

# DATA SHEET

GAS DISCHARGE TUBES  
TELEPHONE INTERFACE

2R-6 series

RoHS compliant & free



Product specification— July 12, 2023 V.1



## Gas Discharge Tube (GDT) Data Sheet

### Features

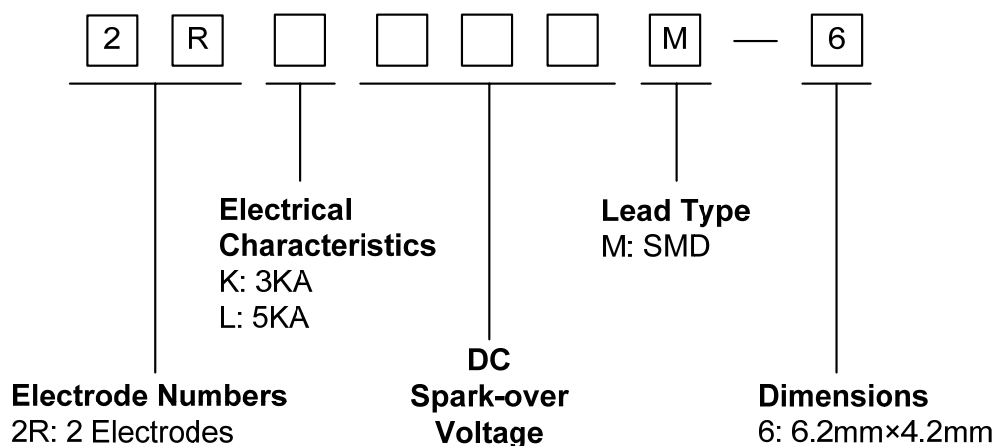
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/ $\mu$ s
- Stable breakdown voltage
- High insulation resistance
- Low capacitance ( $\leq 1$ pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: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



### Applications

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

### Part Number Code

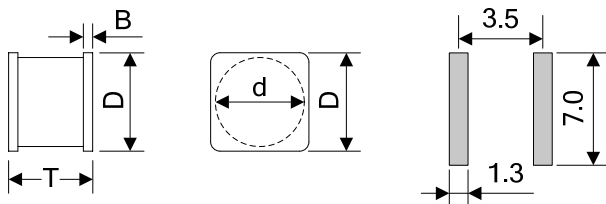


### Marking

**B** : BrightKing Logo  
2RL090-6 : Device Marking Code  
XXXX : Internal Control Code

## Dimensions

M Type	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



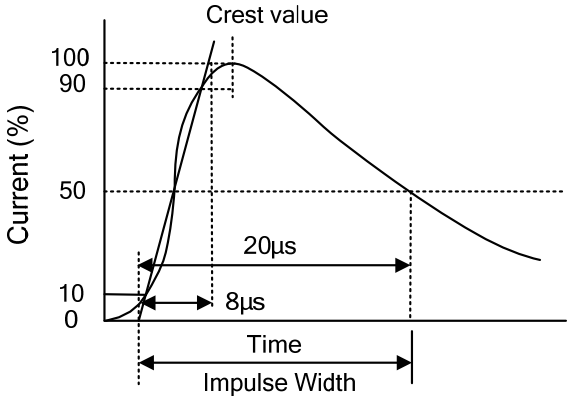
Recommended Pad Size

## 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

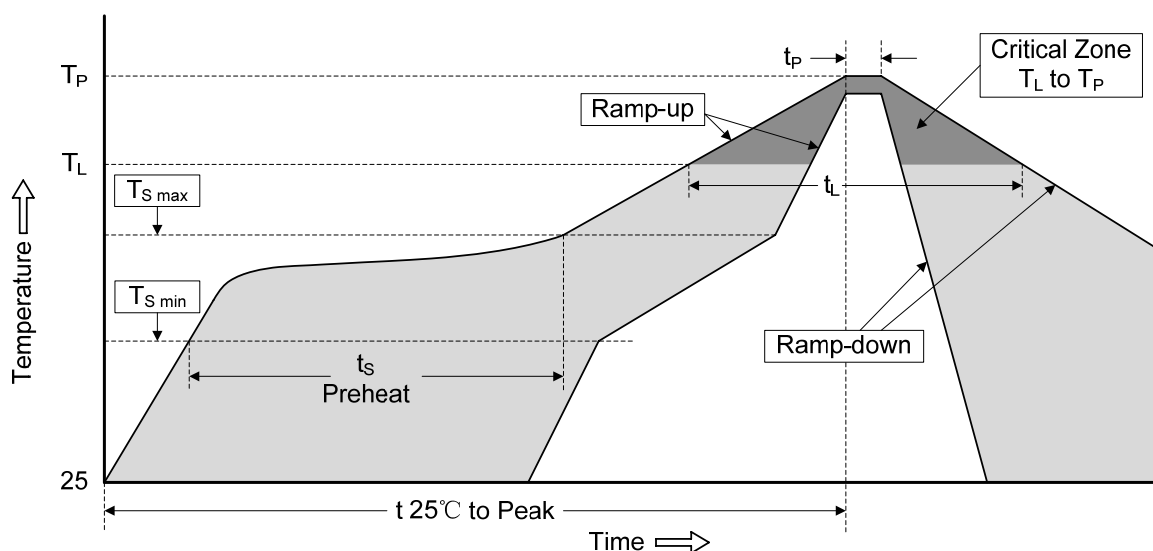
## Electrical Ratings

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</math>s surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time.</p> 
Alternating Discharge Current	Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min.
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

#### Reflow Soldering

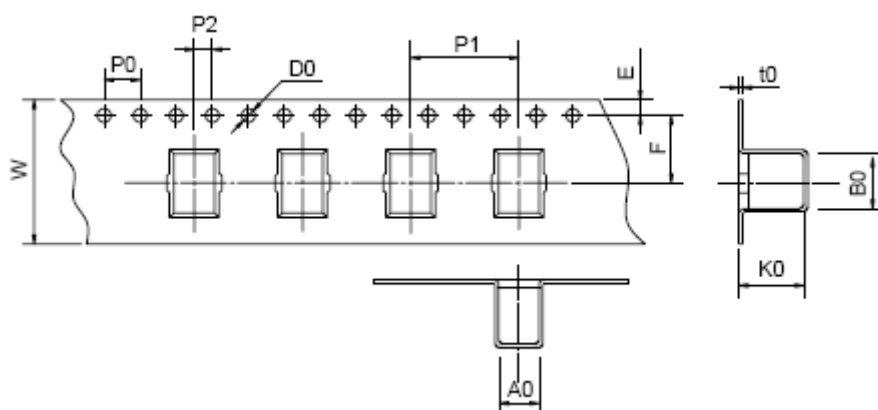


## Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat <ul style="list-style-type: none"> <li>-Temperature Min (<math>T_{S\ min}</math>)</li> <li>-Temperature Max (<math>T_{S\ max}</math>)</li> <li>-Time (min to max) (ts)</li> </ul>	150°C 200°C 60-180 seconds
$T_{S\ max}$ to $T_L$ <ul style="list-style-type: none"> <li>-Ramp-up Rate</li> </ul>	3°C/second max.
Time maintained above: <ul style="list-style-type: none"> <li>-Temperature (<math>T_L</math>)</li> <li>-Time (<math>t_L</math>)</li> </ul>	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.

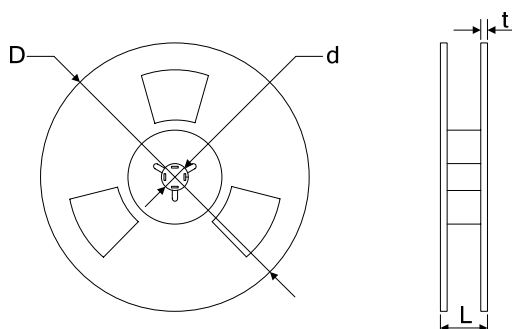
## Packaging

## 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	±2.00
d	13.00	±0.50
L	20.00	±2.00
t	2.00	±0.20
Quantity: 800pcs		

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