

# DATA SHEET

## GAS DISCHARGE TUBES TELEPHONE INTERFACE

2R-4 series

RoHS compliant & free



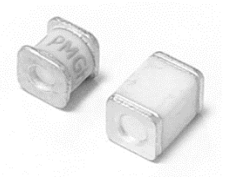
Product specification— October 03, 2022 V.1



## Gas Discharge Tube (GDT) Data Sheet

### Features

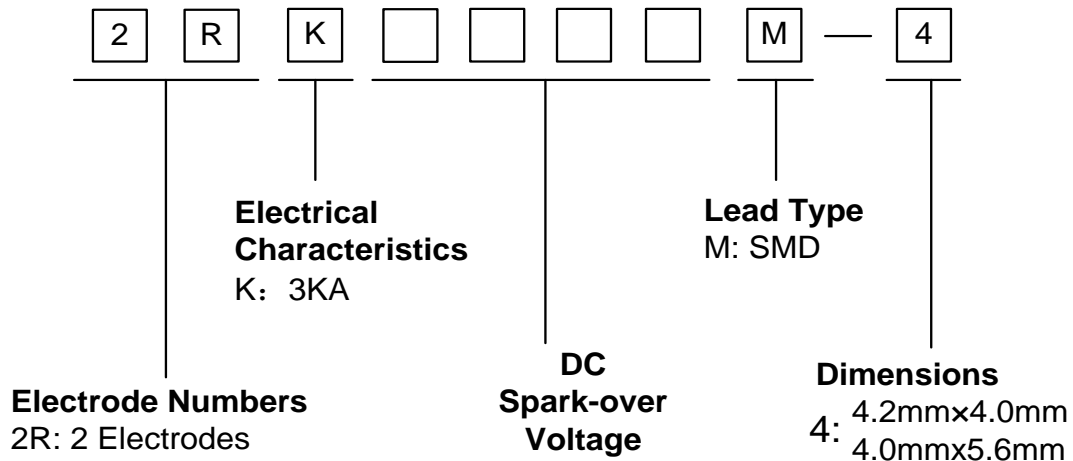
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs
- Stable breakdown voltage
- High insulation resistance
- Low capacitance (≤1pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 4.2mm\*4.0mm / 4.0mm\*5.6mm
- Storage and operating temperature: -40°C ~ +85°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

090 : Device Marking Code  
 XXXX : Internal Control Code

**Dimensions**

Size: 4.2x4.0mm series	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	4.2	±0.3
	T	4.0	±0.3
	B	0.4	±0.2
	d	3.9	±0.2
Recommended Pad Size			

Size: 4.0x5.6mm series	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	4.0	±0.3
	T	5.6	±0.3
	B	0.5	±0.2
Recommended Pad Size			

**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

Note: Size 4.2x4.0mm series

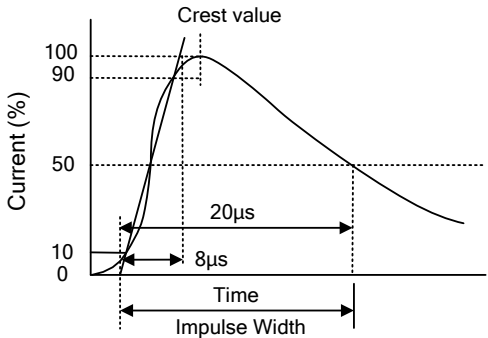
**GAS DISCHARGE TUBS**

2R-4 series

Part Number	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance	AC Withstanding Voltage	Device Marking Code
	100V/s	1000V/μs	8/20μs 10times	8/20μs 100A	Test Voltage	(GΩ)	1MHz		
	(V)	(V)	(KA)	(times)	DC(V)		(pF)		
2RK1400M-4	1400±20%	2800	3	300	500	1	1.0	-	None
2RK1600M-4	1600±20%	3000	3	300	500	1	1.0	-	None
2RK2000M-4	2000±20%	3800	3	300	1000	1	1.0	-	None
2RK2500M-4	2500±20%	4200	3	300	1000	1	1.0	1250VAC, 3s	None
2RK3000M-4	3000±20%	4500	3	300	1000	1	1.0	1500VAC, 3s	None
2RK3600M-4	3600±20%	4800	3	300	1000	1	1.0	1850VAC, 3s	None

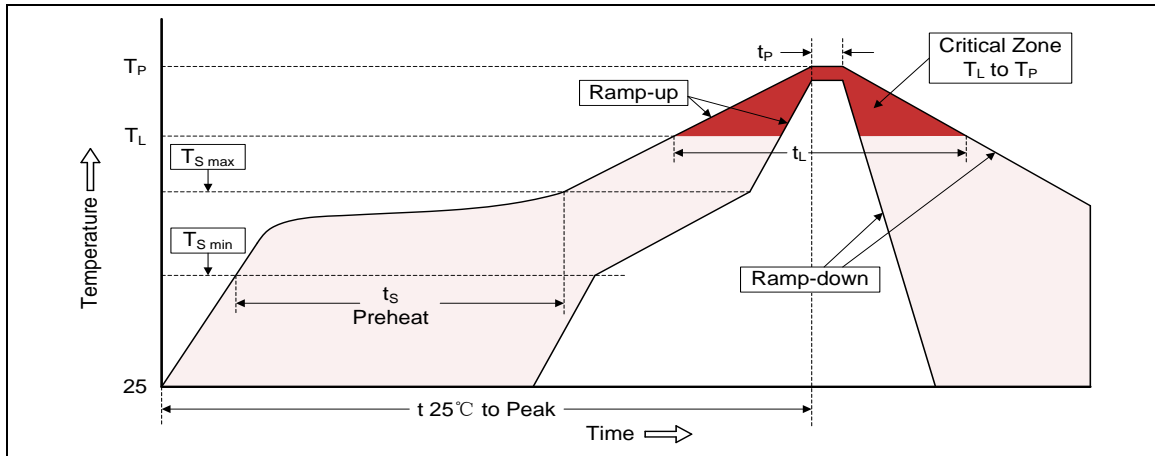
Note: Size 4.0x5.6mm series

**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 8/20μs surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time.  	
Alternating Discharge Current	Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min.	
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**

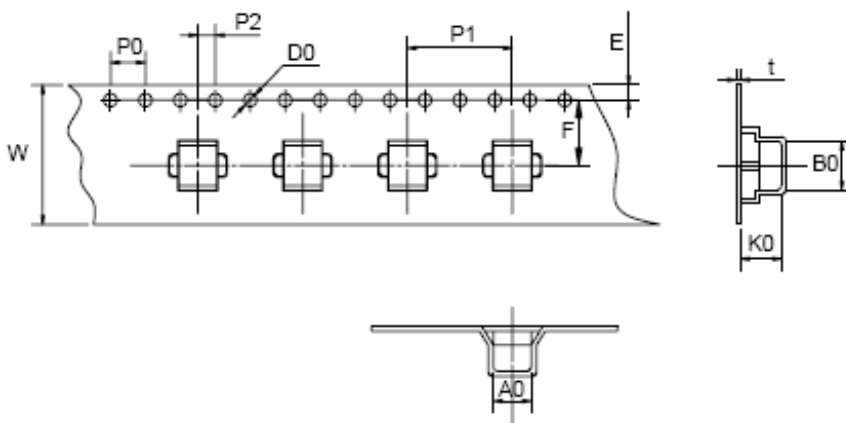
**Reflow Soldering**



Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat -Temperature Min ( $T_{S\ min}$ ) -Temperature Max ( $T_{S\ max}$ ) -Time (min to max) ( $t_s$ )	150°C 200°C 60-180 seconds
$T_{S\ max}$ to $T_L$ -Ramp-up Rate	3°C/second max.
Time maintained above: -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**

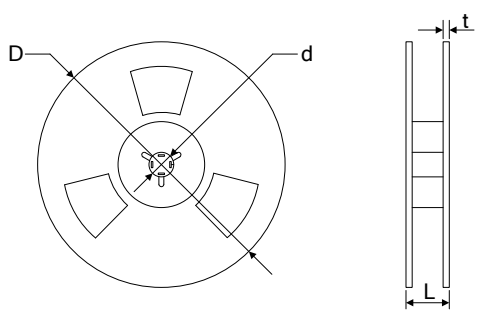
**Tape**



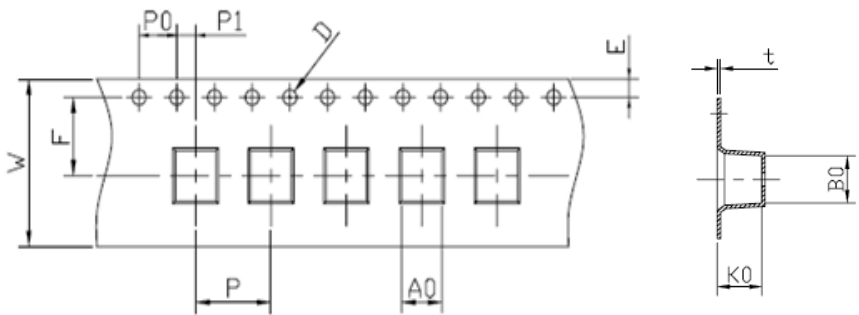
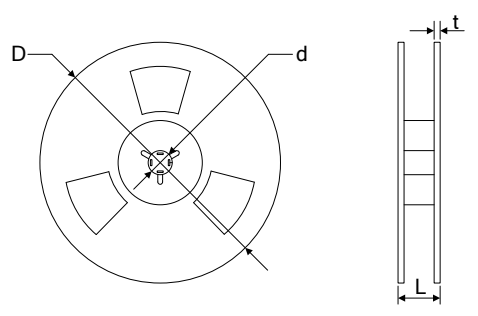
Symbol	Dimension (mm)	
	Spec.	Tolerance
W	16.00	±0.20
P0	4.00	±0.10
P1	12.00	±0.20
P2	2.00	±0.10
D0	1.55	±0.05
E	1.75	±0.10
F	7.50	±0.10
A0	4.27	±0.10
K0	5.20	±0.10
B0	4.45	±0.10
t	0.50	±0.10

**GAS DISCHARGE TUBS**

2R-4 series

<p>Reel</p> 	D	330.00	±2.00
	d	13.00	±0.50
	L	20.00	±2.00
	t	2.00	±0.20
	Quantity: 900pcs		

Note: Packaging for size 4.2x4.0mm series

<p>Tape</p> 	<b>Symbol</b>	<b>Dimension (mm)</b>	
		<b>Spec.</b>	<b>Tolerance</b>
	W	16.00	±0.20
	P	8.00	±0.20
	P0	4.00	±0.20
	P1	2.00	±0.20
	D	1.50	±0.10
	E	1.75	±0.10
	F	7.50	±0.10
	A0	4.30	±0.10
	B0	5.80	±0.10
	K0	4.30	±0.10
	t	0.40	±0.10
	<p>Reel</p> 	D	330.00
d		13.00	±0.50
L		20.00	±2.00
t		2.00	±0.20
Quantity: 1500pcs			

Note: Packaging for size 4.0x5.6mm series