

## Gas Discharge Tube (GDT) Data Sheet

### Features

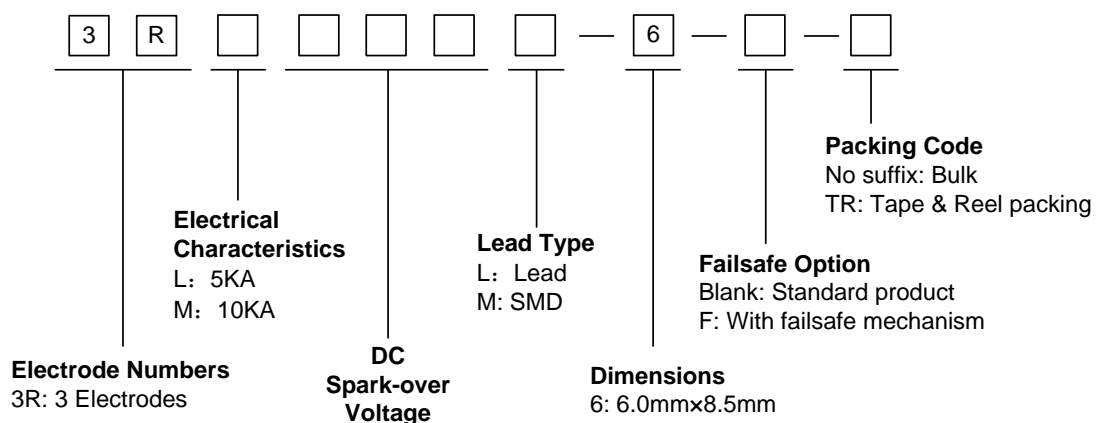
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs
- Stable breakdown voltage
- High insulation resistance
- Low capacitance (≤2pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 6.0mm\*8.5mm
- 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

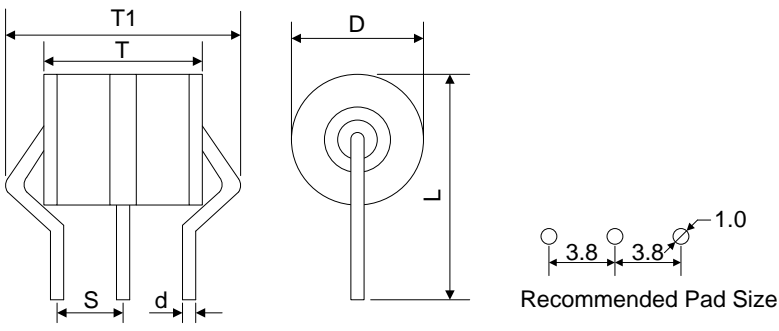
### Part Number Code



### Marking

**B** : BrightKing Logo  
 3RL090-6 : Device Marking Code  
 YXXX : Date Code

**Dimensions**

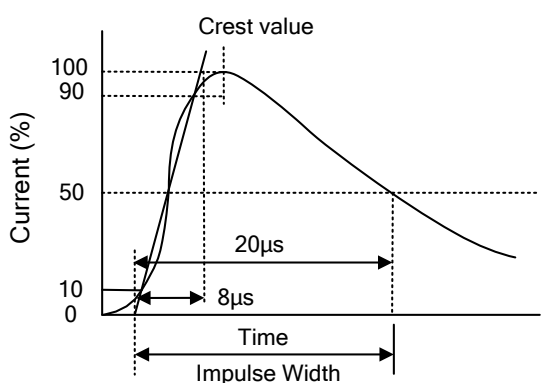
L Type	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	6.0	+0.2, -0.5
	T	8.5	±0.5
	T1	15.0	Max.
	L	16.0	Max.
L-F Type	S	3.8	±0.3
	d	0.8	±0.1
	R1	7.8	±0.4
	R2	6.3	±0.3
M Type	D	6.0	±0.2
	T	8.5	±0.5
	B	1.0	±0.1
	B1	1.5	±0.2

## 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)
3RL075L-6	3RL075M-6	75±20%	750	5.0	5.0	200	25	1.0	2.0	3RL075-6						
3RL090L-6	3RL090M-6	90±20%	750	5.0	5.0	200	50	1.0	2.0	3RL090-6						
3RL150L-6	3RL150M-6	150±20%	800	5.0	5.0	200	100	1.0	2.0	3RL150-6						
3RL230L-6	3RL230M-6	230±20%	800	5.0	5.0	200	100	1.0	2.0	3RL230-6						
3RL250L-6	3RL250M-6	250±20%	800	5.0	5.0	200	100	1.0	2.0	3RL250-6						
3RL300L-6	3RL300M-6	300±20%	900	5.0	5.0	200	100	1.0	2.0	3RL300-6						
3RL350L-6	3RL350M-6	350±20%	900	5.0	5.0	200	100	1.0	2.0	3RL350-6						
3RL470L-6	3RL470M-6	470±20%	950	5.0	5.0	200	250	1.0	2.0	3RL470-6						
3RL600L-6	3RL600M-6	600±20%	1300	5.0	5.0	200	250	1.0	2.0	3RL600-6						
3RM075L-6	3RM075M-6	75±20%	750	10	10	300	25	1.0	2.0	3RM075-6						
3RM090L-6	3RM090M-6	90±20%	750	10	10	300	50	1.0	2.0	3RM090-6						
3RM150L-6	3RM150M-6	150±20%	800	10	10	300	100	1.0	2.0	3RM150-6						
3RM230L-6	3RM230M-6	230±20%	800	10	10	300	100	1.0	2.0	3RM230-6						
3RM250L-6	3RM250M-6	250±20%	800	10	10	300	100	1.0	2.0	3RM250-6						
3RM300L-6	3RM300M-6	300±20%	900	10	10	300	100	1.0	2.0	3RM300-6						
3RM350L-6	3RM350M-6	350±20%	900	10	10	300	100	1.0	2.0	3RM350-6						
3RM470L-6	3RM470M-6	470±20%	950	10	10	300	250	1.0	2.0	3RM470-6						
3RM600L-6	3RM600M-6	600±20%	1300	10	10	300	250	1.0	2.0	3RM600-6						

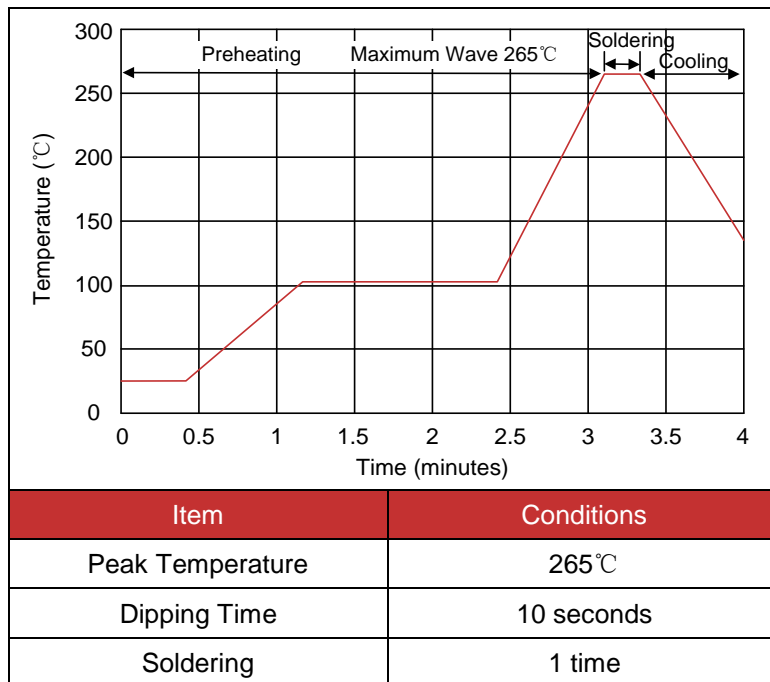
## Electrical Ratings

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.	

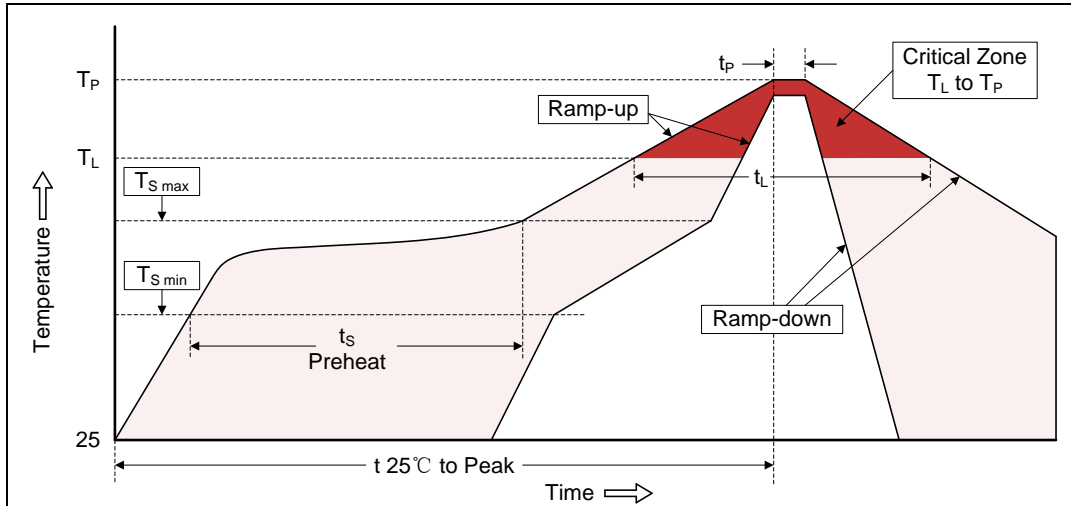
<p>Impulse Discharge Current</p>	<p>Maximum surge current that can be applied through center electrode with 8/20<math>\mu</math>s waveform, for 10 times with 3min interval time, which will be equally divided between each side electrode to center electrode, without causing the DC breakdown voltage to change more than 25% from its initial measured value.</p> 	
<p>Alternating Discharge Current</p>	<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. IR &gt; 10<sup>8</sup> ohms (-20%, +30% for 70~90V).</p>	
<p>Insulation Resistance</p>	<p>The resistance of gas tube shall be measured between each side electrodes and center electrode.</p>	
<p>Capacitance</p>	<p>The capacitance of gas tube shall be measured between each side electrodes and center electrode. Test frequency: 1MHz</p>	

**Recommended Soldering Conditions**

Wave Soldering



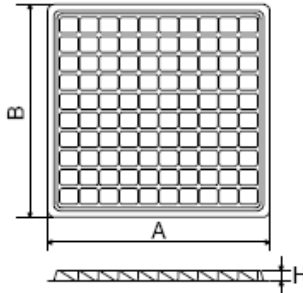
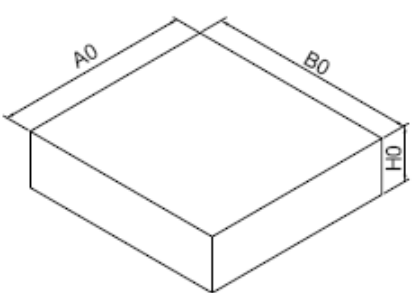
Reflow Soldering



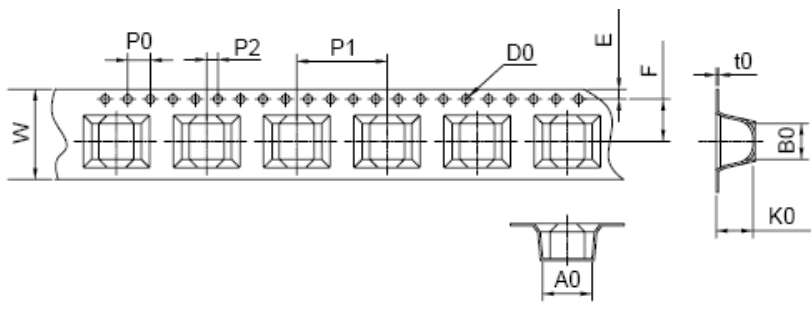
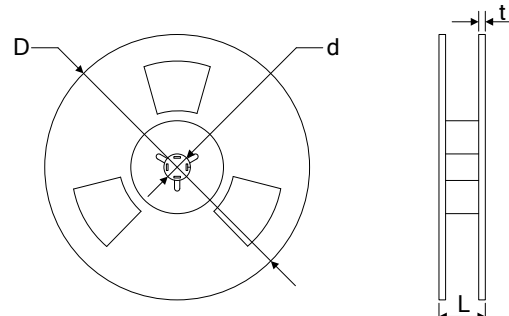
Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	
-Temperature Min ( $T_{S\ min}$ )	150°C
-Temperature Max ( $T_{S\ max}$ )	200°C
-Time (min to max) ( $t_s$ )	60-180 seconds
$T_{S\ max}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature ( $T_L$ )	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		Dimension (mm)		
		Symbol	Spec.	Tolerance
		A	217.0	±2.0
		B	207.0	±2.0
		H	10.3	±0.5
Quantity: 100pcs				
Inner box		A0	225.0	±2.0
		B0	210.0	±2.0
		H0	60.0	±2.0
		Quantity: 500pcs		

**SMD Packing (Tape & Reel)**

Tape		Dimension (mm)		
		Symbol	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	8.80	±0.10
		K0	6.20	±0.10
		B0	6.35	±0.10
		t0	0.50	±0.05
		Reel		D
d	13.00			±0.50
L	20.00			±2.00
t	2.00			±0.20
Quantity: 600pcs				

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [brightking](#) manufacturer:*

Other Similar products are found below :

[1.5KE220A](#) [SMDJ33A](#) [SMDJ78A](#) [3RM230L-8](#) [LES08A05L05](#) [SMDJ6.5CA-AT](#) [5.0SMDJ17A](#) [5.0SMDJ33CA](#) [911KD14J](#) [5KP12A](#)  
[5KP120A](#) [471KD25](#) [2RM075M-8](#) [112KD14](#) [2RK3000M-8](#) [5.0SMDJ100A](#) [2RH2000M-8](#) [30KPA30A](#) [182KD20](#) [SMDJ43A](#) [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](#)  
[15KPA24A](#) [SMDJ110CA](#) [5.0SMDJ11A](#) [SMDJ5.0CA-AT](#) [30KPA45CA](#) [820KD20J](#) [15KPA58CA](#) [15KPA33A](#) [821KD25](#) [P0900SC](#)