

Gas Discharge Tube (GDT) Data Sheet

Features

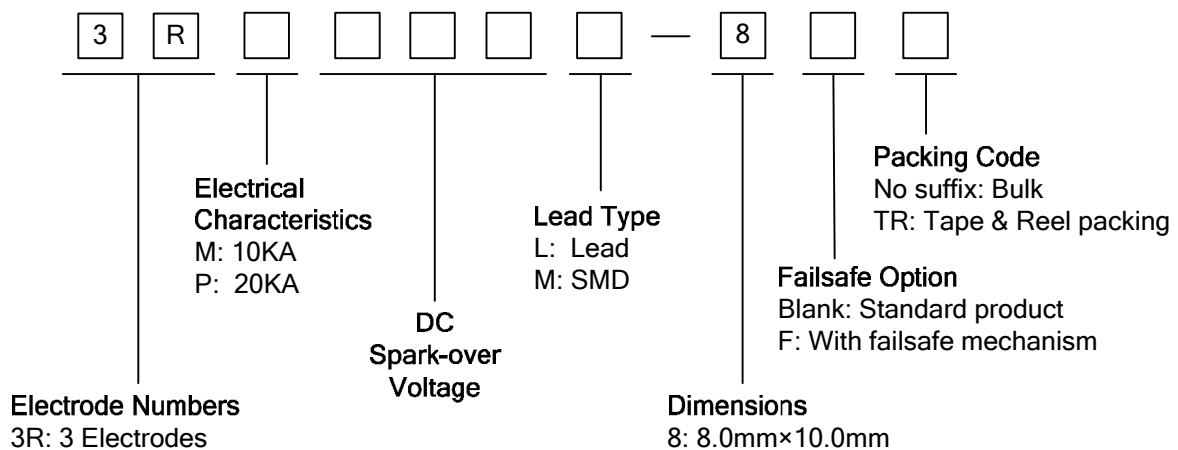
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/ μ s.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance (≤ 2 pF)
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 8.0mm*10.0mm
- Storage and operational temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E244458



Applications

- Repeaters, Modems.
- Telephone Interface, Line cards.
- Data communication equipment.
- Line test equipment

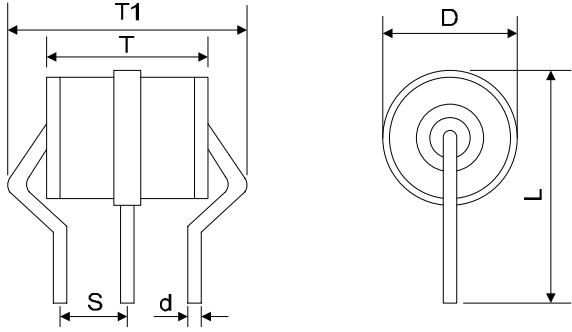
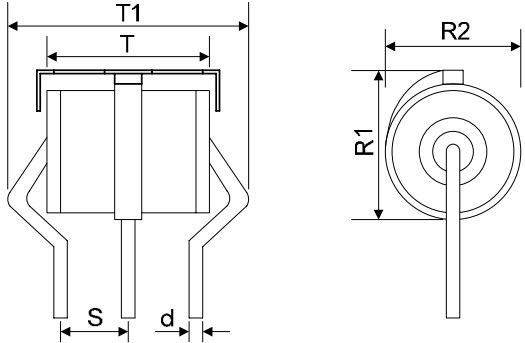
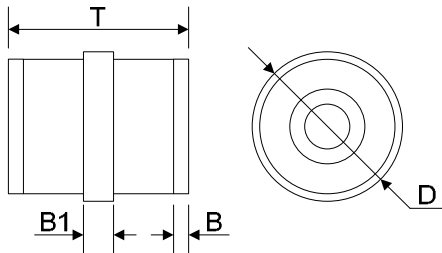
Part Number Code



Marking

B : BrightKing Logo
 3RM090-8 : Device Marking Code
 YXXX : Date Code

Dimensions

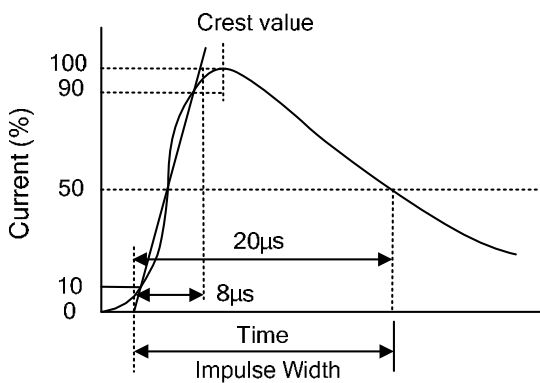
L Type		Dimension (mm)		
		Symbol	Spec.	Tolerance
		D	8.0	+0.2, -0.8
		T	10.0	±0.5
		T1	12.0	±0.5
		L	15.0	±0.5
L-F Type		S	4.4	±0.4
		d	1.0	±0.05
		R1	9.8	±0.4
		R2	8.1	±0.3
M Type		D	8.0	+0.2, -0.8
		T	10.0	±0.5
		B	0.5	±0.1
		B1	1.5	±0.2

Notes: This type is not suitable for PCB soldering.

Electrical Characteristics

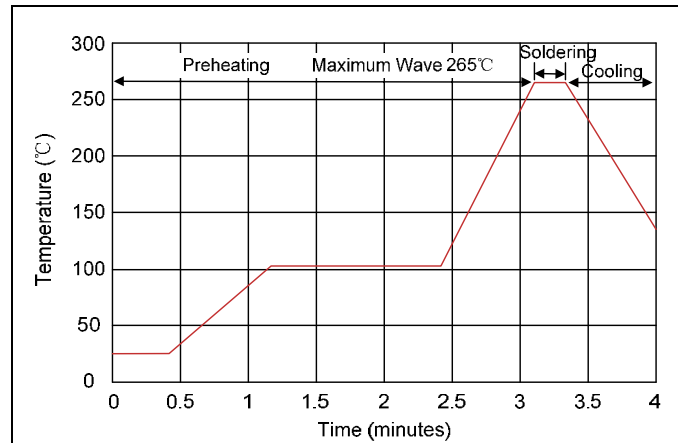
Part Number		DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Alternating Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance	Device Marking Code
		100V/s	1000V/ μ s	8/20 μ s 10times	50Hz, 1sec	10/1000 μ s 100A	Test Voltage	(G Ω)	1MHz	
		(V)	(V)	(KA)	(A)	(times)	DC(V)		(pF)	
3RM075L-8	3RM075M-8	75 \pm 20%	700	10	10	300	25	1.0	2.0	3RM075-8
3RM090L-8	3RM090M-8	90 \pm 20%	700	10	10	300	50	1.0	2.0	3RM090-8
3RM150L-8	3RM150M-8	150 \pm 20%	700	10	10	300	100	1.0	2.0	3RM150-8
3RM200L-8	3RM200M-8	200 \pm 20%	700	10	10	300	100	1.0	2.0	3RM200-8
3RM230L-8	3RM230M-8	230 \pm 20%	700	10	10	300	100	1.0	2.0	3RM230-8
3RM350L-8	3RM350M-8	350 \pm 20%	850	10	10	300	100	1.0	2.0	3RM350-8
3RM400L-8	3RM400M-8	400 \pm 20%	850	10	10	300	100	1.0	2.0	3RM400-8
3RM470L-8	3RM470M-8	470 \pm 20%	950	10	10	300	250	1.0	2.0	3RM470-8
3RM600L-8	3RM600M-8	600 \pm 20%	1300	10	10	300	250	1.0	2.0	3RM600-8
3RM800L-8	3RM800M-8	800 \pm 20%	1500	10	10	300	250	1.0	2.0	3RM800-8
3RP075L-8	3RP075M-8	75 \pm 20%	700	20	20	300	25	1.0	2.0	3RP075-8
3RP090L-8	3RP090M-8	90 \pm 20%	700	20	20	300	50	1.0	2.0	3RP090-8
3RP150L-8	3RP150M-8	150 \pm 20%	700	20	20	300	100	1.0	2.0	3RP150-8
3RP200L-8	3RP200M-8	200 \pm 20%	700	20	20	300	100	1.0	2.0	3RP200-8
3RP230L-8	3RP230M-8	230 \pm 20%	700	20	20	300	100	1.0	2.0	3RP230-8
3RP350L-8	3RP350M-8	350 \pm 20%	850	20	20	300	100	1.0	2.0	3RP350-8
3RP400L-8	3RP400M-8	400 \pm 20%	850	20	20	300	100	1.0	2.0	3RP400-8
3RP470L-8	3RP470M-8	470 \pm 20%	950	20	20	300	250	1.0	2.0	3RP470-8
3RP600L-8	3RP600M-8	600 \pm 20%	1300	20	20	300	250	1.0	2.0	3RP600-8
3RP800L-8	3RP800M-8	800 \pm 20%	1500	20	20	300	250	1.0	2.0	3RP800-8

Electrical Ratings

Items	Test Condition/Description	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt=100V/s$. Test is between each side electrode and center electrode.	
Maximum Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$. Test is between each side electrode and center electrode.	
Impulse Discharge Current	<p>Maximum surge current that can be applied through center electrode with 8/20μs waveform, for 10 times with 3min interval time, which will be equally divided between each side electrode to center electrode, without causing the DC breakdown voltage to change more than 25% from its initial measured value.</p>  <p>The graph shows a current waveform starting at 0% at time 0. It rises to a peak labeled 'Crest value' at 100% current. The time to reach the crest is 8μs. The time from the start to the point where the current has decayed to 50% is 20μs, labeled as 'Impulse Width'. The y-axis is 'Current (%)' with markings at 0, 10, 50, 90, and 100. The x-axis is 'Time'.</p>	To meet the specified value
Alternating Discharge Current	<p>Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min. DC spark-over voltage shall not change more than $\pm 25\%$ from its initial value. Test is between each side electrode and center electrode.</p> <p>$IR > 10^8$ ohms (-20%, +30% for 70~90V).</p>	
Insulation Resistance	The resistance of gas tube shall be measured between each side electrodes and center electrode.	
Capacitance	<p>The capacitance of gas tube shall be measured between each side electrodes and center electrode.</p> <p>Test frequency: 1MHz</p>	

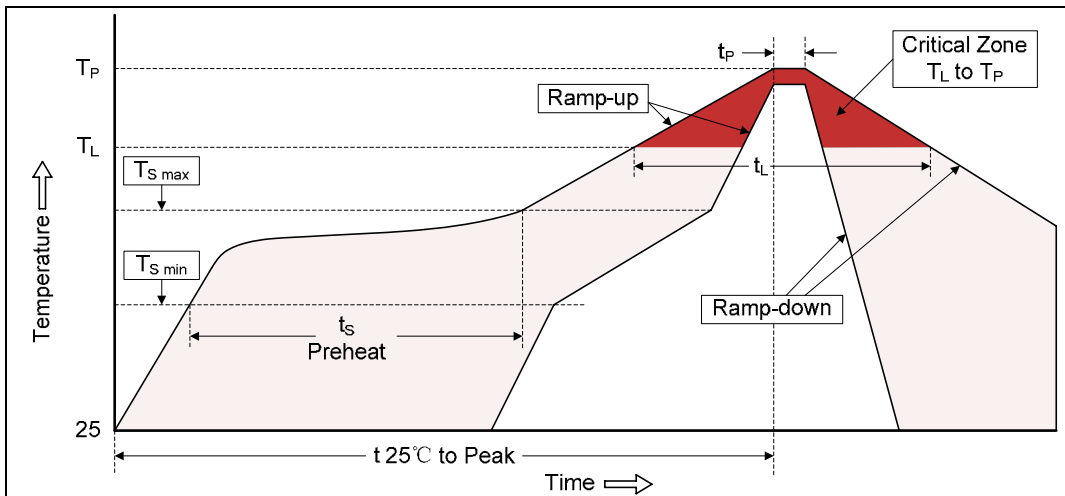
Recommended Soldering Conditions

Wave Soldering



Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time

Reflow Soldering



Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat	
-Temperature Min (TSmin)	150°C
-Temperature Max (TSmax)	200°C
-Time (min to max) (ts)	60-180 seconds
TSmax to TL	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (TL)	217°C
-Time (tL)	60-150 seconds
Peak Temperature (TP)	260°C
Time within 5°C of actual Peak Temperature (tP)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Packaging

Axial Packing (Bulk)

Symbol	Dimension (mm)	
	Spec.	Tolerance
A	217.0	±1.0
B	207.0	±1.0
H	10.3	±0.2
Quantity: 100pcs		
A0	338.0	±1.0
B0	336.0	±1.0
H0	58.0	±1.0
Quantity: 500pcs		

SMD Packing (Tape & Reel)

Symbol	Dimension (mm)	
	Spec.	Tolerance
W	16.00	±0.20
P0	4.00	±0.10
P1	16.00	±0.10
P2	2.00	±0.10
D0	1.55	±0.05
E	1.75	±0.10
F	7.50	±0.10
A0	11.6	±0.10
K0	8.90	±0.10
B0	8.60	±0.10
B1	10.00	±0.10
t0	0.50	±0.05
D	330.00	±1.00
d	13.00	±0.50
L	20.00	±0.50
t	2.00	±0.20
Quantity: 300pcs		