

# DATA SHEET

## GAS DISCHARGE TUBES TELEPHONE INTERFACE

3R-8(SDSn) series

RoHS compliant & Halogen free



Product specification— December 18, 2018 V.0



## Gas Discharge Tube (GDT) Data Sheet

### Features

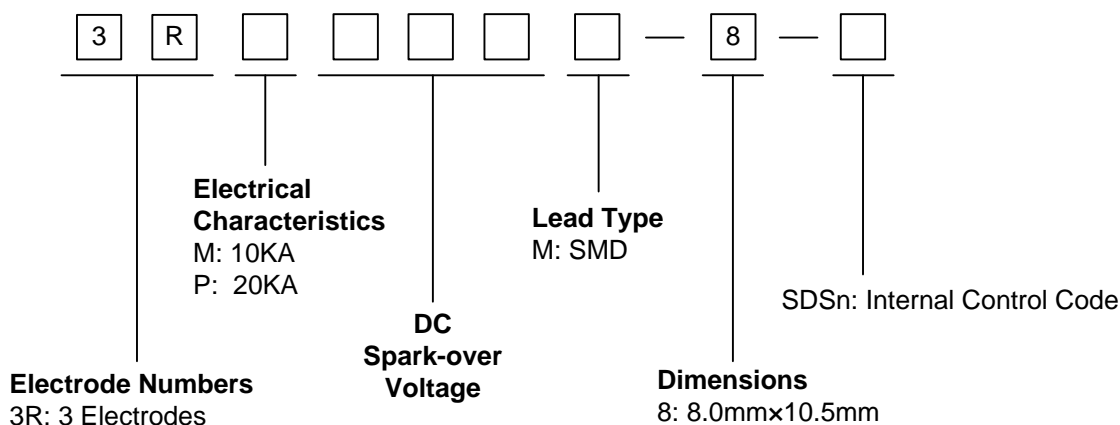
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance ( $\leq 2\text{pF}$ )
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 8.0mm\*10.5mm
- Storage and operating temperature:  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E244458
- Tin plating, suitable for PCB soldering.



### Applications

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

### Part Number Code



### Marking

**B** : BrightKing Logo  
 3RM090-8 : Device Marking Code  
 YXXX : Date Code

## Dimensions

Items	Dimension (mm)	
	Spec.	Tolerance
D	8.0	+0.2, -0.8
D1	7.6	±0.2
T	10.5	±0.5
B	0.5	±0.1
B1	2.0	±0.2

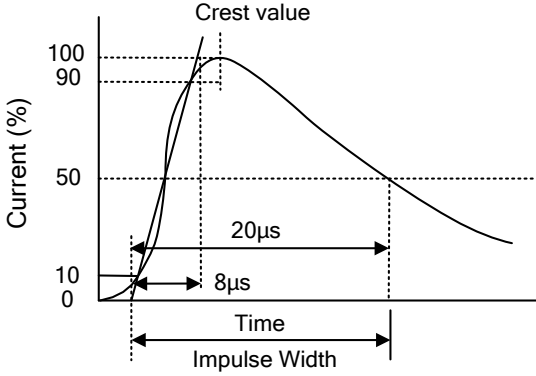
Recommended Pad Size

## Electrical Characteristics

Part Number	Type ①	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)	
3RM075M-8	SDSn	75±20%	700	10	10	300	25	1.0	2.0	3RM075-8
3RM090M-8	SDSn	90±20%	700	10	10	300	50	1.0	2.0	3RM090-8
3RM150M-8	SDSn	150±20%	700	10	10	300	100	1.0	2.0	3RM150-8
3RM200M-8	SDSn	200±20%	700	10	10	300	100	1.0	2.0	3RM200-8
3RM230M-8	SDSn	230±20%	700	10	10	300	100	1.0	2.0	3RM230-8
3RM350M-8	SDSn	350±20%	850	10	10	300	100	1.0	2.0	3RM350-8
3RM400M-8	SDSn	400±20%	850	10	10	300	100	1.0	2.0	3RM400-8
3RM470M-8	SDSn	470±20%	950	10	10	300	250	1.0	2.0	3RM470-8
3RM600M-8	SDSn	600±20%	1300	10	10	300	250	1.0	2.0	3RM600-8
3RM800M-8	SDSn	800±20%	1500	10	10	300	250	1.0	2.0	3RM800-8
3RP075M-8	SDSn	75±20%	700	20	20	300	25	1.0	2.0	3RP075-8
3RP090M-8	SDSn	90±20%	700	20	20	300	50	1.0	2.0	3RP090-8
3RP150M-8	SDSn	150±20%	700	20	20	300	100	1.0	2.0	3RP150-8
3RP200M-8	SDSn	200±20%	700	20	20	300	100	1.0	2.0	3RP200-8
3RP230M-8	SDSn	230±20%	700	20	20	300	100	1.0	2.0	3RP230-8
3RP350M-8	SDSn	350±20%	850	20	20	300	100	1.0	2.0	3RP350-8
3RP400M-8	SDSn	400±20%	850	20	20	300	100	1.0	2.0	3RP400-8
3RP470M-8	SDSn	470±20%	950	20	20	300	250	1.0	2.0	3RP470-8
3RP600M-8	SDSn	600±20%	1300	20	20	300	250	1.0	2.0	3RP600-8
3RP800M-8	SDSn	800±20%	1500	20	20	300	250	1.0	2.0	3RP800-8

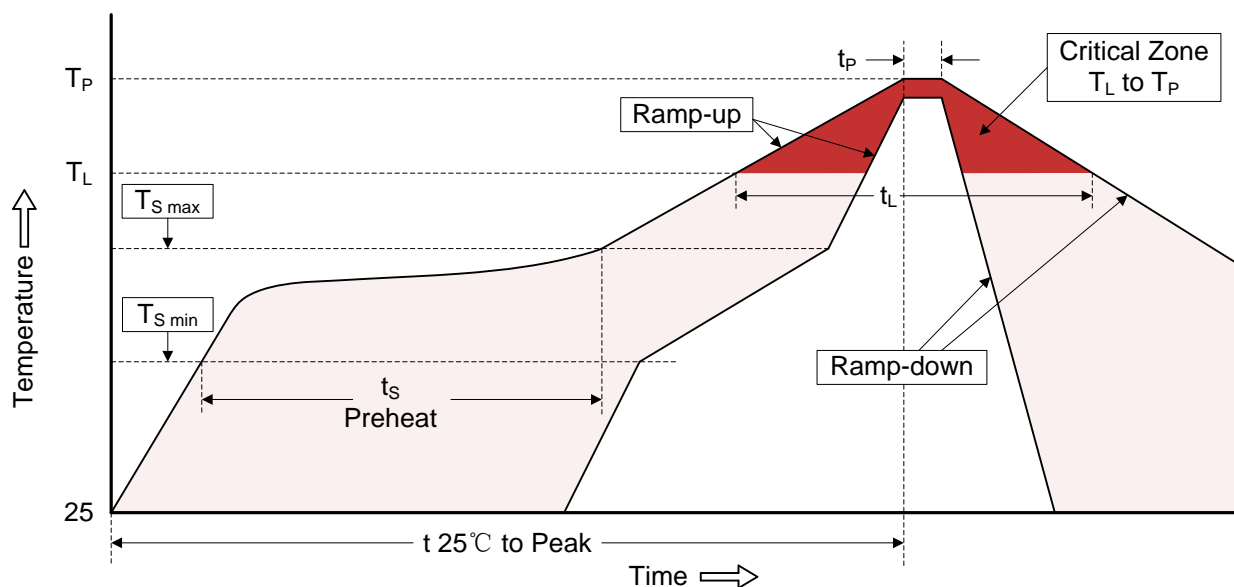
Notes: ① Specific code by request.

## Electrical Ratings

Items	Test Condition/Description	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt=100V/s$ . Test is between each side electrode and center electrode.	To meet the specified value
Maximum Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ . Test is between each side electrode and center electrode.	
Impulse Discharge Current	<p>Maximum surge current that can be applied through center electrode with 8/20<math>\mu s</math> waveform, for 10 times with 3min interval time, which will be equally divided between each side electrode to center electrode, without causing the DC breakdown voltage to change more than 25% from its initial measured 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. Test is between each side electrode and center electrode.</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 each side electrodes and center electrode.	
Capacitance	<p>The capacitance of gas tube shall be measured between each side electrodes and center electrode.</p> <p>Test frequency: 1MHz</p>	

## Recommended Soldering Conditions

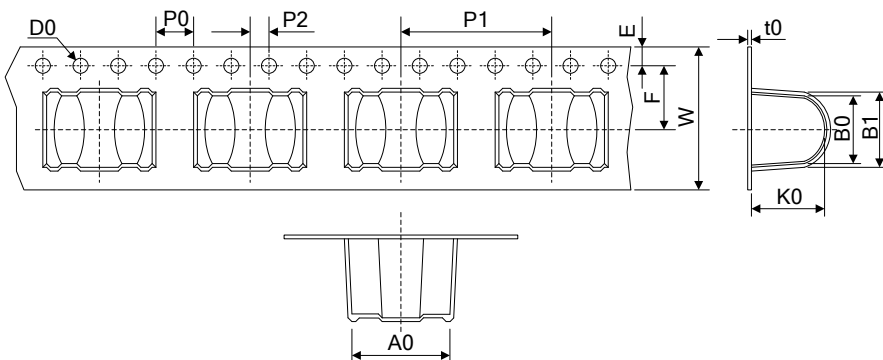
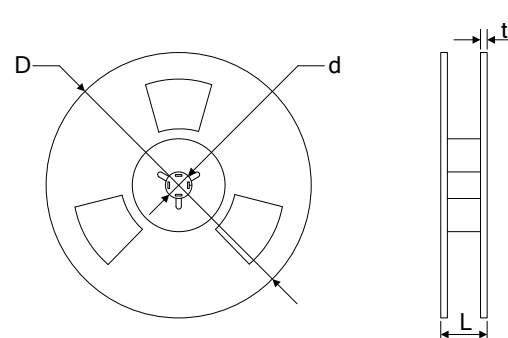
### Reflow Soldering



### Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat <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) (<math>t_s</math>)</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	Items	Dimension (mm)	
		Spec.	Tolerance
	W	16.00	±0.20
	P0	4.00	±0.10
	P1	16.00	±0.10
	P2	2.00	±0.10
	D0	1.55	±0.05
	E	1.75	±0.10
	F	7.50	±0.10
	A0	11.60	±0.10
	K0	8.90	±0.10
	B0	8.60	±0.10
	B1	10.00	±0.10
	t0	0.50	±0.05
	D	330.00	±1.00
	d	13.00	±0.50
	L	20.00	±0.50
	t	2.00	±0.20
	Quantity: 300pcs		