

DATA SHEET

GAS DISCHARGE TUBES
TELEPHONE INTERFACE

3R-5-S series

RoHS compliant & free



Product specification— July 12, 2023 V.1



Gas Discharge Tube (GDT) Data Sheet

Features

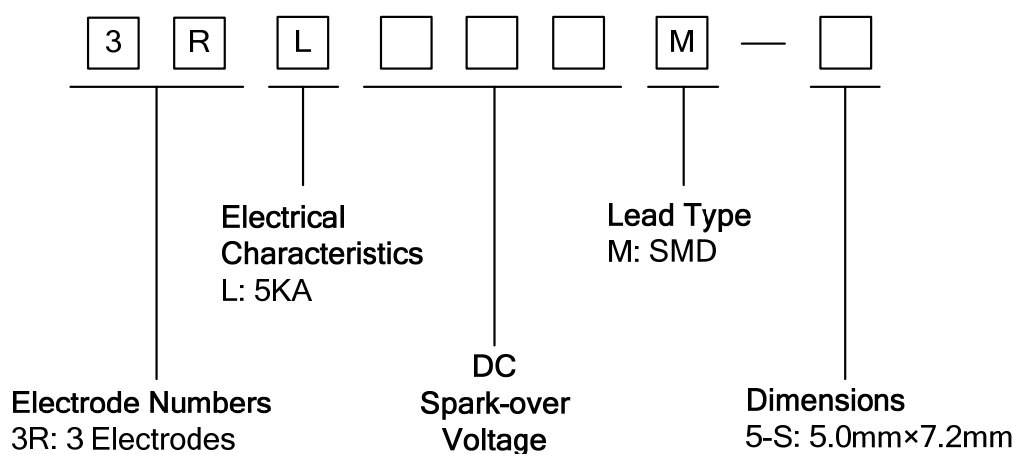
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/ μ s
- Stable breakdown voltage
- High insulation resistance
- Low capacitance (≤ 2 pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 5.0mm*7.2mm
- 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



Marking

B : BrightKing Logo
3SL090M : Device Marking Code
XXXX : Internal Control Code

Dimensions

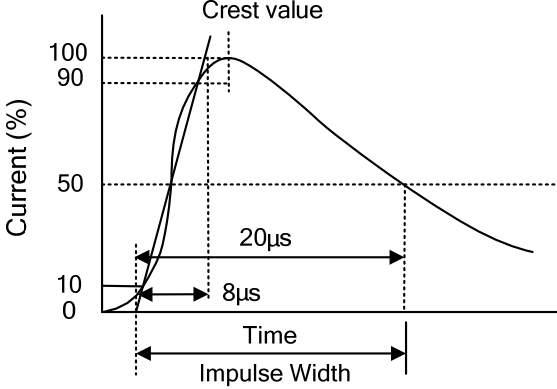
M Type	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	5.0	±0.2
	T	7.2	±0.3
	B	0.4	±0.1
	B1	1.5	±0.2
	d	4.8	±0.1

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)	
3RL075M-5-S	75±20%	700	5	5	300	25	1.0	2.0	3SL075M
3RL090M-5-S	90±20%	600	5	5	300	50	1.0	2.0	3SL090M
3RL120M-5-S	120±20%	600	5	5	300	50	1.0	2.0	3SL120M
3RL150M-5-S	150±20%	600	5	5	300	100	1.0	2.0	3SL150M
3RL200M-5-S	200±20%	650	5	5	300	100	1.0	2.0	3SL200M
3RL230M-5-S	230±20%	650	5	5	300	100	1.0	2.0	3SL230M
3RL250M-5-S	250±20%	650	5	5	300	100	1.0	2.0	3SL250M
3RL300M-5-S	300±20%	800	5	5	300	100	1.0	2.0	3SL300M
3RL350M-5-S	350±20%	800	5	5	300	100	1.0	2.0	3SL350M
3RL400M-5-S	400±20%	900	5	5	300	100	1.0	2.0	3SL400M
3RL420M-5-S	420±20%	900	5	5	300	250	1.0	2.0	3SL420M
3RL470M-5-S	470±20%	900	5	5	300	250	1.0	2.0	3SL470M
3RL600M-5-S	600±20%	1000	5	5	300	250	1.0	2.0	3SL600M

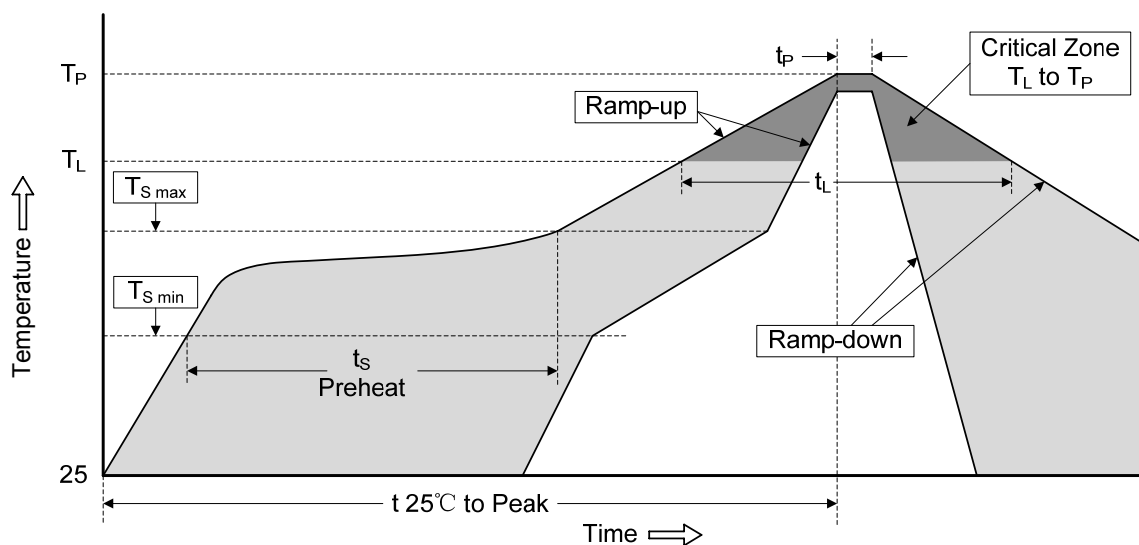
Electrical Ratings

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 8/20μs waveform, for 10 times with 3min interval time, which will be equally divided between each side electrode to center electrode.</p> 	
Alternating Discharge Current	Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min. Test is between each side electrode and center electrode.	
Insulation Resistance	The resistance of gas tube shall be measured between each side electrodes and center electrode.	
Capacitance	The capacitance of gas tube shall be measured between each side electrodes and center electrode. Test frequency: 1MHz	

Recommended Soldering Conditions

Reflow Soldering

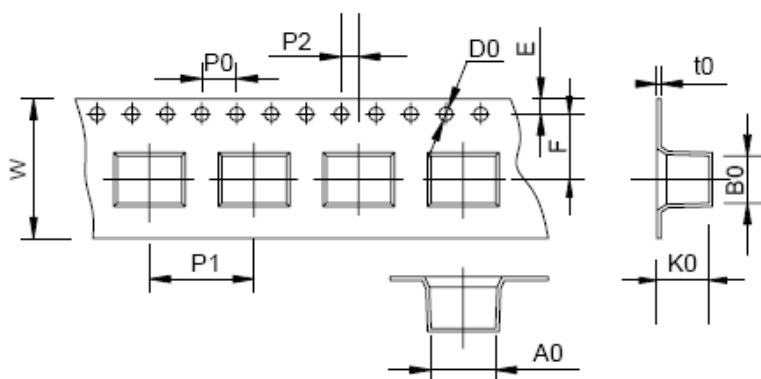


Recommended Conditions

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"> -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (ts) 	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L <ul style="list-style-type: none"> -Ramp-up Rate 	3°C/second max.
Time maintained above: <ul style="list-style-type: none"> -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.

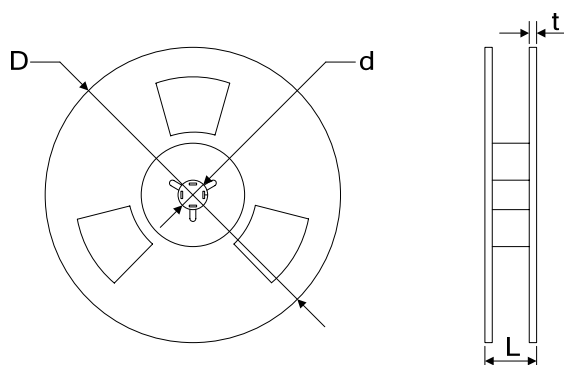
Packaging

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	7.40	±0.10
K0	5.50	±0.10
B0	5.40	±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: 900pcs

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