

## Gas Discharge Tube (GDT) Data Sheet

### Features

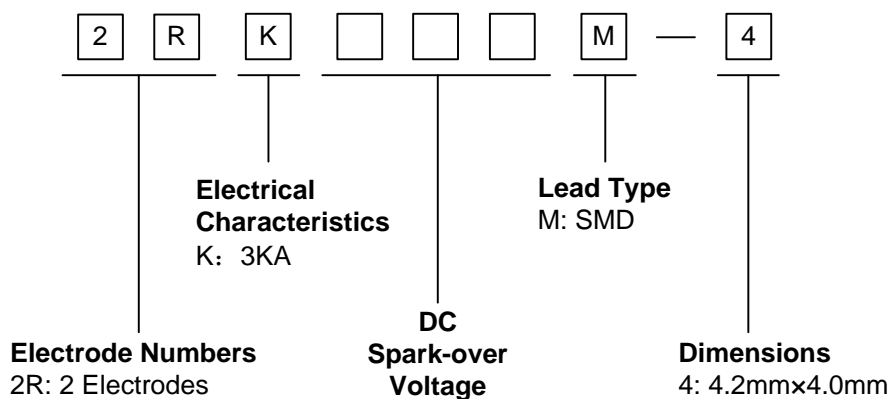
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs
- Stable breakdown voltage
- High insulation resistance
- Low capacitance (≤1pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 4.2mm\*4.0mm
- Storage and operating temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: E244458 & E327997



### Applications

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

### Part Number Code



### Marking

090 : Device Marking Code  
YXXX : Date Code

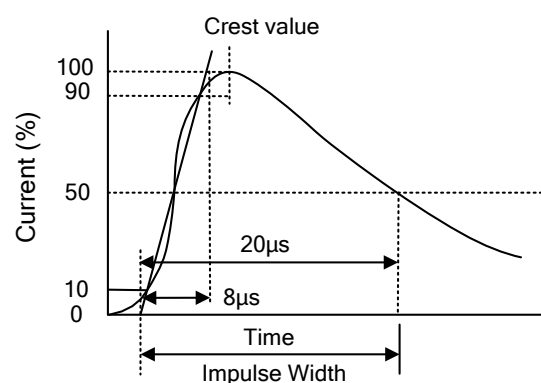
**Dimensions**

<p>Recommended Pad Size</p>	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	4.2	±0.5
	T	4.0	±0.4
	B	0.4	±0.1
d	3.9	±0.1	

**Electrical Characteristics**

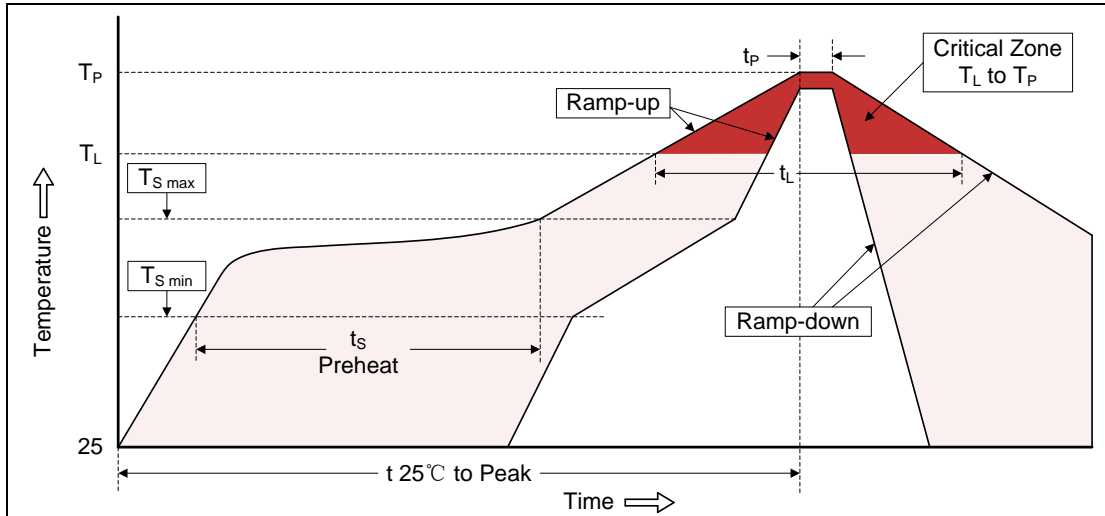
Part Number	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Alternating Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance	Device Marking Code
	100V/s	1000V/μs	8/20μs 10times	50Hz, 1sec	10/1000μs 100A	Test Voltage	(GΩ)	1MHz	
	(V)	(V)	(KA)	(A)	(times)	DC(V)		(pF)	
2RK075M-4	75±20%	800	3	3	300	25	1	1.0	075
2RK090M-4	90±20%	800	3	3	300	50	1	1.0	090
2RK145M-4	145±20%	800	3	3	300	100	1	1.0	145
2RK230M-4	230±20%	700	3	3	300	100	1	1.0	230
2RK250M-4	250±20%	700	3	3	300	100	1	1.0	250
2RK300M-4	300±20%	800	3	3	300	100	1	1.0	300
2RK350M-4	350±20%	850	3	3	300	100	1	1.0	350
2RK400M-4	400±20%	900	3	3	300	100	1	1.0	400
2RK470M-4	470±20%	1000	3	3	300	250	1	1.0	470
2RK600M-4	600±20%	1200	3	3	300	250	1	1.0	600
2RK800M-4	800±20%	1400	3	3	300	250	1	1.0	800
2RK1000M-4	1000±20%	1600	3	3	300	500	1	1.0	1000
2RK1200M-4	1200±20%	1900	3	3	300	500	1	1.0	1200

**Electrical Ratings**

Items	Test Condition/Description	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt=100V/s$ .	
Maximum Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .	
Impulse Discharge Current	<p>Maximum 8/20<math>\mu s</math> 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.</p>  <p>The graph shows a surge current waveform. The y-axis is labeled 'Current (%)' with values 0, 10, 50, 90, and 100. The x-axis is labeled 'Time' and 'Impulse Width'. The curve starts at 0, rises to a peak labeled 'Crest value' at 100% at 8<math>\mu s</math>, and then decays. A horizontal dashed line at 50% current intersects the curve at 20<math>\mu s</math>. The total time from the start to the 50% point is marked as 20<math>\mu s</math> and labeled 'Impulse Width'.</p>	To meet the specified value
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.</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 two electrodes.	
Capacitance	The capacitance of gas tube shall be measured between two electrodes. Test frequency: 1MHz	

**Recommended Soldering Conditions**

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**

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	4.27	±0.10
	K0	5.20	±0.10
	B0	4.45	±0.10
	t	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: 900pcs			