

#### 3RD-8S Series

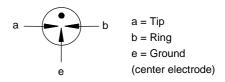
### **Description**

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**



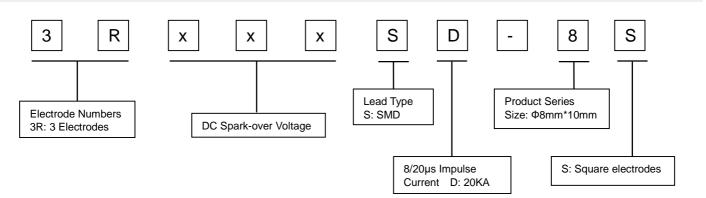
#### **Features**

- I Excellent response to fast rising transients
- I Stable breakdown voltage
- I GHz working frequency
- I 8/20µs Impulse current capability: 20KA
- I Non-Radioactive
- I Ultra Low capacitance (<1.5pF)
- I High insulation resistance
- I Size: Φ8mm\*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
- 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**

	DC Spark-over Voltage 1) 2) 3) @100V/S	Impulse		Insulation Resistance 4) Capacitanc @1MHz		Glow Voltage @10mA	_	Life Ratings <sup>5)</sup>				
Part Number		Spark-over Voltage <sup>3)</sup>	Capacitance @1MHz		Impulse Discharge Current			Impulse Discharge Current	Alternating Discharge Current	Impulse Life		
		100V/μS	1KV/μS					@8/20µs		@10/350μS	@50Hz 1S	@10/1000µS
		Max	Max	Min	Max	Typical	Typical	±5 times	1 time	±5 times	10 times	300 times
	V	v	٧	GΩ	pF	V	٧	KA	KA	KA	Α	Α
3R075SD-8S	75±20%	500	600	1	1.5	60	10	20	25	5	20	200
3R090SD-8S	90±20%	500	600	1	1.5	60	10	20	25	5	20	200
3R150SD-8S	150±20%	500	600	1	1.5	60	10	20	25	5	20	200
3R230SD-8S	230±20%	600	700	1	1.5	60	10	20	25	5	20	200
3R250SD-8S	250±20%	600	700	1	1.5	60	10	20	25	5	20	200
3R350SD-8S	350±20%	800	900	1	1.5	60	10	20	25	5	20	200
3R420SD-8S	420±20%	850	950	1	1.5	60	10	20	25	5	20	200
3R470SD-8S	470±20%	900	1000	1	1.5	60	10	20	25	5	20	200
3R600SD-8S	600±20%	1100	1200	1	1.5	60	10	20	25	5	20	200
Glow to Arc tran	Glow to Arc transition Current~1A											
Operation and	Operation and storage temperature					-40~+90°C						
Climatic category (IEC60068-1)				4	40/90/21							
Marking, red negative				х Х	RUILON xxx Y xxx -Nominal voltage Y -Year of production							
Weight	Weight				~	~2.0g						
Surface treatme	Surface treatment				N	/latte-tin p	olated					

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

75V~150V at DC 50V

Other at DC 100V

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

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

<sup>3)</sup> Tip or ring electrode to center electrode

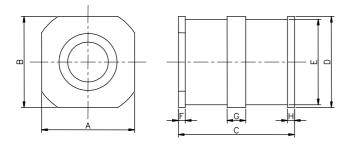
<sup>&</sup>lt;sup>4)</sup> Insulation Resistance Measuring Voltage:

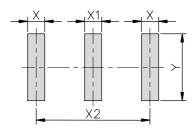
 $<sup>^{\</sup>rm 5)}$  Total current through center electrode, half value through tip respectively ring electrode.



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### **Dimensions**



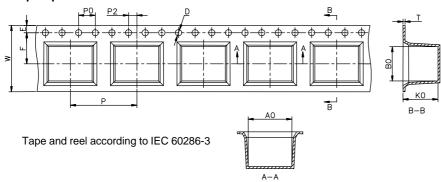


Recommended Soldering Pad Layout

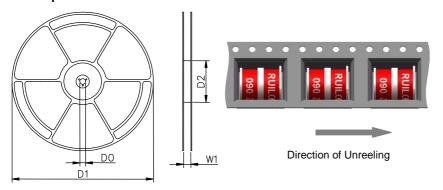
Symbol	Millimeters	Inches
Α	8±0.2	0.315±0.008
В	8±0.2	0.315±0.008
С	10±0.3	0.394±0.012
D	Ф8±0.2	Ф0.315±0.008
Е	Φ7.2±0.1	Ф0.283±0.004
F	0.5±0.1	0.020±0.004
G	1.5±0.1	0.059±0.004
Н	0.5±0.1	0.020±0.004
X	1.5	0.059
X1	1.5	0.059
X2	10.0	0.394
Y	6.0	0.236

# **Packaging Information**

#### **Tape Specifications**



#### **Reel Specifications**



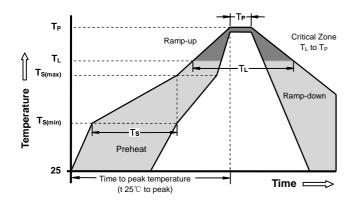
Symbol	Millimeters	Inches
w	16±0.3	0.630±0.012
A0	10.5±0.1	0.413±0.004
В0	8.3±0.1	0.327±0.004
K0	8.4±0.1	0.331±0.004
Р	16±0.1	0.630±0.004
F	7.5±0.1	0.295±0.004
Е	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
Т	0.4±0.1	0.016±0.004
D0	13.3±0.15	0.524±0.006
D1	330±2	12.992±0.079
D2	100+1/-2	3.937+0.039/-0.079
<b>W</b> 1	16.5±0.4	0.65±0.016



#### 3RD-8S Series

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



Reflow Co	ndition	Pb - Free assembly		
Pre Heat	-Temperature Min (T <sub>s(min)</sub> )	150°C		
	-Temperature Max (T <sub>s(max)</sub> )	200°C		
	- Time (min to max) (t <sub>s</sub> )	60 -180 Seconds		
Average ra	amp up rate ( Liquids Temp	3°C/second max		
T <sub>S(max)</sub> to T	L - Ramp-up Rate	5°C/second max		
Reflow	- Temperature (T <sub>L</sub> ) (Liquids)	217°C		
	- Time (min to max) (t <sub>s</sub> )	60 -150 Seconds		
Peak Tem	perature (T <sub>P</sub> )	260 +0/-5°C		
Time withi Temperatu	n 5°C of actual peak ıre (t <sub>p</sub> )	10 - 30 Seconds		
Ramp-dow	n Rate	6°C/second max		
Time 25°C	to peak Temperature (T <sub>P</sub> )	8 minutes Max		
Do not exc	eed	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.



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### Terms and definitions

NO.	Item	Definitions				
1		A gap, or several gaps, in an enclosed discharge medium, other than air at atmospheric pressure,				
	Gas discharge tube(GDT)	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	The highest voltage which appears across the terminals of a gas discharge tube in the period between				
	Voltage	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.				
	Impulse discharge					
7	current	Current impulse with a nominal virtual front time of 8 µs and a nominal time to half-value of 20 µs.				
	8/20µs					
8	Alternating	The rms value of an approximately sinusoidal alternating current passing through the gas discharge				
	Discharge Current	tube.				
9	Insulation	Insulation resistance shall be measured from each terminal to every other terminal of the GDT. The				
	Resistance	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.