±0.004
P	16±0.1	0.630±0.004
F	7.5±0.1	0.295±0.004
E	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
T	0.4±0.1	0.016±0.004
D0	13.3±0.15	0.524±0.006
D1	330±2	12.992±0.079
D2	100+1/-2	3.937+0.039/-0.079
W1	16.5±0.4	0.65±0.016

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	Reel	Inner Box	Carton
Size	330×20.5mm	340×333×70mm	375×353×380mm
Quantity	MPQ/MOQ: 1 reel=400pcs	1 Inner Box=3 reels=1,200pcs	1 Carton=5 Inner boxes=6,000pcs
Photos			

Soldering Parameters - Reflow Soldering (Surface Mount Devices)



Reflow Condition		Pb - Free assembly
Pre Heat	-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

Surface mounted components (SMD) may exhibit a temporary increase in the DC spark-over voltage after the solder reflow process. The components will recover within 24 hours. There is no quality defect nor change in protection levels during the temporary change in DC spark-over voltage.

Terms and definitions

NO.	Item	Definitions
1	Gas discharge tube(GDT)	A gap, or several gaps, in an enclosed discharge medium, other than air at atmospheric pressure, designed to protect apparatus or personnel, or both, from high transient voltages. Also referred to as "gas tube surge arrester".
2	DC Spark-over Voltage	The voltage at which the gas discharge tube sparks over with slowly increasing d.c. voltage.
3	Impulse Spark-over Voltage	The highest voltage which appears across the terminals of a gas discharge tube in the period between the application of an impulse of given wave-shape and the time when current begins to flow.
5	Arc voltage	Voltage drop across the GDT during arc current flow.
6	Glow voltage	Peak value of voltage drop across the GDT when a glow current is flowing.
7	Impulse discharge current 8/20μs	Current impulse with a nominal virtual front time of 8 μ s and a nominal time to half-value of 20 μ s.
8	Alternating Discharge Current	The rms value of an approximately sinusoidal alternating current passing through the gas discharge tube.
9	Insulation Resistance	Insulation resistance shall be measured from each terminal to every other terminal of the GDT. The test is performed with DC50V when normal spark-over Voltage 70~150V, others with DC100V.
10	Capacitance	The capacitance shall be measured once at 1 MHz between all terminals unless otherwise specified.

Cautions and warnings

- I Do not operate surge arresters in power supply networks, whose maximum operating voltage exceeds the minimum spark-over voltage of the surge arresters.
- I Surge arresters may become hot in the event of longer periods of current stress (burn risk). In the event of overload the connectors may fail or the component may be destroyed.
- I If the contacts of the surge arresters are defective, current load can cause sparks and loud noises.
- I Surge arresters must be handled with care and must not be dropped.
- I Do not continue to use damaged surge arresters.