

DATA SHEET

GAS DISCHARGE TUBES TELEPHONE INTERFACE

2R-8x8 series

RoHS compliant & Halogen free



Product specification— April 25, 2019 V.0



Gas Discharge Tube (GDT) Data Sheet

Features

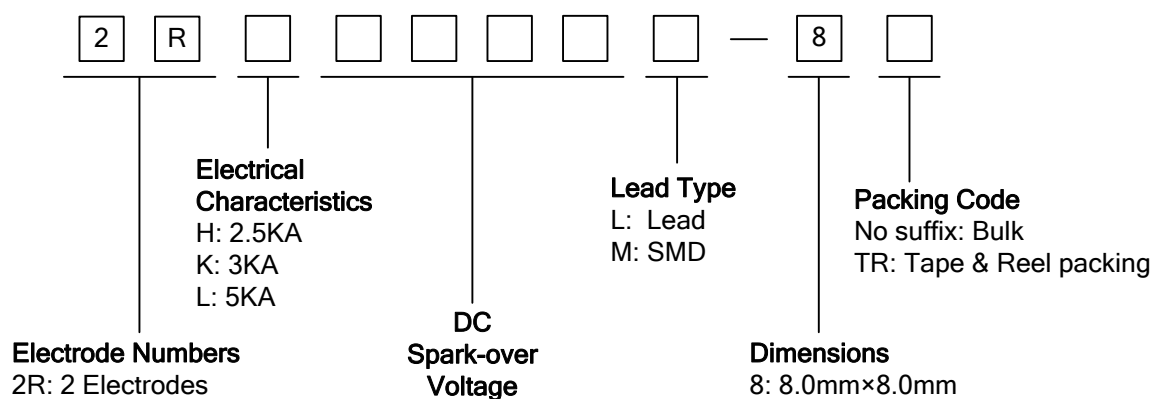
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance ($\leq 1.5\text{pF}$)
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 8.0mm*8.0mm
- Storage and operating temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Meets MSL level 1, per J-STD-020
- Safety certification: E327997



Applications

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

Part Number Code



Ordering Code for different package in 2RHxxxxL-8, 2RKxxxxL-8, and 2RLxxxxL-8 series

Box package: Add suffix "/B" at the end of the part number, such as 2RH2000L-8/B, 2RK3000L-8/B, or 2RL2500L-8/B

Reel package: Add suffix "/TR" at the end of the part number, such as 2RH2000L-8/TR, 2RK3000L-8/TR, or 2RL2500L-8/TR

Marking



: BrightKing Logo

2RL1000-8 : Device Marking Code

YXXX : Date Code

Dimensions

L Type	Symbol	Dimension (mm)	
		Spec.	Tolerance
	D	8.0	+0.3, -0.5
	T	8.0	+0.6, -0.1
	d	0.8	±0.1
	L	30.0	Max.
M Type	D	8.0	+0.3, -0.5
	T	8.0	+0.6, -0.1
	B	1.1	±0.4

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	AC Withstanding Voltage	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)		
2RH1400X-8	1400±20%	2200	2.5	2.5	100	500	1.0	1.5	-	2RH1400-8
2RH1600X-8	1600±20%	2400	2.5	2.5	100	500	1.0	1.5	-	2RH1600-8
2RH2000X-8	2000±20%	3000	2.5	2.5	100	500	1.0	1.5	-	2RH2000-8
2RH2500X-8	2500±20%	3600	2.5	2.5	100	500	1.0	1.5	AC1250V, 1min	2RH2500-8
2RH2700X-8	2700±20%	4000	2.5	2.5	300*	1000	1.0	1.5	AC1250V, 1min	2RH2700-8
2RH3000X-8	3000±20%	4200	2.5	2.5	100	1000	1.0	1.5	AC1500V, 1min	2RH3000-8
2RH3500X-8	3500±20%	5000	2.5	2.5	100	1000	1.0	1.5	AC1800V, 1min	2RH3500-8

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	AC Withstanding Voltage	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)		
2RK2700X-8	2700±20%	4000	3.0	3.0	300*	1000	1.0	1.5	AC1250V,1min	2RK2700-8
2RK3000X-8	3000±20%	4200	3.0	3.0	300*	1000	1.0	1.5	AC1500V,1min	2RK3000-8
2RK3500X-8	3500±20%	5000	3.0	3.0	100	1000	1.0	1.5	AC1800V,1min	2RK3500-8
2RK3600X-8	3600±20%	5200	3.0	3.0	100	1000	1.0	1.5	AC1800V,1min	2RK3600-8
2RK4000X-8	4000±20%	5500	3.0	3.0	100	1000	1.0	1.5	AC2000V,1min	2RK4000-8
2RK5000X-8	5000±20%	6400	3.0	3.0	100	1000	1.0	1.5		2RK5000-8
2RK6000X-8	6000±20%	7800	3.0	3.0	100	1000	1.0	1.5		2RK6000-8

* Measured with an 8/20μs waveform, 100A

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	AC Withstanding Voltage	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)		
2RL1000X-8	1000±20%	1400	5.0	5.0	100	500	1.0	1.5	-	2RL1000-8
2RL1400X-8	1400±20%	2200	5.0	5.0	100	500	1.0	1.5	-	2RL1400-8
2RL1600X-8	1600±20%	2400	5.0	5.0	100	500	1.0	1.5	-	2RL1600-8
2RL2000X-8	2000±20%	3000	5.0	5.0	100	500	1.0	1.5	-	2RL2000-8
2RL2500X-8	2500±20%	3600	5.0	5.0	100	1000	1.0	1.5	AC1250V,1min	2RL2500-8

Notes: The surface for 2RXXXXXM-8 series products is default for nickel plating, please change to use tin plating if used on PCB boards while soldering, and adding the code "Sn" as suffix of the part number to distinguish. Such as "2RK3000M-8 Sn".

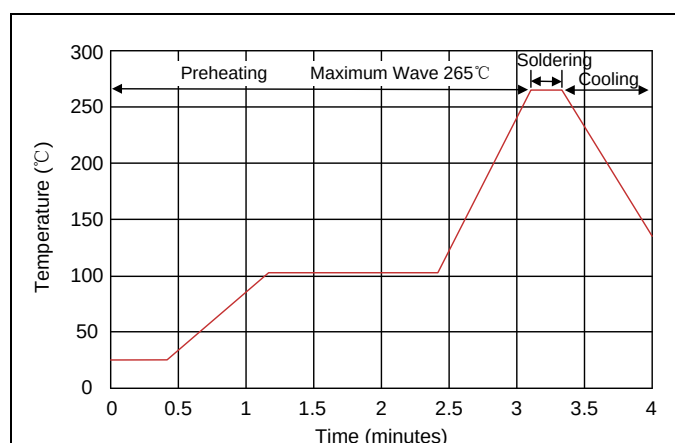
☆X may be L or M.

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 $8/20\mu s$ surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time. The graph shows a typical 8/20 microsecond surge current waveform. The y-axis represents Current (%) from 0 to 100. The x-axis represents Time. The curve starts at 0, rises to a peak (Crest value) of 100%, and then decays. Key time points are marked: 8μs (time to 10% current), 20μs (time to 50% current), and Impulse Width (time to 10% current).	
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	

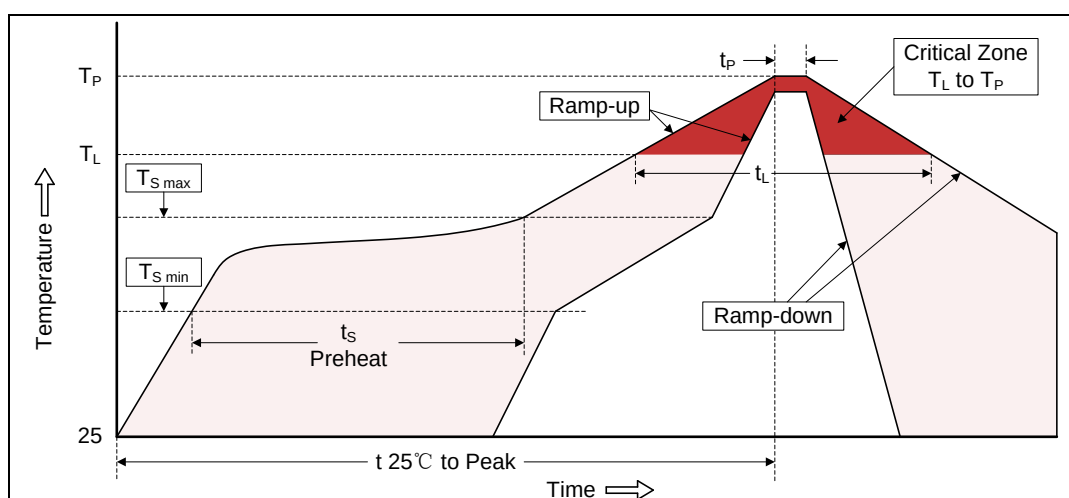
Recommended Soldering Conditions

Wave Soldering



Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time

Reflow Soldering

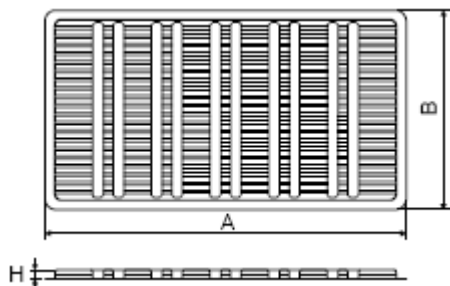


Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{S\ min}$)	150°C
-Temperature Max ($T_{S\ max}$)	200°C
-Time (min to max) (t_s)	60-180 seconds
$T_{S\ max}$ to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)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



Symbol

Dimension (mm)

Spec.

Tolerance

A

264.0

 ± 1.0

B

145.0

 ± 1.0

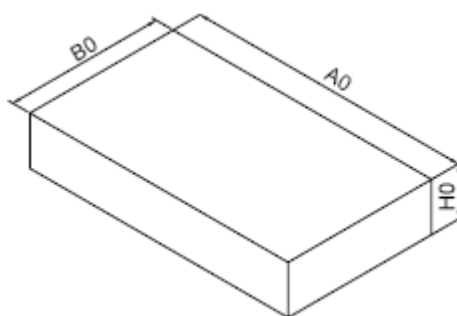
H

6.5

 ± 0.5

Quantity: 100pcs

Inner box



A0

270.0

 ± 2.0

B0

150.0

 ± 1.0

H0

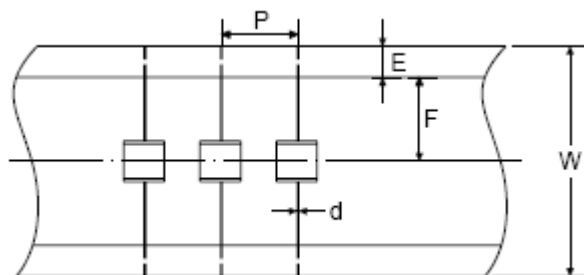
50.0

 ± 1.0

Quantity: 500pcs

Axial Packing (Tape & Reel)

Tape



Symbol

Dimension (mm)

Spec.

Tolerance

P

10.0

 ± 0.3

W

65.0

 ± 0.3

E

6.0

 ± 0.3

F

26.5

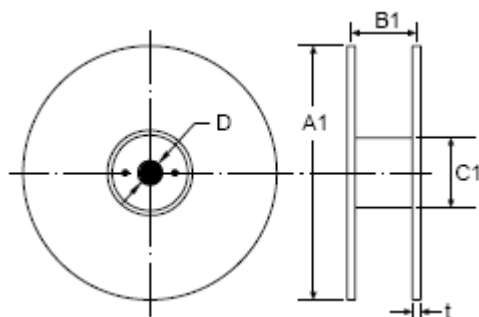
 ± 0.3

d

0.8/1.0

 ± 0.05

Reel



A1

330.0

 ± 1.0

B1

70.0

 ± 1.0

C1

82.0

 ± 1.0

D

25.0

 ± 0.2

t

2.0

 ± 0.2

Quantity: 500pcs

Packaging

SMD Packing (Tape & Reel)

Tape	Symbol	Dimension (mm)	
		Spec.	Tolerance
	W	16.00	±0.20
	P0	4.00	±0.10
	P1	12.00	±0.20
	P2	4.00	±0.10
	D0	1.45	±0.1
	E	1.75	±0.10
	F	7.50	±0.10
	A0	8.80	±0.10
	K0	8.30	±0.10
	B0	8.30	±0.10
	t0	0.50	±0.10
	D	330.00	±1.00
	d	13.00	±0.50
	L	20.00	±0.50
	t	2.00	±0.20
	Quantity: 500pcs		

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Yageo:

[2RL2500L-8/B](#) [2RL1000L-8/B](#) [2RK3600L-8/B](#)