

## Gas Discharge Tube (GDT) Data Sheet

### Features

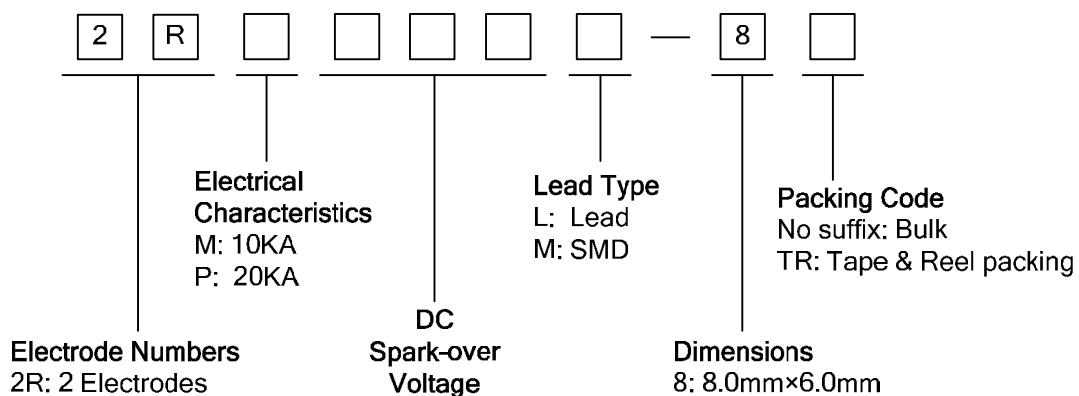
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance (≤1.5pF)
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 8.0mm\*6.0mm
- 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

: BrightKing Logo  
 2RM090-8 : Device Marking Code  
 YXXX : Date Code

**Dimensions**

L Type	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	8.0	+0.3, -0.5
	T	6.0	+0.3, -0.5
	d	0.8	±0.1
	L	30.0	Max.
M Type	D	8.0	+0.3, -0.5
	B	0.5	±0.1

Recommended Pad Size: 6.0 x 8.0 with 1.5 offset.

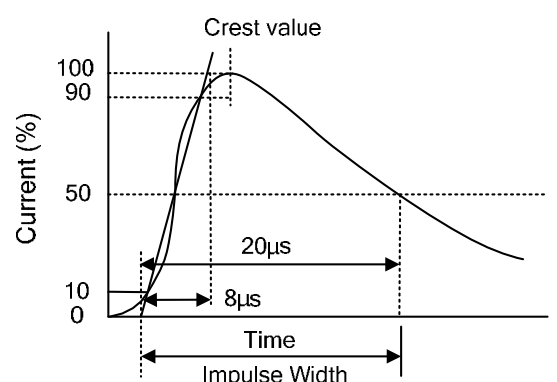
**Electrical Characteristics**

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	
						Test Voltage	(GΩ)			
						(V)	(pF)			
2RM075L-8	2RM075M-8	75±20%	600	10	10	500	25	1.0	1.5	2RM075-8
2RM090L-8	2RM090M-8	90±20%	600	10	10	500	50	1.0	1.5	2RM090-8
2RM120L-8	2RM120M-8	120±20%	600	10	10	500	50	1.0	1.5	2RM120-8
2RM145L-8	2RM145M-8	145±20%	700	10	10	500	100	1.0	1.5	2RM145-8
2RM150L-8	2RM150M-8	150±20%	700	10	10	500	100	1.0	1.5	2RM150-8
2RM230L-8	2RM230M-8	230±20%	700	10	10	500	100	1.0	1.5	2RM230-8
2RM250L-8	2RM250M-8	250±20%	800	10	10	500	100	1.0	1.5	2RM250-8
2RM300L-8	2RM300M-8	300±20%	900	10	10	500	100	1.0	1.5	2RM300-8
2RM350L-8	2RM350M-8	350±20%	900	10	10	500	100	1.0	1.5	2RM350-8
2RM400L-8	2RM400M-8	400±20%	1000	10	10	500	100	1.0	1.5	2RM400-8
2RM470L-8	2RM470M-8	470±20%	1100	10	10	500	250	1.0	1.5	2RM470-8
2RM600L-8	2RM600M-8	600±20%	1300	10	10	500	250	1.0	1.5	2RM600-8
2RM800L-8	2RM800M-8	800±20%	1500	10	10	500	250	1.0	1.5	2RM800-8
2RP075L-8	2RP075M-8	75±20%	600	20	20	500	25	1.0	1.5	2RP075-8
2RP090L-8	2RP090M-8	90±20%	600	20	20	500	50	1.0	1.5	2RP090-8
2RP120L-8	2RP120M-8	120±20%	600	20	20	500	50	1.0	1.5	2RP120-8
2RP145L-8	2RP145M-8	145±20%	700	20	20	500	100	1.0	1.5	2RP145-8
2RP150L-8	2RP150M-8	150±20%	700	20	20	500	100	1.0	1.5	2RP150-8

**Electrical Characteristics**

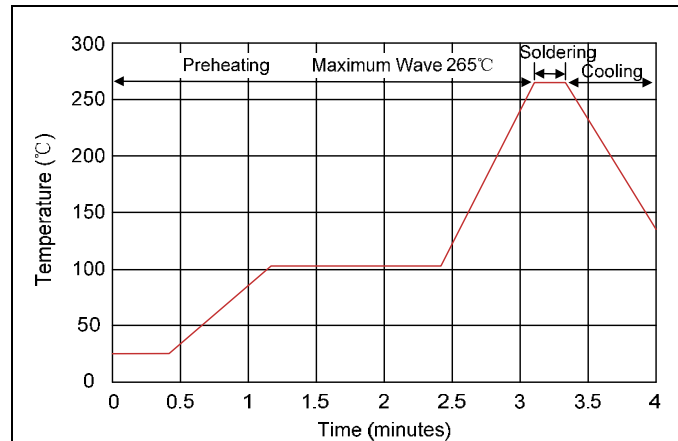
Part Number		DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Alternating Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance	Device Marking Code
		100V/s	1000V/ $\mu$ s	8/20 $\mu$ s 10times	50Hz, 1sec	10/1000 $\mu$ s 100A	Test Voltage	(G $\Omega$ )	1MHz	
		(V)	(V)	(KA)	(A)	(times)	DC(V)		(pF)	
2RP230L-8	2RP230M-8	230 $\pm$ 20%	700	20	20	500	100	1.0	1.5	2RP230-8
2RP250L-8	2RP250M-8	250 $\pm$ 20%	800	20	20	500	100	1.0	1.5	2RP250-8
2RP300L-8	2RP300M-8	300 $\pm$ 20%	900	20	20	500	100	1.0	1.5	2RP300-8
2RP350L-8	2RP350M-8	350 $\pm$ 20%	900	20	20	500	100	1.0	1.5	2RP350-8
2RP400L-8	2RP400M-8	400 $\pm$ 20%	1000	20	20	500	100	1.0	1.5	2RP400-8
2RP470L-8	2RP470M-8	470 $\pm$ 20%	1100	20	20	500	250	1.0	1.5	2RP470-8
2RP600L-8	2RP600M-8	600 $\pm$ 20%	1300	20	20	500	250	1.0	1.5	2RP600-8
2RP800L-8	2RP800M-8	800 $\pm$ 20%	1500	20	20	500	250	1.0	1.5	2RP800-8

**Electrical Ratings**

Items	Test Condition/Description	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt=100V/s$ .	To meet the specified value
Maximum Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .	
Impulse Discharge Current	<p>Maximum 8/20<math>\mu s</math> surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time, without causing the DC spark-over voltage to change more than 25% from its initial value.</p> 	
Alternating Discharge Current	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. $IR > 10^8$ ohms (-20%, +30% for 70~90V).	
Insulation Resistance	The resistance of gas tube shall be measured between two electrodes.	
Capacitance	The capacitance of gas tube shall be measured between two electrodes. Test frequency: 1MHz	

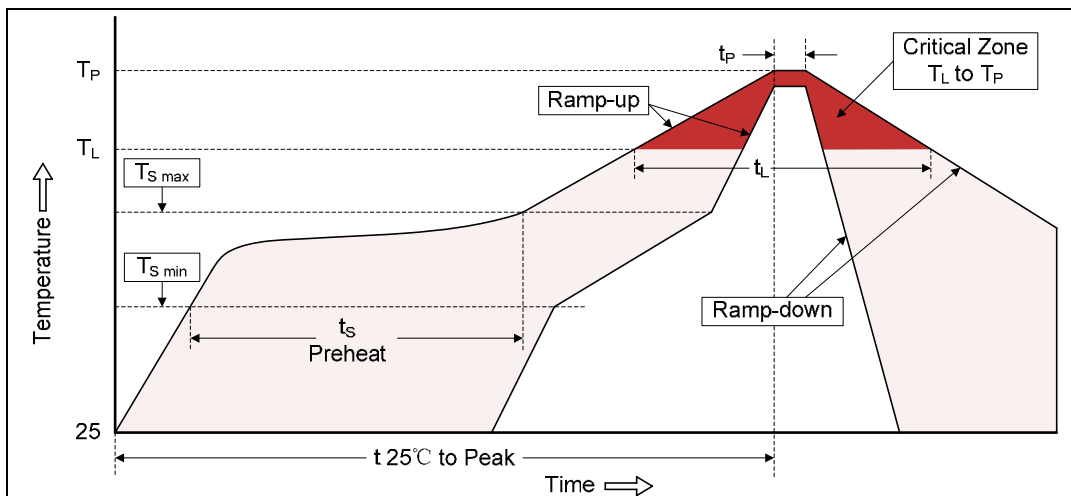
**Recommended Soldering Conditions**

**Wave Soldering**



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

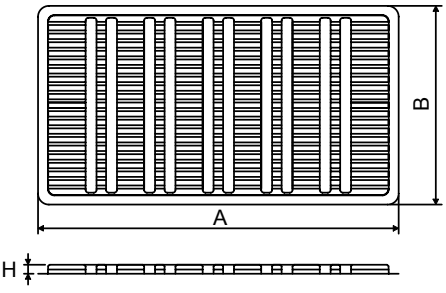
**Reflow Soldering**



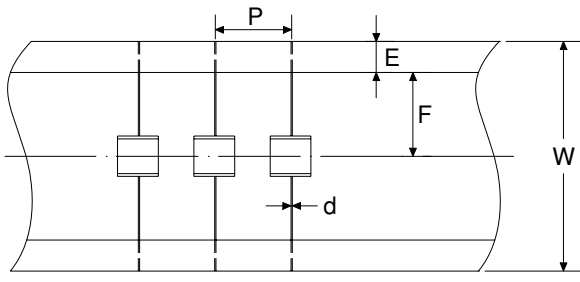
Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	
-Temperature Min ( $T_{S\ min}$ )	150°C
-Temperature Max ( $T_{S\ max}$ )	200°C
-Time (min to max) ( $t_s$ )	60-180 seconds
$T_{S\ max}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature ( $T_L$ )	217°C
-Time ( $t_L$ )	60-150 seconds
Peak Temperature ( $T_P$ )	260°C
Time within 5°C of actual Peak Temperature ( $t_P$ )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

**Packaging**

**Axial Packing (Bulk)**

Skin packing	Symbol	Dimension (mm)	
		Spec.	Tolerance
	A	264.0	±1.0
	B	145.0	±1.0
	H	6.5	±0.5
	Quantity: 100pcs		
Inner box	Symbol	Dimension (mm)	
		Spec.	Tolerance
	A0	270.0	±2.0
	B0	150.0	±1.0
H0	50.0	±1.0	
Quantity: 500pcs			

**Axial Packing (Tape & Reel)**

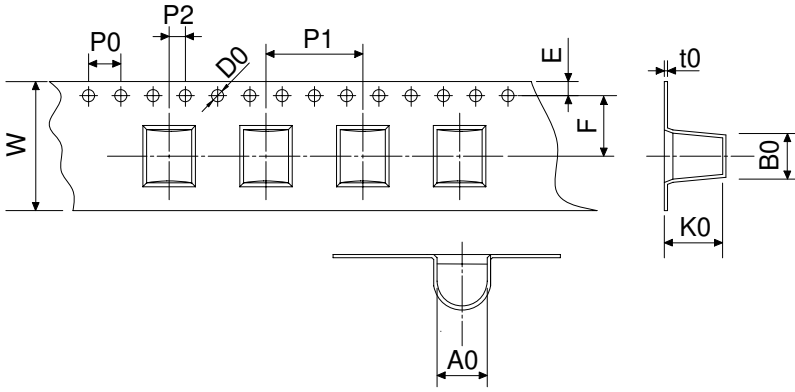
Tape	Symbol	Dimension (mm)	
		Spec.	Tolerance
	P	10.0	±0.1
	W	65.0	±0.1
	E	6.0	±0.1
	F	26.5	±0.1
	d	0.8	±0.05
	Reel	Symbol	Dimension (mm)
Spec.			Tolerance
A1		330.0	±1.0
B1		70.0	±1.0
C1		82.0	±1.0
D		25.0	±0.2
t		2.0	±0.2
Quantity: 500pcs			

**Packaging**

SMD Packing (Tape & Reel)

Symbol	Dimension (mm)	
	Spec.	Tolerance
W	16.00	±0.20
P0	4.00	±0.10
P1	12.00	±0.20
P2	2.00	±0.10
D0	1.55	±0.05
E	1.75	±0.10
F	7.50	±0.10
A0	8.20	±0.10
K0	8.50	±0.10
B0	7.50	±0.10
t0	0.50	±0.10
D	330.00	±1.00
d	13.00	±0.50
L	20.00	±0.50
t	2.00	±0.20
Quantity: 500pcs		

Tape



Reel

