

## Gas Discharge Tube (GDT) Data Sheet

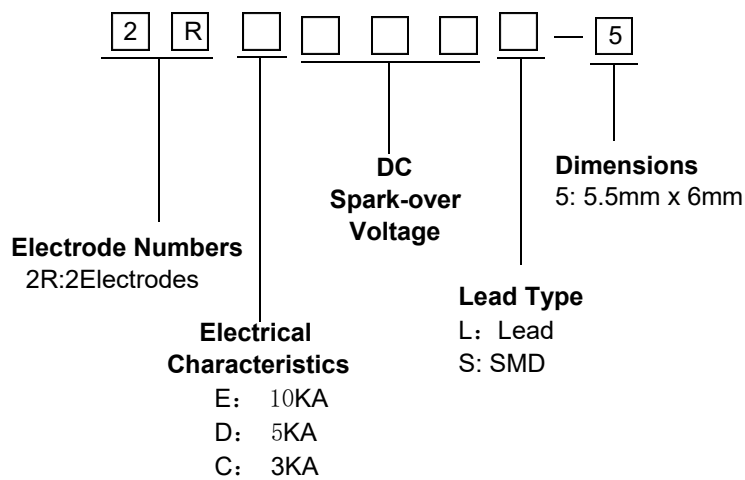
### Features

- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs
- Low capacitance ( ≤1.5pF )
- High holdover voltage
- High insulation resistance
- Stable breakdown voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Storage and operating temperature: -40°C ~ +85°C
- Meets MSL Level 1, per J-STD-020

### Applications

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

### Part Number Code



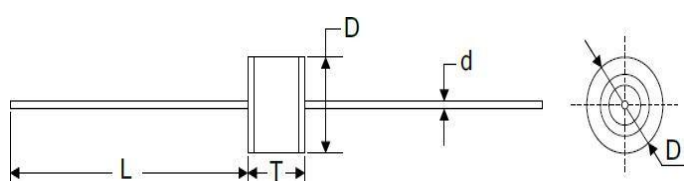
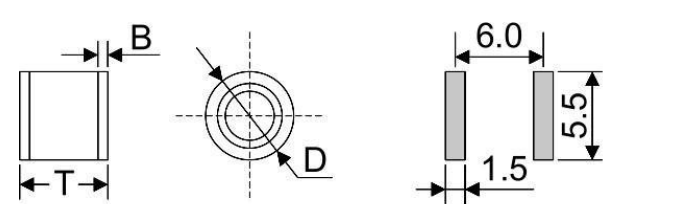
**Electrical Characteristics**

Part Number		DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Impulse Life Test	Minimum Insulation Resistance		Maximum Capacitance	Nominal Impulse Discharge Current	Alternating Discharge Current	Device Marking Code
		100V/S	1KV/us	10/1000us 100A	Test Voltage	(GΩ)	(1MHz 1V)	8/20us	50Hz, 1S	
		(v)	(v)	(times)	DC(V)		(pF)	(KA)	(A)	
2RD070L-5	2RD070S-5	70±20%	800	300	25	1	1.5	5	5	2RD070-5
2RD075L-5	2RD075S-5	75±20%	800	300	25	1	1.5	5	5	2RD075-5
2RD090L-5	2RD090S-5	90±20%	700	300	50	1	1.5	5	5	2RD090-5
2RD120L-5	2RD120S-5	120±20%	700	300	50	1	1.5	5	5	2RD120-5
2RD150L-5	2RD150S-5	150±20%	700	300	100	1	1.5	5	5	2RD150-5
2RD230L-5	2RD230S-5	230±20%	700	300	100	1	1.5	5	5	2RD230-5
2RD250L-5	2RD250S-5	250±20%	700	300	100	1	1.5	5	5	2RD250-5
2RD300L-5	2RD300S-5	300±20%	900	300	100	1	1.5	5	5	2RD300-5
2RD350L-5	2RD350S-5	350±20%	900	300	100	1	1.5	5	5	2RD350-5
2RD400L-5	2RD400S-5	400±20%	1000	300	100	1	1.5	5	5	2RD400-5
2RD470L-5	2RD470S-5	470±20%	1100	300	250	1	1.5	5	5	2RD470-5
2RD600L-5	2RD600S-5	600±20%	1500	300	250	1	1.5	5	5	2RD600-5
2RD800L-5	2RD800S-5	800±20%	1700	300	250	1	1.5	5	5	2RD800-5
2RC1000L-5	2RC1000S-5	1000±20%	1800	300	500	1	1.5	3	3	2RC1000-5
2RC1400L-5	2RC1400S-5	1400±20%	2400	300	500	1	1.5	3	3	2RC1400-5
2RC1600L-5	2RC1600S-5	1600±20%	2600	300	500	1	1.5	3	3	2RC1600-5
2RC2000L-5	2RC2000S-5	2000±20%	3000	300	500	1	1.5	3	3	2RC2000-5
2RC2500L-5	2RC2500S-5	2500±20%	3500	300	500	1	1.5	3	3	2RC2500-5
2RC3000L-5	2RC3000S-5	3000±20%	3900	300	500	1	1.5	3	3	2RC3000-5
2RC3600L-5	2RC3600S-5	3600±20%	4600	300	500	1	1.5	3	3	2RC3600-5

**Electrical Characteristics**

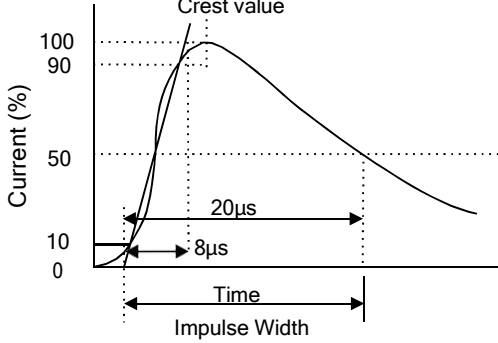
Part Number		DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Impulse Life Test	Minimum Insulation Resistance		Maximum Capacitance	Nominal Impulse Discharge Current	Alternating Discharge Current	Device Marking Code
		100V/S	1KV/us	10/1000us 100A	Test Voltage	(GΩ)	(1MHz 1V)	8/20us	50Hz,1S	
		(v)	(v)	(times)	DC(V)		(pF)	(KA)	(A)	
2RE070L-5	2RE070S-5	70±20%	600	300	25	1	1.5	10	10	2RE070-5
2RE075L-5	2RE075S-5	75±20%	600	300	25	1	1.5	10	10	2RE075-5
2RE090L-5	2RE090S-5	90±20%	600	300	50	1	1.5	10	10	2RE090-5
2RE120L-5	2RE120S-5	120±20%	600	300	50	1	1.5	10	10	2RE120-5
2RE150L-5	2RE150S-5	150±20%	700	300	100	1	1.5	10	10	2RE150-5
2RE230L-5	2RE230S-5	230±20%	700	300	100	1	1.5	10	10	2RE230-5
2RE250L-5	2RE250S-5	250±20%	800	300	100	1	1.5	10	10	2RE250-5
2RE300L-5	2RE300S-5	300±20%	900	300	100	1	1.5	10	10	2RE300-5
2RE350L-5	2RE350S-5	350±20%	900	300	100	1	1.5	10	10	2RE350-5
2RE400L-5	2RE400S-5	400±20%	1000	300	100	1	1.5	10	10	2RE400-5
2RE470L-5	2RE470S-5	470±20%	1100	300	250	1	1.5	10	10	2RE470-5
2RE600L-5	2RE600S-5	600±20%	1500	300	250	1	1.5	10	10	2RE600-5

**Dimensions**

L Type		Symbol	Dimension (mm)
		D	5.50±0.50
		T	6.00±0.50
		d	0.80±0.10
		L	30 max.
S Type		D	5.50±0.50
 <p style="text-align: center;">Recommended Pad Size</p>		T	6.00±0.50
		B	0.50±0.10

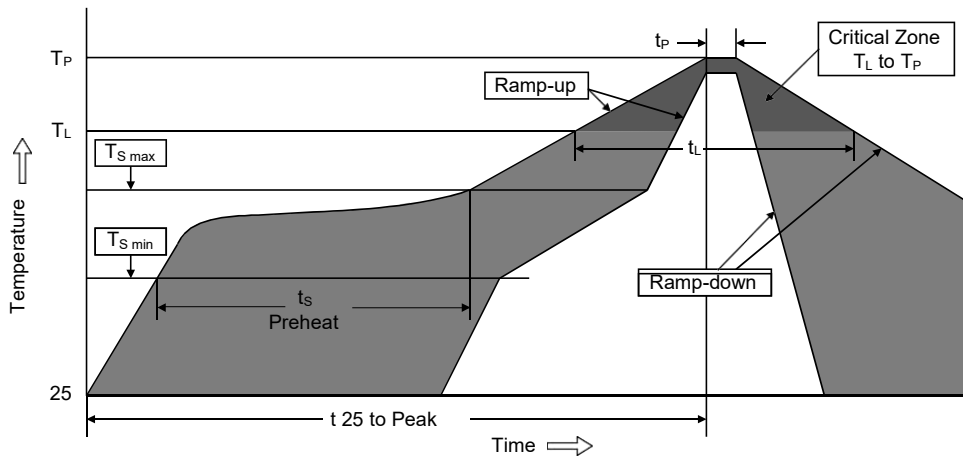
**Electrical Ratings**

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 $dv/dt=1000V/\mu s$ .	

<p>Insulation Resistance</p>	<p>The resistance of gas tube shall be measured between two electrodes.</p>	<p>To meet the Specified value</p>
<p>Capacitance</p>	<p>The capacitance of gas tube shall be measured between two electrodes. Test frequency: 1MHz</p>	
<p>Impulse Discharge Current</p>	<p>Maximum 8/20<math>\mu</math>s 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 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 crest value of 100% at 20 microseconds, and then decays. A horizontal dashed line at 50% current intersects the decay curve, and a vertical dashed line from that point to the x-axis indicates the Impulse Width. Another horizontal dashed line at 10% current intersects the rising curve, and a vertical dashed line from that point to the x-axis indicates the 8 microsecond rise time.</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. IR &gt; <math>10^8</math> ohms (-20%, +30% for 70~90V).</p>	

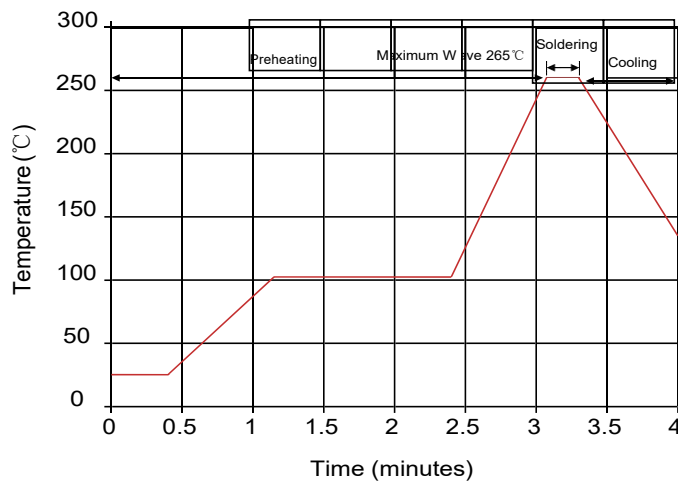
## Soldering Recommendation

## Reflow Soldering



Profile Feature	Pb-Free Assembly
Average ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second max.
Preheat	
-Temperature Min(T <sub>S min</sub> )	150°C
-Temperature Max(T <sub>S max</sub> )	200°C
-Time (min to max)( t <sub>s</sub> )	60-180 seconds
T <sub>S max</sub> to T <sub>L</sub>	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T <sub>L</sub> )	217°C
-Time (t <sub>L</sub> )	60-150 seconds
Peak Temperature (T <sub>P</sub> )	260°C
Time within 5°C of actual Peak Temperature (t <sub>P</sub> )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

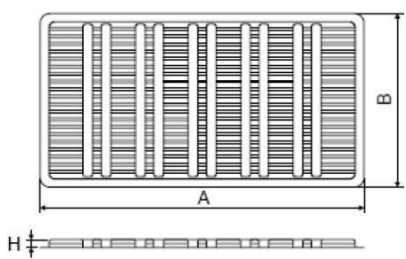
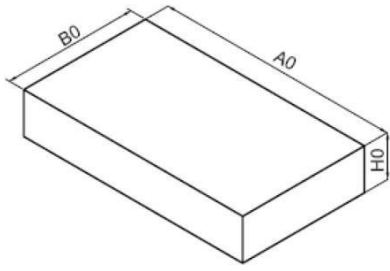
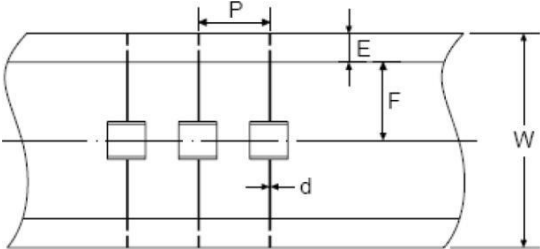
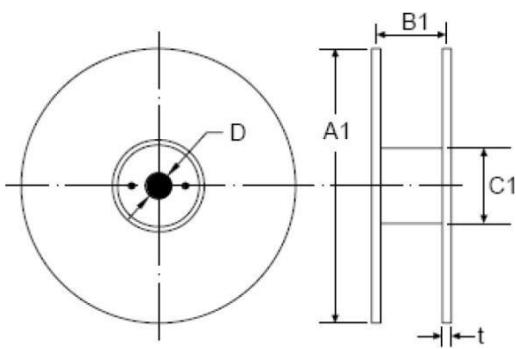
## Wave Soldering



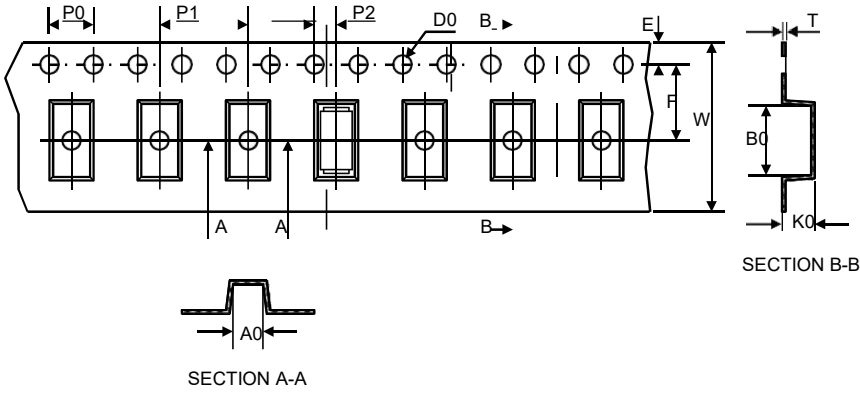
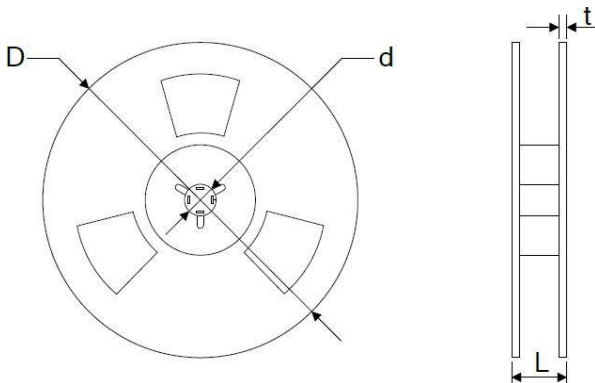
Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds(max.)
Soldering	1 time

### Packaging

#### Axial Packing

Skinning packing		Symbol	Dimension (mm)
		A	$265 \pm 5.0$
		B	$146 \pm 5.0$
		H	$6.8 \pm 0.5$
Quantity: 100pcs			
Inner box		A0	$270 \pm 2.0$
		B0	$150 \pm 2.0$
		H0	$50 \pm 2.0$
		Quantity: 500pcs	
Tape		P	$10.0 \pm 0.5$
		W	$65.0 \pm 1.0$
		E	$6.0 \pm 0.5$
		F	$26.5 \pm 0.5$
		d	$0.8 \pm 0.1$
		Reel	
		B1	$70.0 \pm 2.0$
		C1	$82.0 \pm 2.0$
		D	$25.0 \pm 0.5$
		t	$2.0 \pm 0.2$
		Quantity: 1250pcs	

SMD packing

Tape	Symbol	Dimension (mm)
	W	16.00±0.20
	P0	4.00±0.10
	P1	12.00±0.20
	P2	2.00±0.10
	D0	Φ1.55±0.05
	E	1.75±0.10
	F	7.50±0.10
	A0	5.85±0.1
	B0	7.00±0.1
	K0	6.20±0.1
	T	0.50±0.1
	D	330.0±2.0
	<p data-bbox="108 981 172 1012">Reel</p> 	d
L		20.0±2.0
t		2.0±0.2
Quantity: 800PCS		