

Gas Discharge Tube (GDT) Data Sheet

Features

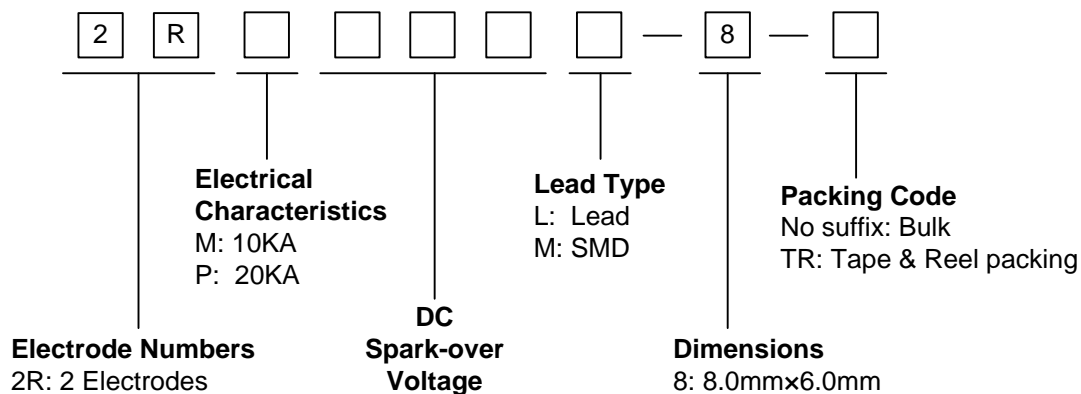
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs
- Stable breakdown voltage
- High insulation resistance
- Low capacitance (≤1.5pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 8.0mm*6.0mm
- Storage and operating temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: E244458



Applications

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

Part Number Code



Marking

B : 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
T		6.0	+0.3, -0.5	
B		0.5	±0.1	

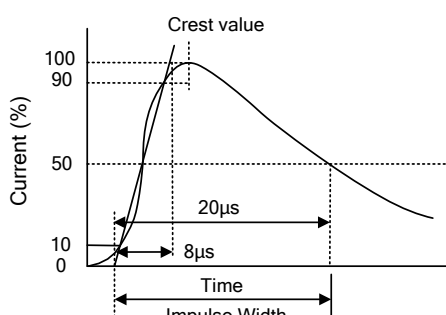
Electrical Characteristics

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)	
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

Electrical Characteristics

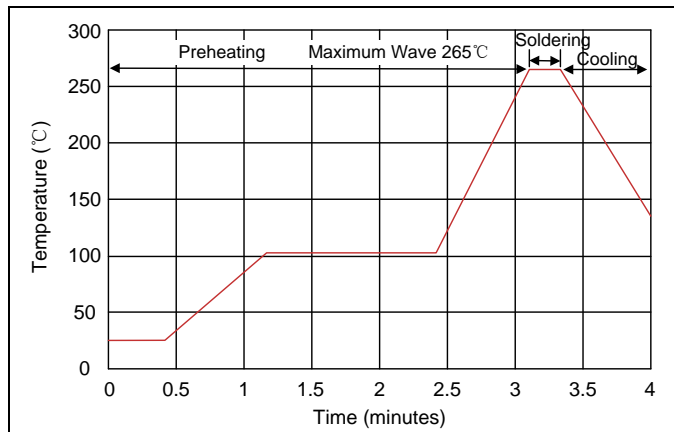
Part Number		DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Alternating Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance	Device Marking Code
		100V/s	1000V/ μ s	8/20 μ s 10times	50Hz, 1sec	10/1000 μ s 100A	Test Voltage	(G Ω)	1MHz	
		(V)	(V)	(KA)	(A)	(times)	DC(V)		(pF)	
2RP075L-8	2RP075M-8	75 \pm 20%	600	20	20	500	25	1.0	1.5	2RP075-8
2RP090L-8	2RP090M-8	90 \pm 20%	600	20	20	500	50	1.0	1.5	2RP090-8
2RP120L-8	2RP120M-8	120 \pm 20%	600	20	20	500	50	1.0	1.5	2RP120-8
2RP145L-8	2RP145M-8	145 \pm 20%	700	20	20	500	100	1.0	1.5	2RP145-8
2RP150L-8	2RP150M-8	150 \pm 20%	700	20	20	500	100	1.0	1.5	2RP150-8
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	Maximum 8/20 μs 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. 	
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	

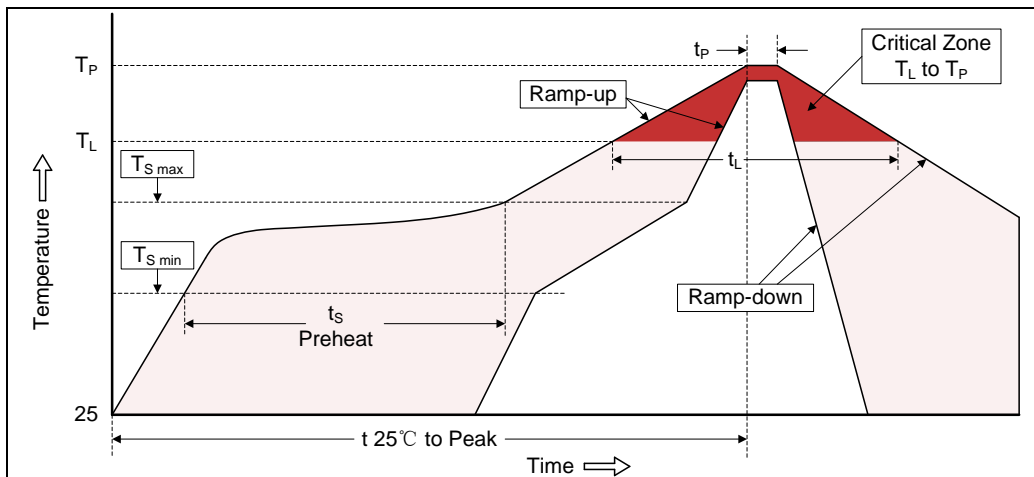
Recommended Soldering Conditions

Wave Soldering



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

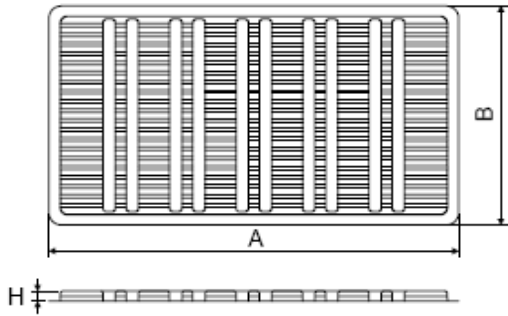
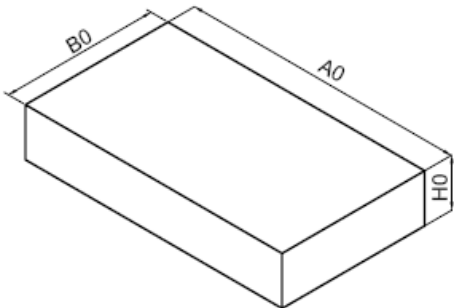
Reflow Soldering



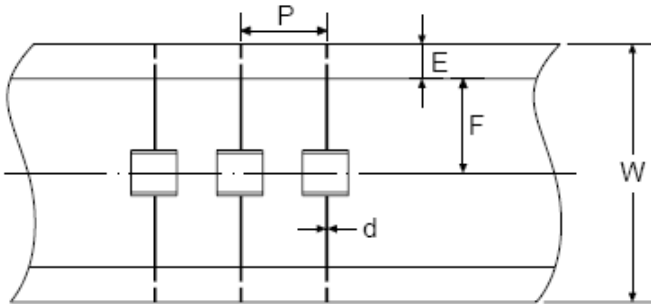
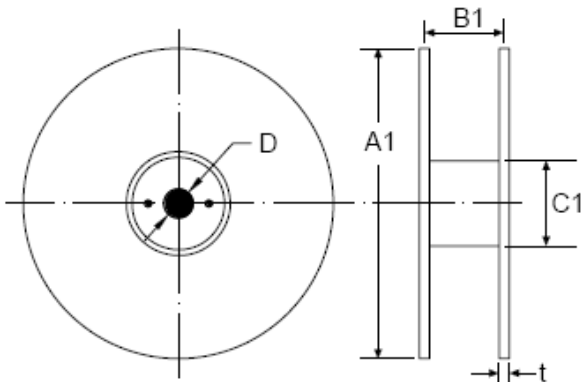
Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{S\ min}$)	150°C
-Temperature Max ($T_{S\ max}$)	200°C
-Time (min to max) (t_s)	60-180 seconds
$T_{S\ max}$ to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)	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															
	<table border="1"> <thead> <tr> <th rowspan="2">Symbol</th> <th colspan="2">Dimension (mm)</th> </tr> <tr> <th>Spec.</th> <th>Tolerance</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>265.0</td> <td>±5.0</td> </tr> <tr> <td>B</td> <td>146.0</td> <td>±5.0</td> </tr> <tr> <td>H</td> <td>8.5</td> <td>±0.5</td> </tr> </tbody> </table>	Symbol	Dimension (mm)		Spec.	Tolerance	A	265.0	±5.0	B	146.0	±5.0	H	8.5	±0.5
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A	265.0	±5.0													
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Inner box															
	<table border="1"> <tbody> <tr> <td>A0</td> <td>270.0</td> <td>±2.0</td> </tr> <tr> <td>B0</td> <td>150.0</td> <td>±2.0</td> </tr> <tr> <td>H0</td> <td>50.0</td> <td>±2.0</td> </tr> </tbody> </table>	A0	270.0	±2.0	B0	150.0	±2.0	H0	50.0	±2.0	Quantity: 500pcs				
A0	270.0	±2.0													
B0	150.0	±2.0													
H0	50.0	±2.0													

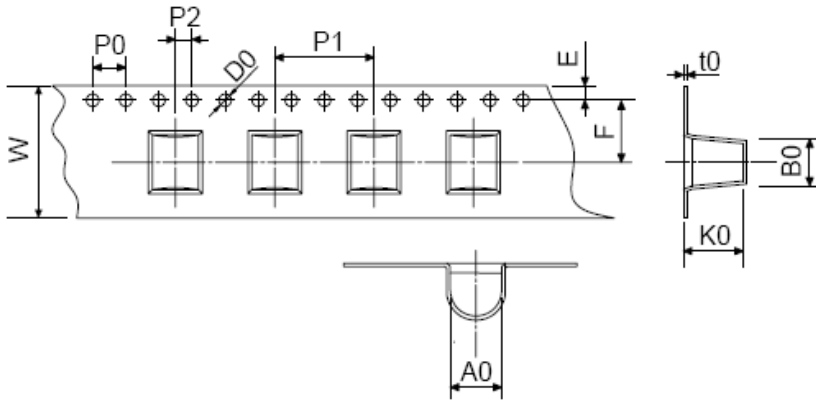
Axial Packing (Tape & Reel)

Tape																					
	<table border="1"> <thead> <tr> <th rowspan="2">Symbol</th> <th colspan="2">Dimension (mm)</th> </tr> <tr> <th>Spec.</th> <th>Tolerance</th> </tr> </thead> <tbody> <tr> <td>P</td> <td>10.0</td> <td>±0.5</td> </tr> <tr> <td>W</td> <td>65.0</td> <td>±1.0</td> </tr> <tr> <td>E</td> <td>6.0</td> <td>±0.5</td> </tr> <tr> <td>F</td> <td>26.5</td> <td>±0.5</td> </tr> <tr> <td>d</td> <td>0.8</td> <td>±0.1</td> </tr> </tbody> </table>	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
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Reel																					
	<table border="1"> <tbody> <tr> <td>A1</td> <td>330.0</td> <td>±2.0</td> </tr> <tr> <td>B1</td> <td>70.0</td> <td>±2.0</td> </tr> <tr> <td>C1</td> <td>82.0</td> <td>±2.0</td> </tr> <tr> <td>D</td> <td>25.0</td> <td>±0.5</td> </tr> <tr> <td>t</td> <td>2.0</td> <td>±0.2</td> </tr> </tbody> </table>	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: 500pcs				
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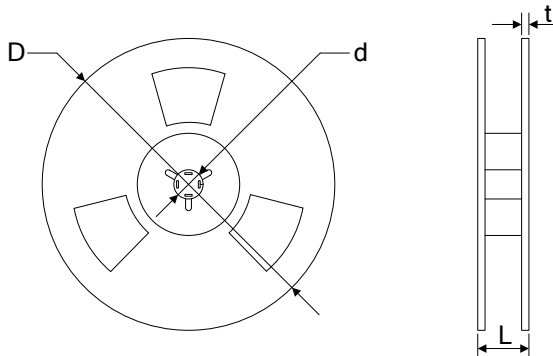
SMD Packing (Tape & Reel)

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	±2.00
d	13.00	±0.50
L	20.00	±2.00
t	2.00	±0.20
Quantity: 500pcs		

Tape



Reel



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[5.0SMDJ12A](#) [SMDJ18CA-AT](#) [BK16-600-SZ](#) [BK12005002-M](#) [1.5KE22A](#) [5.0SMDJ130CA](#) [5KP90CA](#) [1.5SMC24A](#) [15KPA30A](#) [181KD20](#)
[101KD20](#) [470KD20J](#) [5KP40CA](#) [15KPA75CA](#) [4532-471-LF](#) [15KPA30CA](#) [BK22002002-M](#) [SMDJ33CA-AT](#) [5.0SMDJ78CA](#) [3RL150M-5-S](#)
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