

2-Electrode Gas Discharge Tube (GDT)

2RXXXX-8 Series

Description

Gas discharge Tubes (GDT) are classical components for protecting the installations of the telecommunications. It is essential that IT and telecommunications systems -with their high-grade but sensitive electronic circuits - be protected by arresters. They are thus fitted at the input of the power supply system together with varistors and at the connection points to telecommunication lines. They have become equally indispensable for protecting base stations in mobile telephone systems as well as extensive cable television (CATV) networks with their repeaters and distribution systems.

These protective components are also indispensable in other sectors, In AC power transmission systems, they are often used with current-limiting varistors, In customer premises equipment such as DSL modems, WLAN routers, TV sets and cable modems In air-conditioning equipment, the integral black-box concept offers graduated protection by combining arresters with varistors, PTC, diodes and inductor.

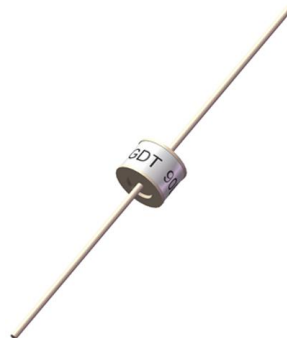
Features

- ◆ Non-Radioactive
- ◆ High insulation resistance
- ◆ Excellent response to fast rising transients
- ◆ Ultra low capacitance
- ◆ 10~20KA surge capability tested with 8/20µs pulse as defined by IEC 61000-4-5

Applications

- ◆ Communication lines and equipment
- ◆ CATV equipment
- ◆ Test equipment
- ◆ Data lines
- ◆ Power supplies
- ◆ Instrumentation circuits
- ◆ Medical electronics
- ◆ ADSL equipment
- ◆ Telecom SLIC protection

2RXXXM/HL-8



2RXXXM/H-8



2RXXXM/H-8S



Schematic Symbol



Product Characteristics

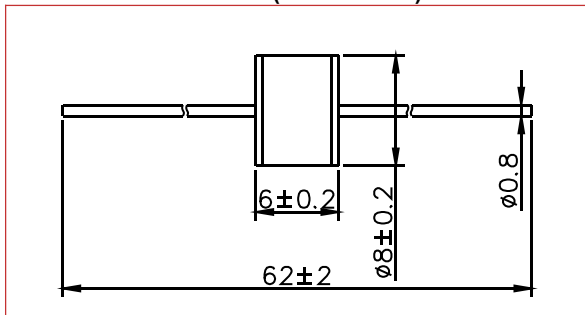
Materials	Leaded Device: Nickel-plated with Tinplated wires	
	Surface Mount: Dull Tin-plated	
Product Marking	GDT XXXM/H XXX -Nominal voltage M - 10KA H - 20KA	
Glow to Arc Transition Current	< 0.5 Amps	
Glow Voltage	~60 Volts	
Storage and Operational Temperature	-40 to +90°C	
Weight	2RXXXML-8	~1.5g
	2RXXXHL-8	~1.6g
	2RXXXM/H-8	~1.35g
	2RXXXM/H-8S	~1.5g
Climatic category (IEC 60068-1)	40/ 90/ 21	

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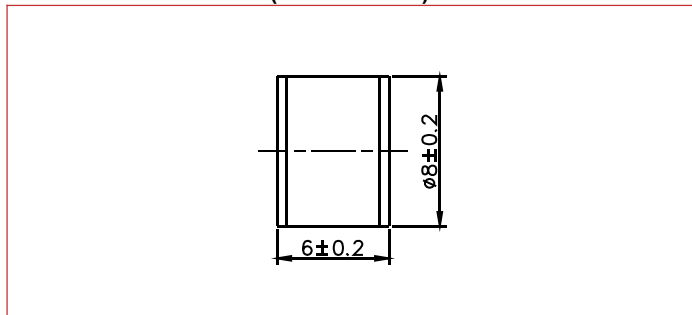
2RXXX-8 Series

Dimensions (Unit: mm)

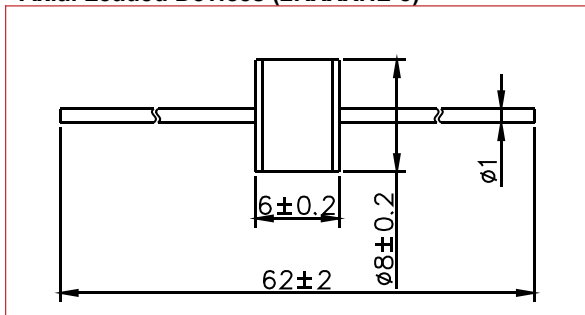
Axial Leaded Devices (2RXXXML-8)



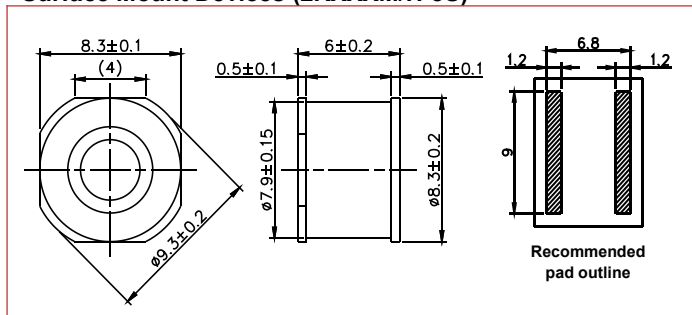
Without wire Devices (2RXXXM/H-8)



Axial Leaded Devices (2RXXXHL-8)



Surface Mount Devices (2RXXXM/H-8S)



Electrical Characteristics

Part Number	Marking	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Service Life			
			@100V/S	@100V/μs	@1KV/μs			Nominal Impulse Discharge Current	Max Impulse Discharge Current	Nominal Impulse Discharge Current	Impulse Life
						@1MHz	@1A	@8/20μs ±5 times	@8/20μs 1 time	@50Hz 1 Sec 10 times	@10/1000μs 300 times
2R075M-8 2R075ML-8 2R075M-8S	GDT 75M	75V±30%	<500V	<600V	1 GΩ (at 25V)	<1.5pF	~15V	10KA	20KA	10A	100A
2R090M-8 2R090ML-8 2R090M-8S	GDT 90M	90V±30%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~15V	10KA	20KA	10A	100A
2R150M-8 2R150ML-8 2R150M-8S	GDT 150M	150V±30%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R230M-8 2R230ML-8 2R230M-8S	GDT 230M	230V±30%	<600V	<700V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R250M-8 2R250ML-8 2R250M-8S	GDT 250M	250V±30%	<700V	<800V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R300M-8 2R300ML-8 2R300M-8S	GDT 300M	300V±30%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R350M-8 2R350ML-8 2R350M-8S	GDT 350M	350V±30%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A

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Electrical Characteristics (Continue)

Part Number	Marking	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Service Life			
			@100V/S	@100V/ μ s	@1KV/ μ s			Nominal Impulse Discharge Current	Max Impulse Discharge Current	Nominal Impulse Discharge Current	Impulse Life
2R420M-8 2R420ML-8 2R420M-8S	GDT 420M	420V \pm 30%	<900V	<1000V	1 G Ω (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R470M-8 2R470ML-8 2R470M-8S	GDT 470M	470V \pm 30%	<900V	<1000V	1 G Ω (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R600M-8 2R600ML-8 2R600M-8S	GDT 600M	600V \pm 30%	<1100V	<1200V	1 G Ω (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R800M-8 2R800ML-8 2R800M-8S	GDT 800M	800V \pm 30%	<1200V	<1400V	1 G Ω (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
2R075H-8 2R075HL-8 2R075H-8S	GDT 75H	75V \pm 30%	<500V	<600V	1 G Ω (at 25V)	<1.5pF	~15V	20KA	25KA	20A	200A
2R90H-8 2R90HL-8 2R90H-8S	GDT 90H	90V \pm 30%	<500V	<600V	1 G Ω (at 50V)	<1.5pF	~15V	20KA	25KA	20A	200A
2R150H-8 2R150HL-8 2R150H-8S	GDT 150H	150V \pm 30%	<500V	<600V	1 G Ω (at 50V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R230H-8 2R230HL-8 2R230H-8S	GDT 230H	230V \pm 30%	<600V	<700V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R250H-8 2R250HL-8 2R250H-8S	GDT 250H	250V \pm 30%	<700V	<800V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R300H-8 2R300HL-8 2R300H-8S	GDT 300H	300V \pm 30%	<800V	<900V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R350H-8 2R350HL-8 2R350H-8S	GDT 350H	350V \pm 30%	<800V	<900V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R420H-8 2R420HL-8 2R420H-8S	GDT 420H	420V \pm 30%	<900V	<1000V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R470H-8 2R470HL-8 2R470H-8S	GDT 470H	470V \pm 30%	<900V	<1000V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R600H-8 2R600HL-8 2R600H-8S	GDT 600H	600V \pm 30%	<1100V	<1200V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
2R800H-8 2R800HL-8 2R800H-8S	GDT 800H	800V \pm 30%	<1200V	<1400V	1 G Ω (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A

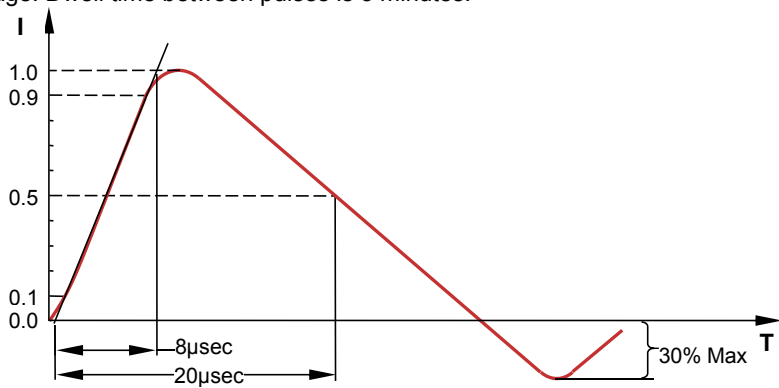
Notes:

- 1). Terms in accordance with ITU-T K.12 and GB/T 9043-2008
- 2). At delivery AQL 0.65 level II, DIN ISO 2859

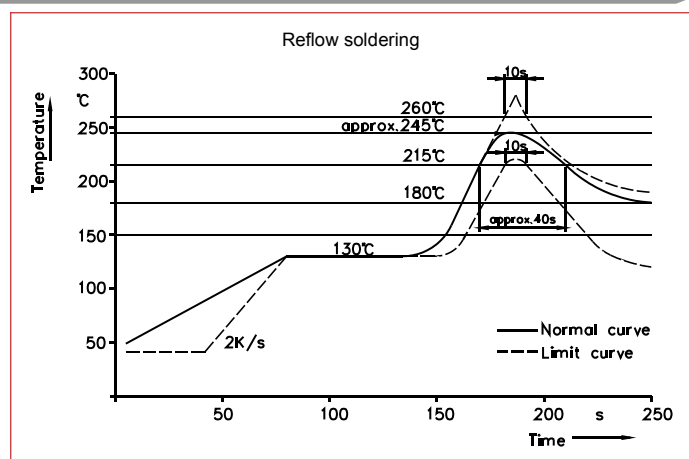
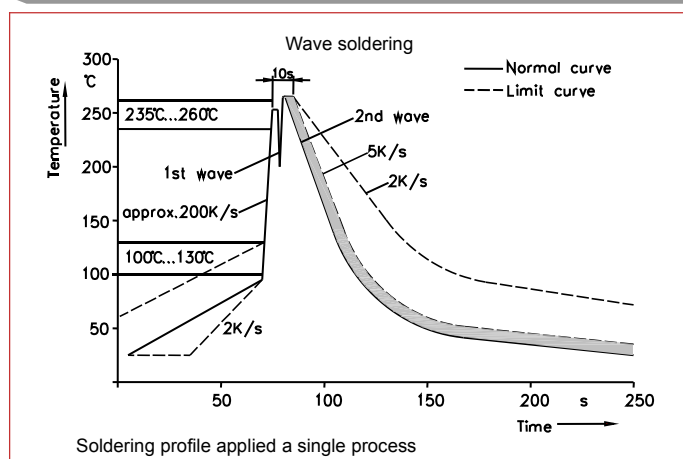
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Electrical Rating

Item	Test Condition / Description	Requirement
DC Spark-over Voltage	The voltage is measured with a slowly rate of rise $dv / dt = 100V/s$	To meet the specified value
Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with a rise time of $dv / dt = 100V/\mu s$ or $1KV/\mu s$	
Insulation Resistance	The resistance of gas tube shall be measured each terminal each other terminal, please see above spec.	
Capacitance	The capacitance of gas tube shall be measured each terminal to each other terminal. Test frequency :1MHz	
Nominal Impulse Discharge Current	<p>The maximum current applying a waveform of $8/20\mu s$ that can be applied across the terminals of the gas tube. One hour after the test is completed, re-testing of the DC spark-over voltage does not exceed $\pm 30\%$ of the nominal DC spark-over voltage. Dwell time between pulses is 3 minutes.</p> 	
Nominal Alternating Discharge Current	Rated RMS value of AC current at 50Hz, 1 sec. 10 times. Intervals: 3min. The DC spark-over voltage does not exceed $\pm 30\%$ of the nominal DC spark-over voltage. $IR > 10^8 ohms$.	

Recommended Soldering Profile



Soldering Parameters - Hand Soldering

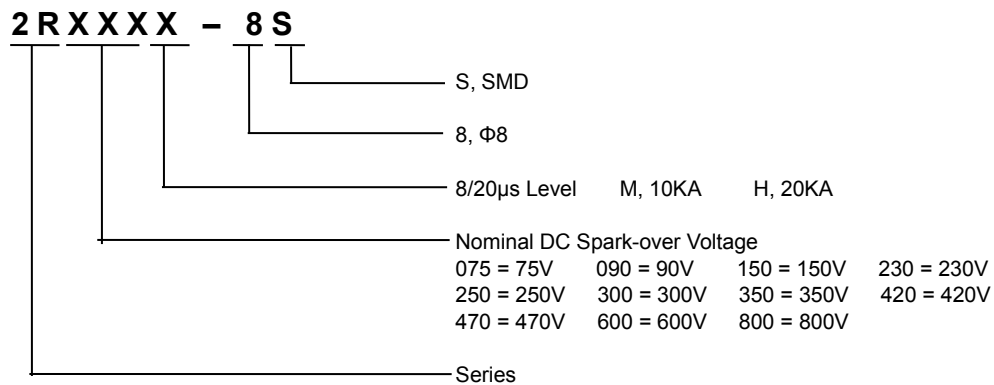
Solder Iron Temperature: $350^{\circ}C \pm 5^{\circ}C$

Heating Time: 5 seconds max.

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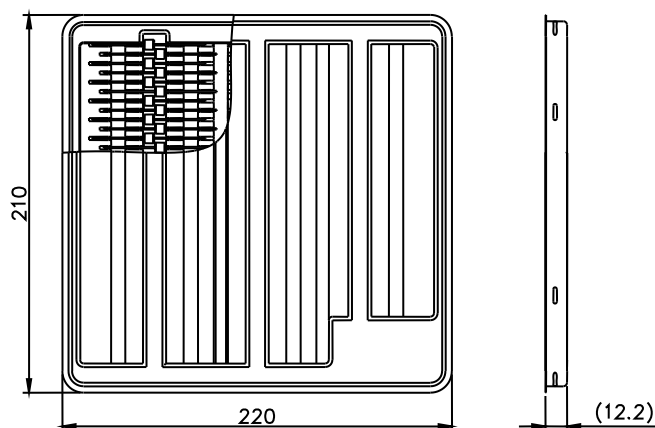
Part Numbering



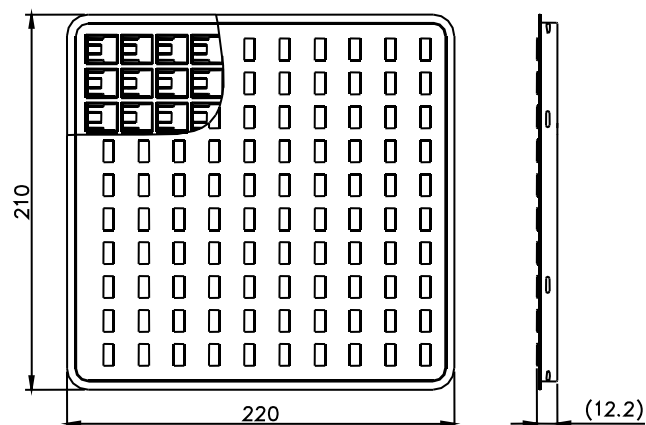
Packaging Information

Part Number	Description	Quantity
2RXXXM-8 / 2RXXXH-8	100PCS per Tray, 10 Trays / Inner Carton	1000 PCS
2RXXXML-8 / 2RXXXHL-8	100PCS per Tray, 10 Trays / Inner Carton	1000 PCS
2RXXXM-8S / 2RXXXH-8S	100PCS per Tray, 10 Trays / Inner Carton	1000 PCS
	Tape & Reel -16mm tape/13"Reel	500 PCS

Tray used in 2RXXXML-8 / 2RXXXHL-8



Tray used in 2RXXXM-8 / 2RXXXH-8 /
2RXXXM-8S / 2RXXXH-8S



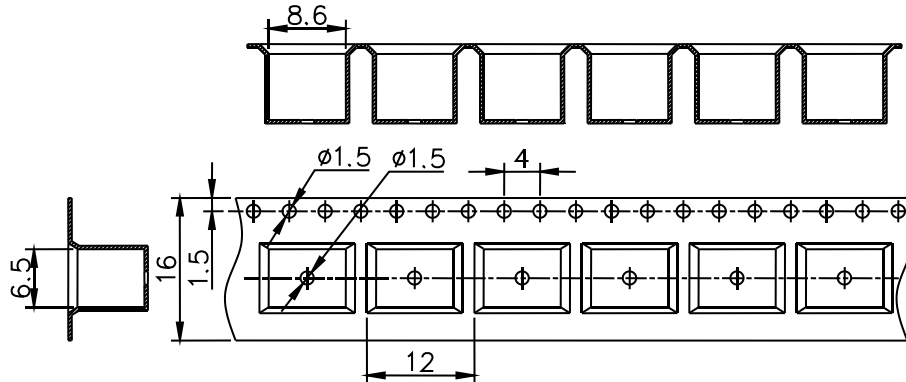
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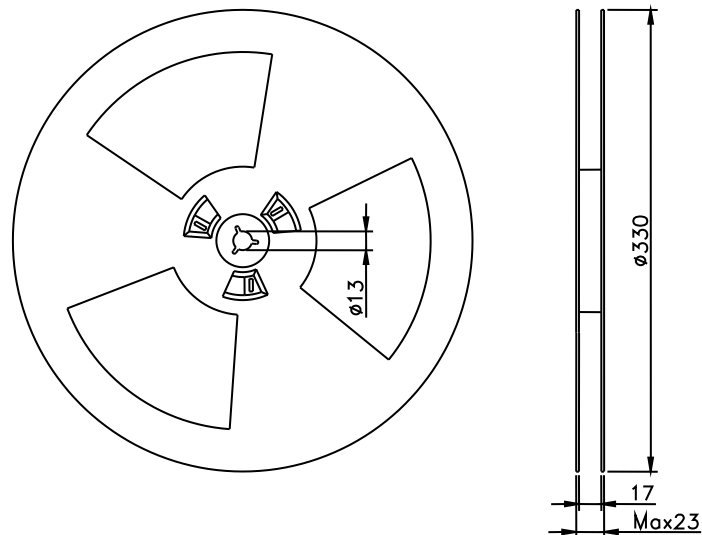
Tape and Reel Dimensions (Unit: mm)

Tape

Used in 2RXXXM-8S / 2RXXXH-8S



Reel



Cautions and Warnings

- ◆ Gas discharge tubes (GDT) must not be operated directly in power supply networks.
- ◆ Gas discharge tubes (GDT) may become hot in case of longer periods of current stress (danger of burning).
- ◆ Gas discharge tubes (GDT) may be used only within their specified values. In the event of overload, the head contacts may fail or the component may be destroyed.
- ◆ Damaged Gas discharge tubes (GDT) must not be re-used.