Spark Gap (SPG) Data Sheet

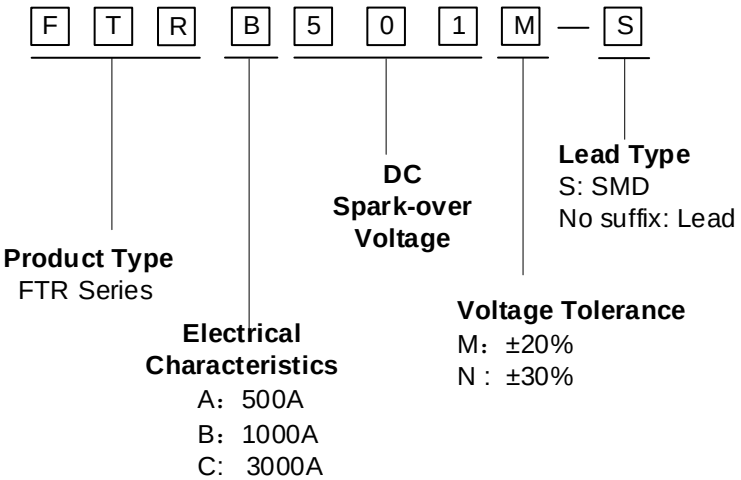
Features

- Approximately zero leaking current before clamping voltage
- Less decay at on/off state.
- High capability to withstand repeated lightning strikes.
- Low electrode capacitance(≤0.8pF) and high isolation(≥100MΩ).
- RoHS compliant.
- Bilateral symmetrical.
- Temperature, humidity and lightness insensitive.
- Operating temperature: -40℃ ~ +85℃
- Storage temperature: -40℃ ~ +125℃
- Meets MSL Level 1，per J-STD-020

Applications

- Power Supplies
- Motor sparks eliminating
- Relay switching spark absorbing
- Electronic devices requiring UL497A and UL497B compliant
- Telephone/Fax/Modem/Antenna/Amplifies
- High frequency signal transmitters/receivers

Part Number Code



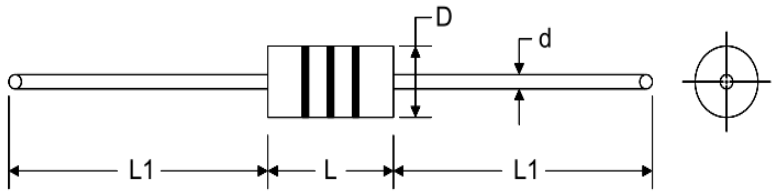
Electrical Characteristics

Part Number		DC Spark-over Voltage	Impulse Life Test	Minimum Insulation Resistance		Maximum Capacitance	Nominal Impulse Discharge Current
		Vs	8/20us 100A	Test Voltage	（MΩ）	(1MHz 1V)	8/20us
		(v)	(times)	DC(V)		(pF)	(A)
FTRB141X	FTRB141X-S	140	200	50	100	0.8	1000
FTRB201X	FTRB201X-S	200	200	100	100	0.8	1000
FTRB301X	FTRB301X-S	300	200	100	100	0.8	1000
FTRB401X	FTRB401X-S	400	200	250	100	0.8	1000
FTRB501X	FTRB501X-S	500	200	250	100	0.8	1000
FTRB601X	FTRB601X-S	600	200	250	100	0.8	1000
FTRB701X	FTRB701X-S	700	200	250	100	0.8	1000
FTRB102X	FTRB102X-S	1000	200	500	100	0.8	1000

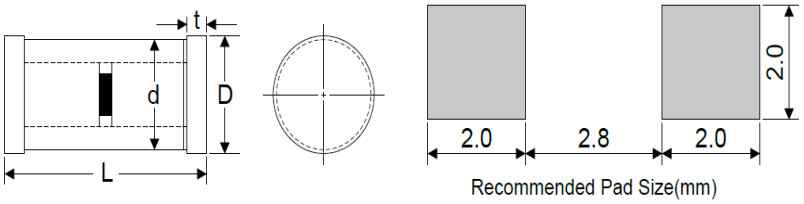
NOTES: X=M(Vs±20%)&X=N(Vs±30%)

Dimensions

L Type



S Type



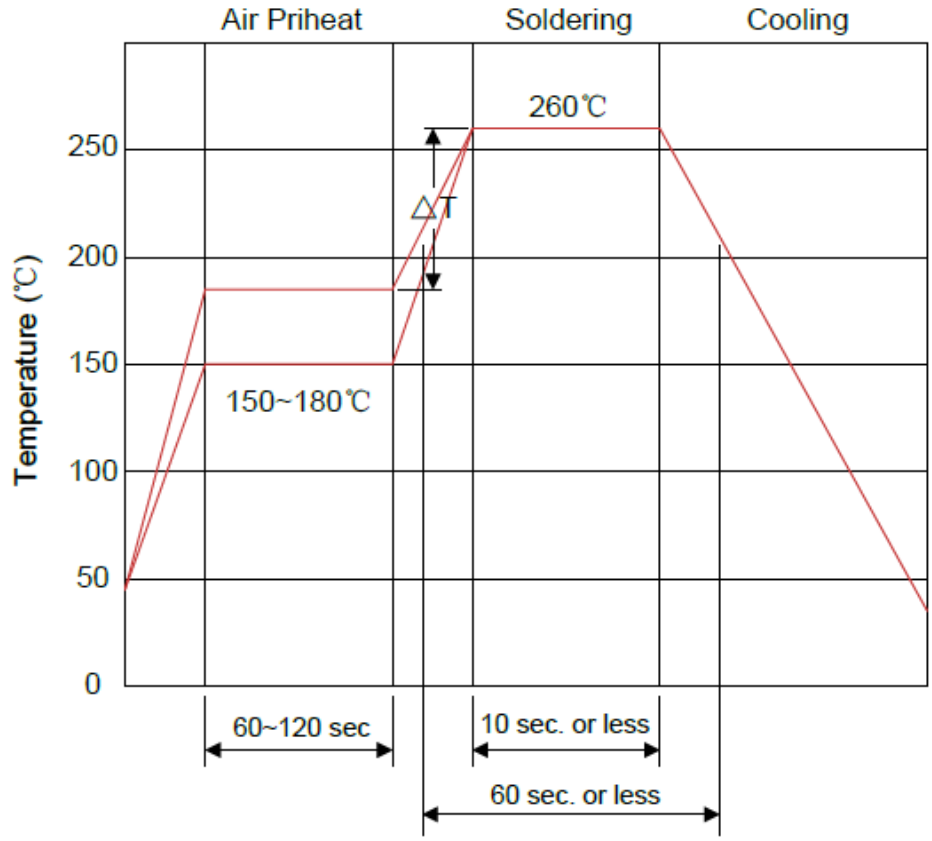
Symbol	Dimension (mm)
L	4.30±0.50
L1	28.00±3.00
D	Φ2.60±0.50
d	Φ0.50±0.05
L	5.00±0.50
D	Φ2.80±0.50
d	Φ2.60±0.50
t	0.40±0.10

Electrical Ratings

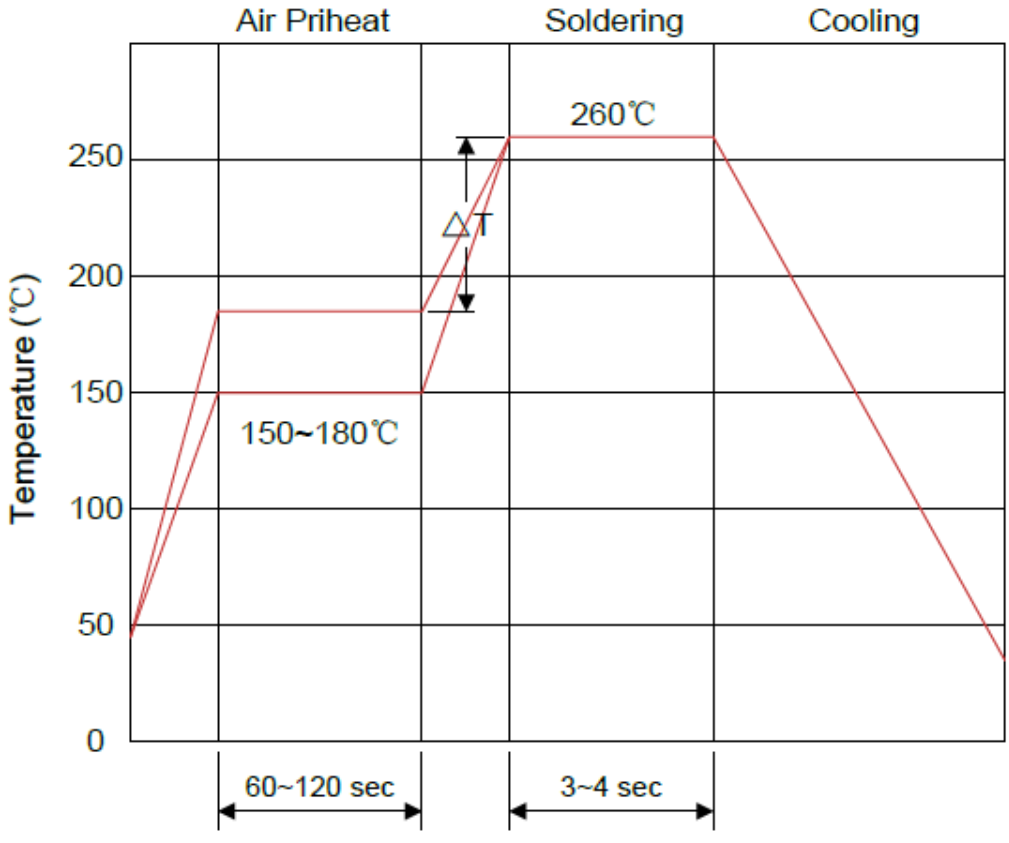
<table>
<tr><th>Items</th><th>Test Condition/Description</th><th>Standard</th></tr>
<tr><td>DC spark-over voltage</td><td>Measure starting discharge voltage (Vs) by gradually increasing applied DC voltage. Test current is 0.5mA max. And the DC voltage ascends up within 100V/s(Vs＜1000V) or 500V/s(Vs≥1000V).</td><td rowspan="3">Meet specified value.</td></tr>
<tr><td>Capacitance</td><td>Measure the electrostatic capacitance by applying a voltage of less than 6V (at 1KHz) between terminals.</td></tr>
<tr><td>Insulation Resistance</td><td>Measure the insulation resistance across the terminal at regular voltage. But the test voltage doesn’t over the DC spark-over voltage.</td></tr>
<tr><td>Static Life</td><td>10KV with 1500pf condenser is discharged through 0Ω resistor. 200 times at an interval of 10sec.</td><td>｜ΔVs/Vs｜≤30% Characteristics of other items must meet the specified value.</td></tr>
<tr><td>Surge Current Capacity</td><td>The following impulse current for specified current applied ±5 times, each time interval 60 seconds. Thereafter, outer appearance shall be visually examined.
<table>
<tr><th>Type</th><th>Impulse current</th></tr>
<tr><td>Vs＜400V</td><td>1.2/50us&8/20us，1000A</td></tr>
<tr><td>Vs≥400V</td><td>1.2/50us&8/20us，1000A electrically connected with a resistor （1~2Ω）</td></tr>
</table></td><td>No crack and no failures</td></tr>
<tr><td>Cold Resistance</td><td>Measurement after -40℃/1000 HRS & normal temperature/2 HRS.</td><td rowspan="4">Features are conformed to rated spec.</td></tr>
<tr><td>Heat Resistance</td><td>Measurement after 125℃/1000 HRS & normal temperature/2 HRS.</td></tr>
<tr><td>Humidity Resistance</td><td>Measurement after humidity 90~95℃(45℃) /1000 HRS & normal temperature/2 HRS.</td></tr>
<tr><td>Temperature Cycle</td><td>10 times repetition of cycle -40℃/30min →normal, temp/2 min →125℃ /30min, measurement after normal temp/2 HRS.</td></tr>
<tr><td>Solder Ability</td><td>Apply flux and immerse in molten solder 230±5℃ for 3sec up to the point of 1.5mm from body. Check for solder adhesion.</td><td>Lead wire is evenly covered by solder.</td></tr>
<tr><td>Solder Heat</td><td>Measurement after lead wire is dipped up to the point of 1.5mm from body into 260±5℃ solder for 10sec.</td><td>Conformed to rated spec.</td></tr>
<tr><td>Pull Strength</td><td>Apply 0.5kg load for 10sec.</td><td rowspan="2">Lead shall not pull out to snap.</td></tr>
<tr><td>Flexural Strength</td><td>Bend lead wire at the point of 2mm from body under 0.25 load and back to its original point. Repeat 1 time.</td></tr>
</table>

Soldering Recommendation

Reflow Soldering



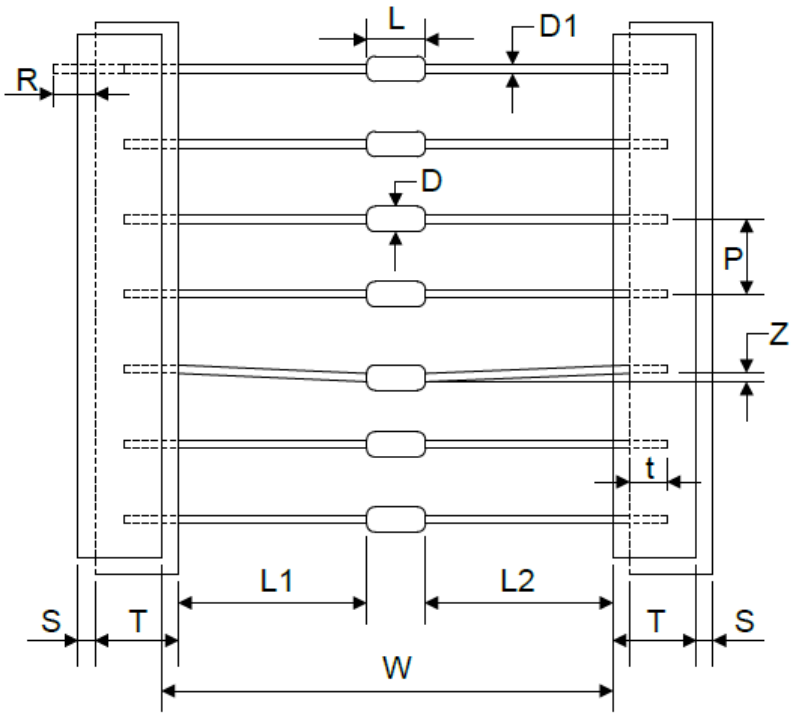
Wave Soldering



Packaging

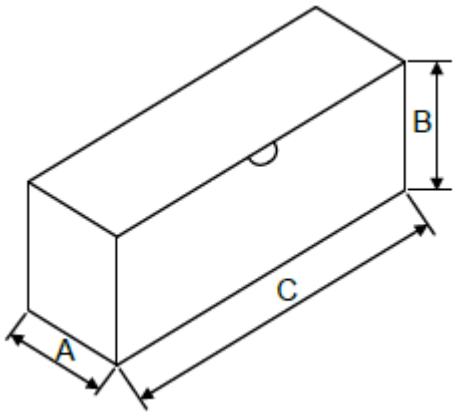
Axial Packing

Tape



Symbol	Dimension（mm）
W	52.00±1.50
P	5.00±0. 50
L1-L2	1.0max.
T	6.00±1.00
Z	1.2max.
R	Terminals must not project from tape.
t	3.2max.
S	0.8max.
D	φ3.1max.
D1	φ0.5±0.05
L	4.8max.

Inner Box

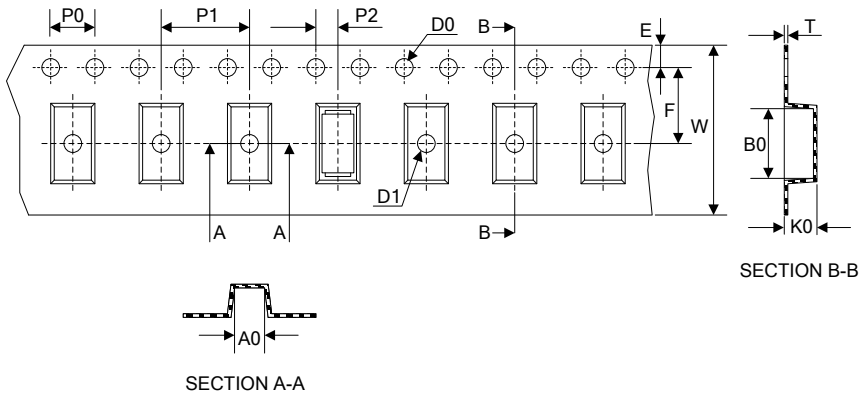


A	74.0±5.0
B	7.0±5.0
C	252.0±5.0

Quantity: 2500PCS

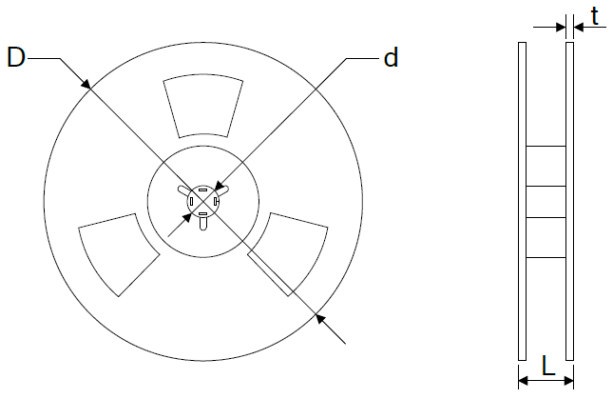
SMD Packing

Tape



Symbol	Dimension（mm）
W	12.00±0.20
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	Φ1.50±0.10
D1	Φ1.50±0.10
E	1.75±0.10
F	5.50±0.05
A0	3.00±0.10
B0	6.00±0.10
K0	3.00±0.10
T	0.30±0.05

Reel



D	178.0±2.0
d	13.0±1.0
L	15.0±3.0

Quantity: 1500PCS