

## Gas Discharge Tube (GDT) Data Sheet

### Features

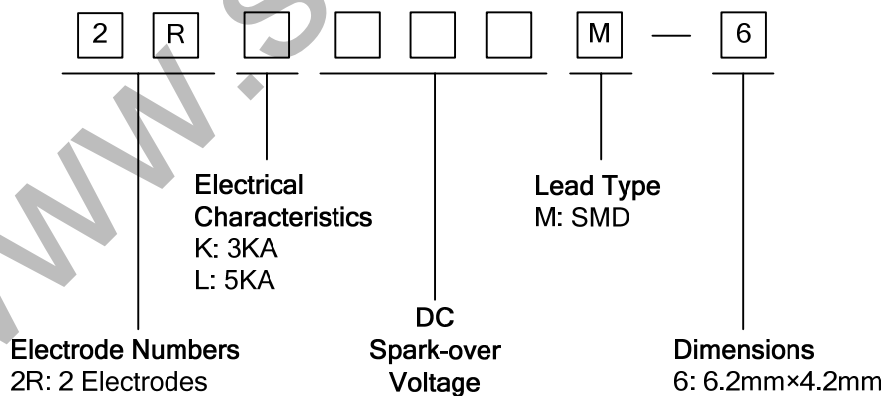
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance (≤1pF)
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 6.2mm\*4.2mm
- Storage and operational temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E244458 & E327997



### Applications

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

### Part Number Code



### Marking

**B** : BrightKing Logo  
 2RL090-6 : Device Marking Code  
 YXXX : Date Code

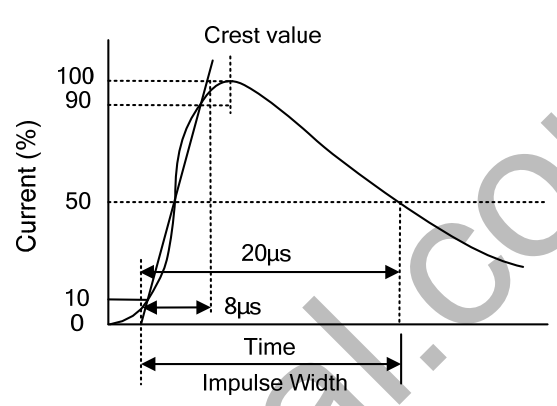
**Dimensions**

<p>Recommended Pad Size</p>	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	6.2	±0.2
	T	4.2	±0.2
	B	0.6	±0.1
d	6.0	±0.2	

**Electrical Characteristics**

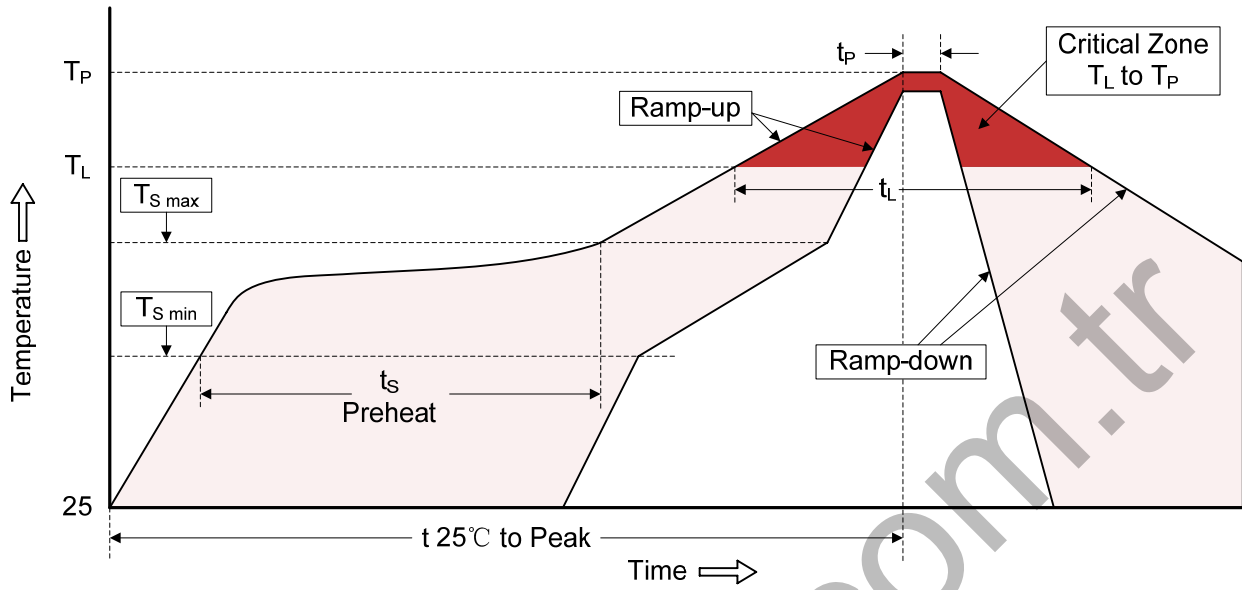
Part Number	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Alternating Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance	Device Marking Code
	100V/s	1000V/μs	8/20μs 10times	50Hz, 1sec	10/1000μs 100A	Test Voltage	(GΩ)	1MHz	
	(V)	(V)	(KA)	(A)	(times)	DC(V)		(pF)	
2RL075M-6	75±20%	700	5	5	500	25	1	1.0	2RL075-6
2RL090M-6	90±20%	700	5	5	500	50	1	1.0	2RL090-6
2RL145M-6	145±20%	700	5	5	500	100	1	1.0	2RL145-6
2RL150M-6	150±20%	700	5	5	500	100	1	1.0	2RL150-6
2RL230M-6	230±20%	650	5	5	500	100	1	1.0	2RL230-6
2RL250M-6	250±20%	650	5	5	500	100	1	1.0	2RL250-6
2RL300M-6	300±20%	700	5	5	500	100	1	1.0	2RL300-6
2RL350M-6	350±20%	750	5	5	500	100	1	1.0	2RL350-6
2RL400M-6	400±20%	800	5	5	500	100	1	1.0	2RL400-6
2RL470M-6	470±20%	900	5	5	500	250	1	1.0	2RL470-6
2RL600M-6	600±20%	1000	5	5	500	250	1	1.0	2RL600-6
2RL800M-6	800±20%	1200	5	5	500	250	1	1.0	2RL800-6
2RK1000M-6	1000±20%	1600	3	3	300	500	1	1.0	2RK1000-6
2RK1200M-6	1200±20%	1800	3	3	300	500	1	1.0	2RK1200-6
2RK1800M-6	1800±20%	2600	3	3	300	500	1	1.0	2RK1800-6
2RK2000M-6	2000±20%	2800	3	3	300	500	1	1.0	2RK2000-6
2RK2500M-6	2500±20%	3200	3	3	300	1000	1	1.0	2RK2500-6
2RK2700M-6	2700±20%	3400	3	3	300	1000	1	1.0	2RK2700-6
2RK3000M-6	3000±20%	3700	3	3	300	1000	1	1.0	2RK3000-6

**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 <math>8/20\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>  <p>The graph shows a typical 8/20 microsecond surge current waveform. The y-axis is Current (%) from 0 to 100. The x-axis is Time. Key points: 10% rise time is 8 microseconds, crest value is 100%, and 50% decay time is 20 microseconds. The impulse width is the time interval between 10% and 90% of the crest value.</p>	
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 <math>\pm 25\%</math> from its initial value.</p> <p><math>IR &gt; 10^8</math> ohms (-20%, +30% for 70~90V).</p>	
Insulation Resistance	The resistance of gas tube shall be measured between two electrodes.	
Capacitance	<p>The capacitance of gas tube shall be measured between two electrodes.</p> <p>Test frequency: 1MHz</p>	

**Recommended Soldering Conditions**

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat -Temperature Min ( $T_{S\ min}$ ) -Temperature Max ( $T_{S\ max}$ ) -Time (min to max) ( $t_s$ )	150°C 200°C 60-180 seconds
$T_{S\ max}$ to $T_L$ -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature ( $T_L$ ) -Time ( $t_L$ )	217°C 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**

Tape	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	4.44	±0.10	
	K0	6.37	±0.10	
	B0	6.48	±0.10	
	t0	0.50	±0.10	
	Reel	D	330.00	±1.00
		d	13.00	±0.50
		L	20.00	±0.50
t		2.00	±0.20	
Quantity: 800pcs				