

DATA SHEET

GAS DISCHARGE TUBES
TELEPHONE INTERFACE
2R-5 series

RoHS compliant & free



Product specification— July 12, 2023 V.1



Gas Discharge Tube (GDT) Data Sheet

Features

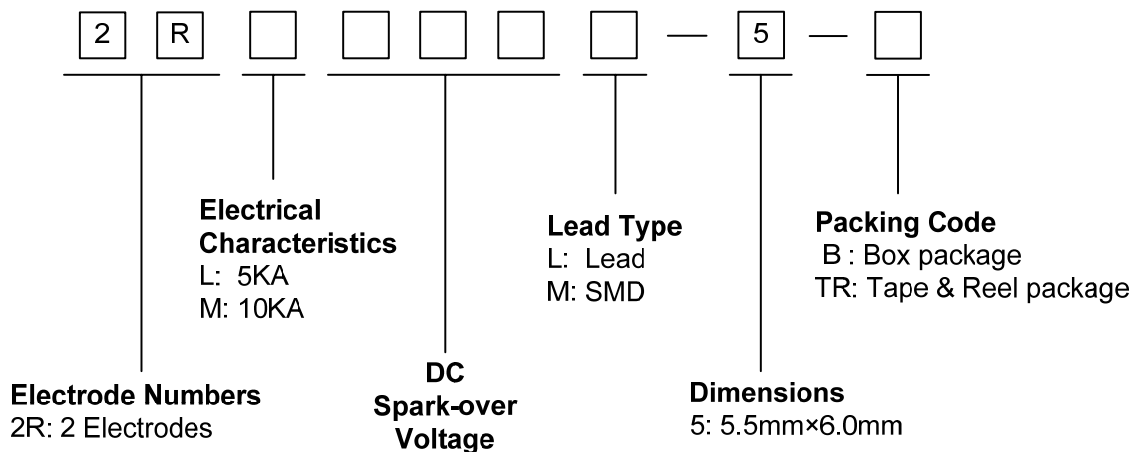
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs
- Stable breakdown voltage
- High insulation resistance
- Low capacitance ($\leq 1.5\text{pF}$)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 5.5mm*6.0mm
- Storage and operating temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- 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



Ordering Code for different package in 2RLxxxxL-5, 2RMxxxxL-5 series

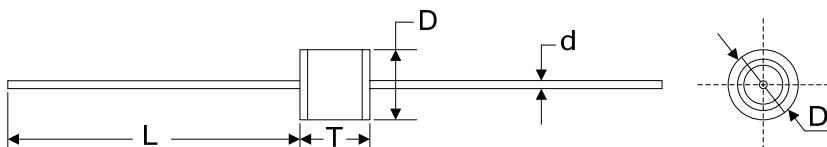
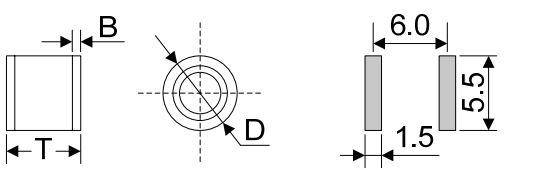
Box package: Add suffix “/B” at the end of the part number, such as 2RL070L-5/B, 2RM070L-5/B

Tape & Reel package: Add suffix “/TR” at the end of the part number, such as 2RL070L-5/TR, 2RM070L-5/TR

Marking

B : BrightKing Logo
 2RL090-5 : Device Marking Code
 XXXX : Internal Control Code

Dimensions

L Type	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	5.5	+0.3, -0.5
	T	6.0	+0.3, -0.5
	d	0.8	±0.1
	L	30.0	Max.
M Type	Symbol	Dimension (mm)	
		Spec.	Tolerance
		Spec.	Tolerance
 Recommended Pad Size	D	5.5	+0.3, -0.5
	T	6.0	+0.3, -0.5
	B	0.5	±0.1

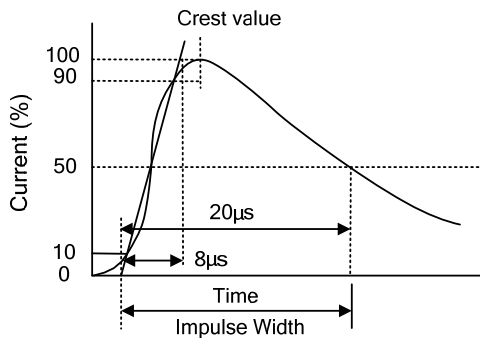
Electrical Characteristics

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)	
2RL070L-5	2RL070M-5	70±20%	800	5.0	5.0	300	25	1.0	1.5	2RL070-5
2RL075L-5	2RL075M-5	75±20%	800	5.0	5.0	300	25	1.0	1.5	2RL075-5
2RL090L-5	2RL090M-5	90±20%	700	5.0	5.0	300	50	1.0	1.5	2RL090-5
2RL120L-5	2RL120M-5	120±20%	700	5.0	5.0	300	50	1.0	1.5	2RL120-5
2RL145L-5	2RL145M-5	145±20%	700	5.0	5.0	300	100	1.0	1.5	2RL145-5
2RL150L-5	2RL150M-5	150±20%	700	5.0	5.0	300	100	1.0	1.5	2RL150-5
2RL230L-5	2RL230M-5	230±20%	700	5.0	5.0	300	100	1.0	1.5	2RL230-5
2RL250L-5	2RL250M-5	250±20%	700	5.0	5.0	300	100	1.0	1.5	2RL250-5
2RL300L-5	2RL300M-5	300±20%	900	5.0	5.0	300	100	1.0	1.5	2RL300-5
2RL350L-5	2RL350M-5	350±20%	900	5.0	5.0	300	100	1.0	1.5	2RL350-5
2RL400L-5	2RL400M-5	400±20%	1000	5.0	5.0	300	100	1.0	1.5	2RL400-5
2RL470L-5	2RL470M-5	470±20%	1100	5.0	5.0	300	250	1.0	1.5	2RL470-5
2RL600L-5	2RL600M-5	600±20%	1500	5.0	5.0	300	250	1.0	1.5	2RL600-5
2RL800L-5	2RL800M-5	800±20%	1700	5.0	5.0	300	250	1.0	1.5	2RL800-5

Electrical Characteristics

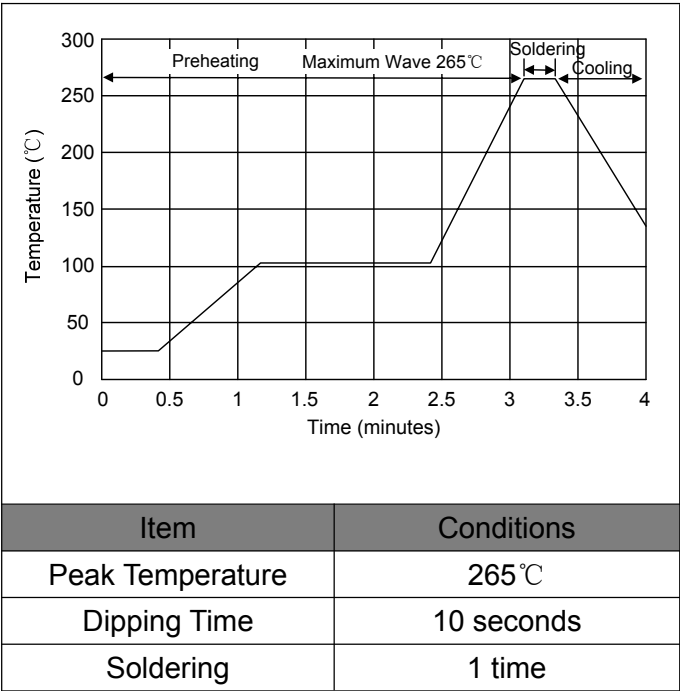
Part Number		DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Alternating Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance	Device Marking Code
		100V/s	1000V/ μ s	8/20 μ s 10times	50Hz, 1sec	10/1000 μ s 100A	Test Voltage	(G Ω)	1MHz	
		(V)	(V)	(KA)	(A)	(times)	DC(V)		(pF)	
2RM070L-5	2RM070M-5	70 $\pm$ 20%	600	10	5.0	500	25	1.0	1.5	2RM070-5
2RM075L-5	2RM075M-5	75 $\pm$ 20%	600	10	5.0	500	25	1.0	1.5	2RM075-5
2RM090L-5	2RM090M-5	90 $\pm$ 20%	600	10	10	500	50	1.0	1.5	2RM090-5
2RM120L-5	2RM120M-5	120 $\pm$ 20%	600	10	10	500	50	1.0	1.5	2RM120-5
2RM145L-5	2RM145M-5	145 $\pm$ 20%	700	10	10	500	100	1.0	1.5	2RM145-5
2RM150L-5	2RM150M-5	150 $\pm$ 20%	700	10	10	500	100	1.0	1.5	2RM150-5
2RM230L-5	2RM230M-5	230 $\pm$ 20%	700	10	10	500	100	1.0	1.5	2RM230-5

Electrical Ratings

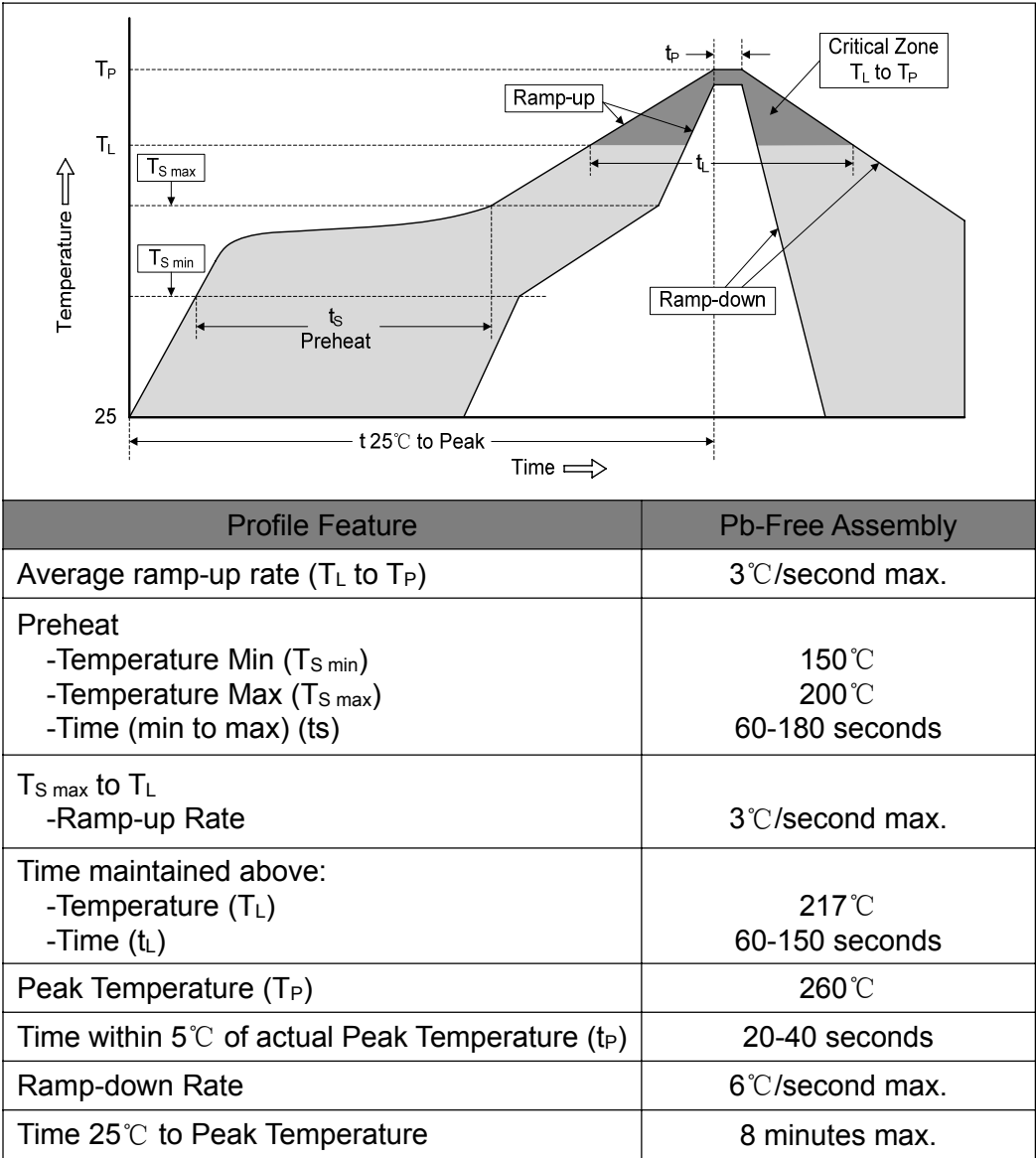
Items	Test Condition/Description	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt=100V/s$.	To meet the specified value
Maximum Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$.	
Impulse Discharge Current	Maximum 8/20μs surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time. 	
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

Wave Soldering



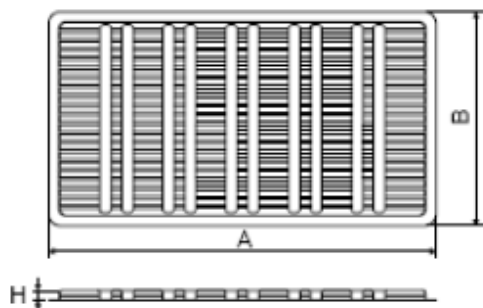
Reflow Soldering



Packaging

Axial Packing (Box)

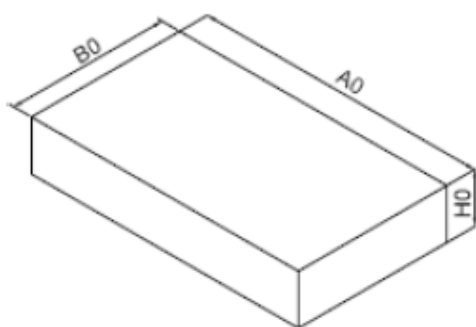
Skin packing



Symbol	Dimension (mm)	
	Spec.	Tolerance
A	265.0	±5.0
B	146.0	±5.0
H	6.8	±0.5

Quantity: 100pcs

Inner box

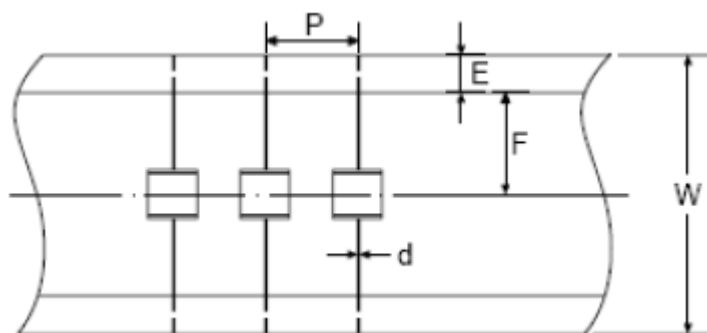


A0	270.0	±2.0
B0	150.0	±2.0
H0	50.0	±2.0

Quantity: 500pcs

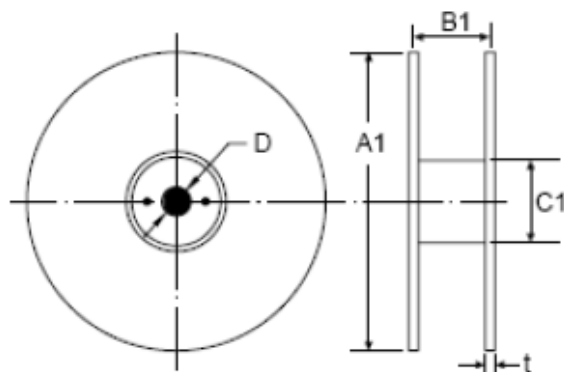
Axial Packing (Tape & Reel)

Tape



Symbol	Dimension (mm)	
	Spec.	Tolerance
P	10.0	±0.5
W	65.0	±1.0
E	6.0	±0.5
F	26.5	±0.5
d	0.8	±0.1

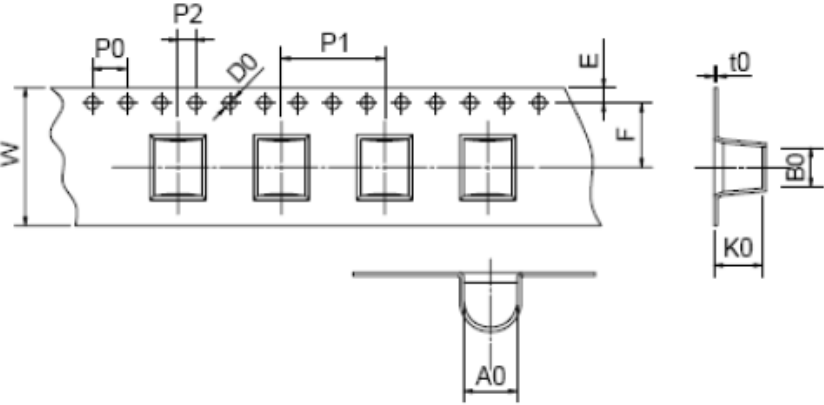
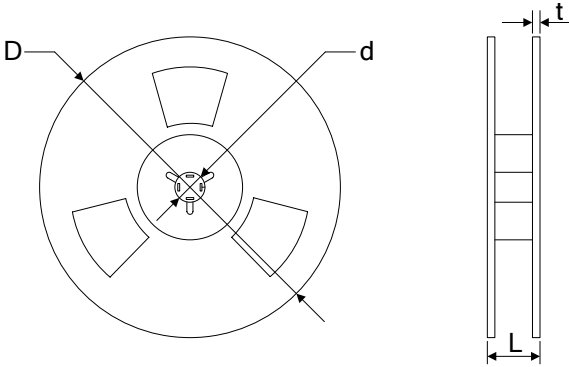
Reel



A1	330.0	±2.0
B1	70.0	±2.0
C1	82.0	±2.0
D	25.0	±0.5
t	2.0	±0.2

Quantity: 1000pcs

SMD Packing (Tape & Reel)

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	5.85	±0.10
	K0	6.20	±0.10
	B0	7.00	±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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