

Spark Gap (SPG) Data Sheet

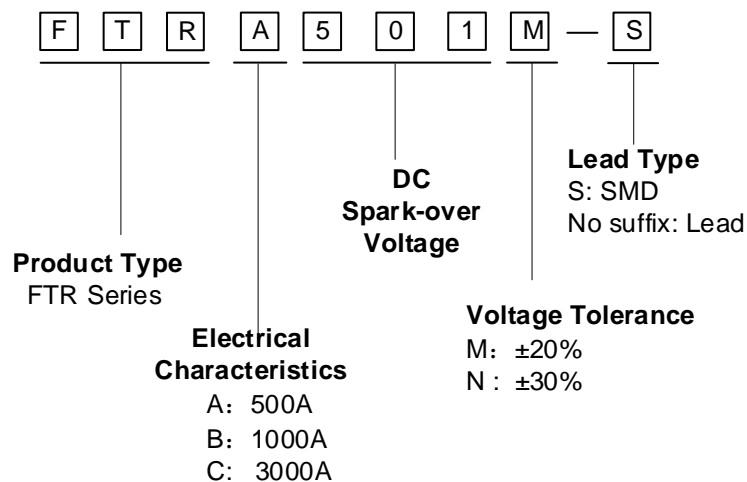
Features

- Approximately zero leaking current before clamping voltage
- Less decay at on/off state.
- High capability to withstand repeated lightning strikes.
- Low electrode capacitance($\leq 0.8\text{pF}$) and high isolation($\geq 100\text{M}\Omega$).
- RoHS compliant.
- Bilateral symmetrical.
- Temperature, humidity and lightness insensitive.
- Operating temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Storage temperature: $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- 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 (1MHz 1V) (pF)	Nominal Impulse Discharge Current 8/20us (A)
				Test Voltage DC(V)	(MΩ)		
FTRA141X	FTRA141X-S	140	150	50	100	0.8	500
FTRA201X	FTRA201X-S	200	150	100	100	0.8	500
FTRA301X	FTRA301X-S	300	150	100	100	0.8	500
FTRA401X	FTRA401X-S	400	150	250	100	0.8	500
FTRA501X	FTRA501X-S	500	150	250	100	0.8	500
FTRA601X	FTRA601X-S	600	150	250	100	0.8	500
FTRA701X	FTRA701X-S	700	150	250	100	0.8	500
FTRA102X	FTRA102X-S	1000	150	500	100	0.8	500

NOTES: X=M(Vs±20%)&X=N(Vs±30%)

Dimensions

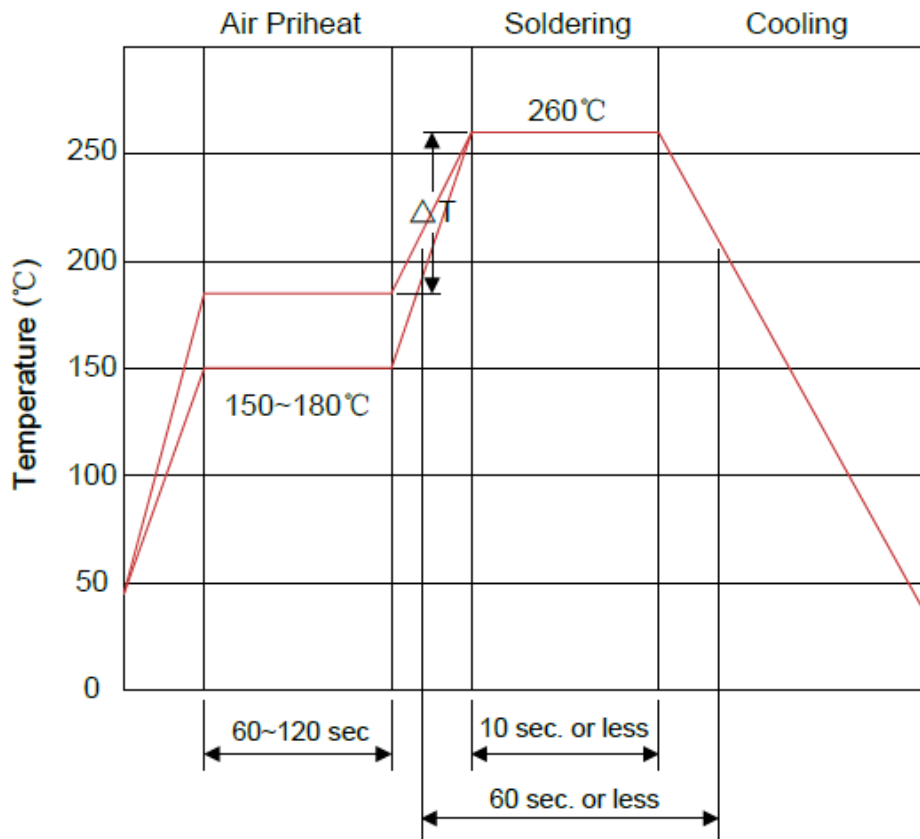
L Type		Symbol	Dimension (mm)
		L	4.00±0.50
		L1	28.00±3.00
		D	Φ2.00±0.50
		d	Φ0.50±0.05
S Type		L	4.00±0.50
		D	Φ2.10±0.50
		d	Φ2.00±0.50
		t	0.40±0.10
		Recommended Pad Size(mm)	

Electrical Ratings

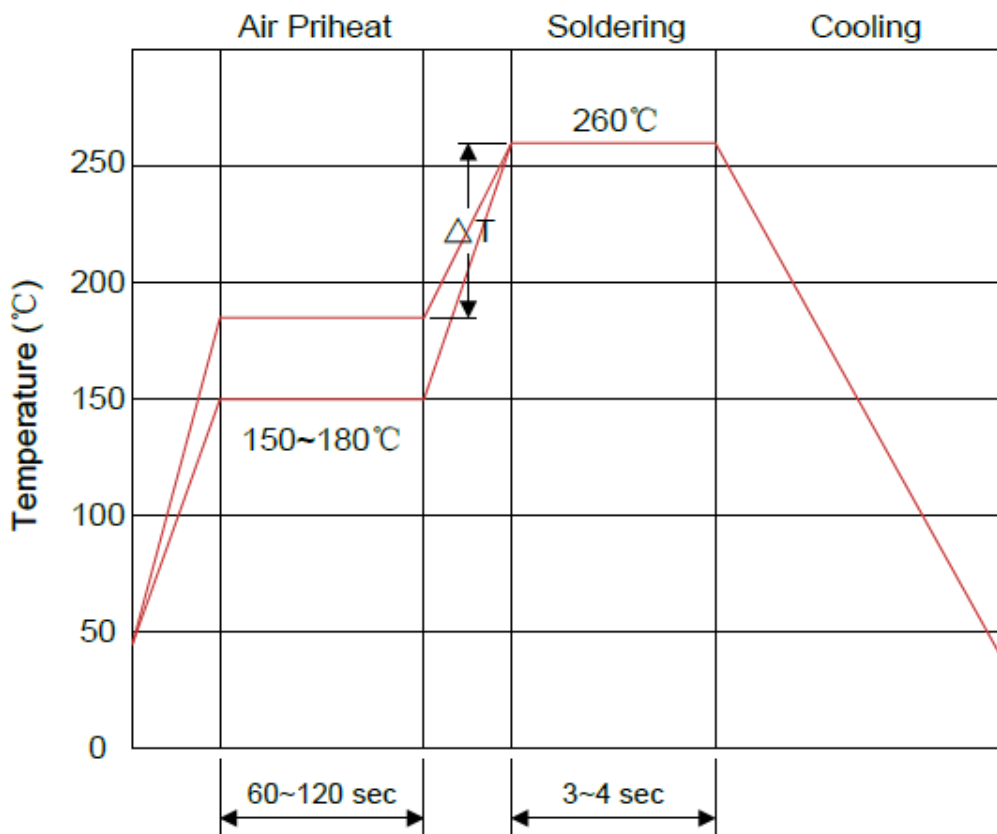
Items	Test Condition/Description	Standard
DC spark-over voltage	Measure starting discharge voltage (Vs) by gradually increasing applied DC voltage. Test current is 0.5mA max. And the DC voltage ascends up within 100V/s($V_s < 1000V$) or 500V/s($V_s \geq 1000V$).	Meet specified value.
Capacitance	Measure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

Soldering Recommendation

Reflow Soldering



Wave Soldering



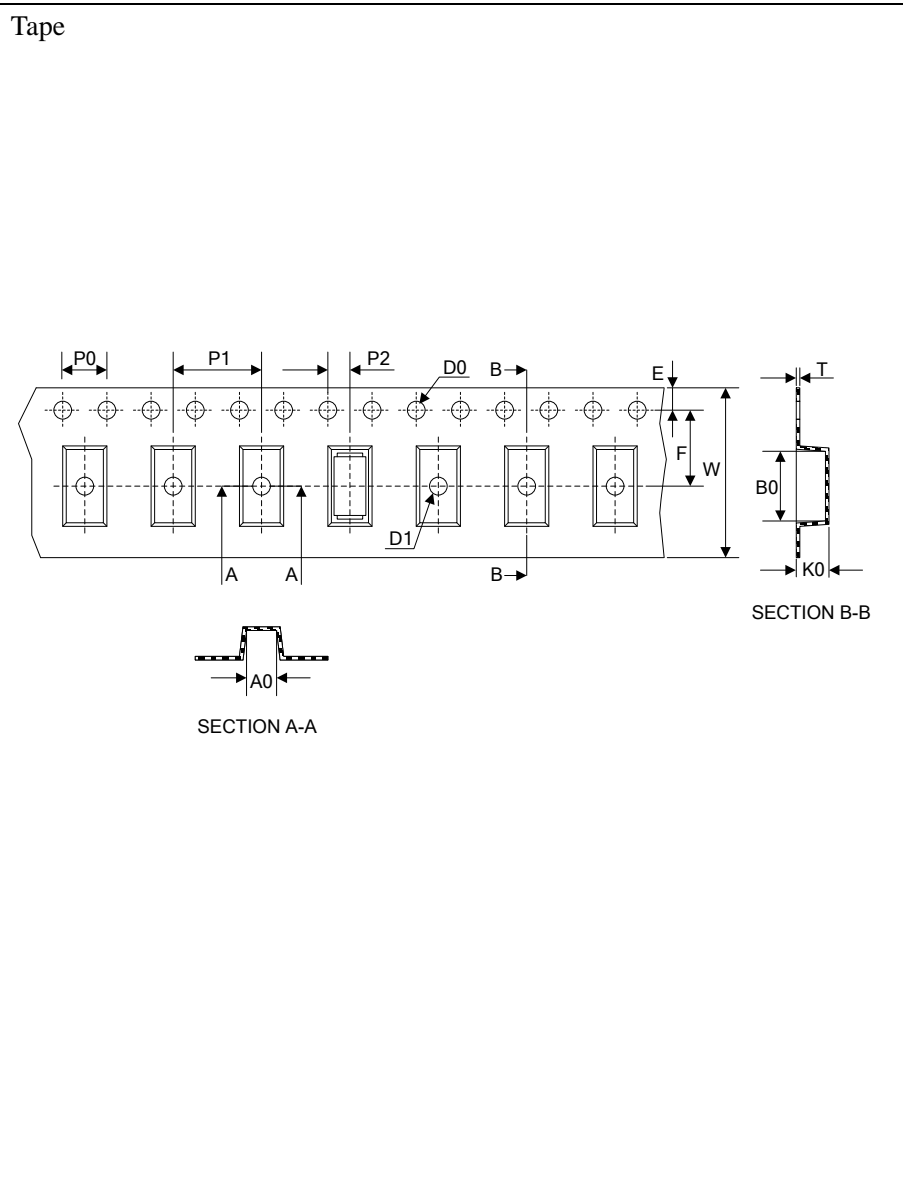
Packaging

Axial Packing

Tape		Symbol	Dimension (mm)		
<p>Technical drawing of a tape showing dimensions: L (lead length), L1 (lead length to center), L2 (lead length to end), W (tape width), D (component diameter), D1 (lead diameter), P (pitch), Z (lead thickness), R (lead radius), S (lead thickness), T (lead width), t (lead thickness).</p>		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	Φ2.5max.		
		D1	φ0.5±0.05		
		L	4.5max.		
		Inner Box		A	74.0±5.0
		<p>3D perspective drawing of an inner box with dimensions: A (width), B (height), C (length).</p>		B	7.0±5.0
				C	252.0±5.0
Quantity: 5000PCS					

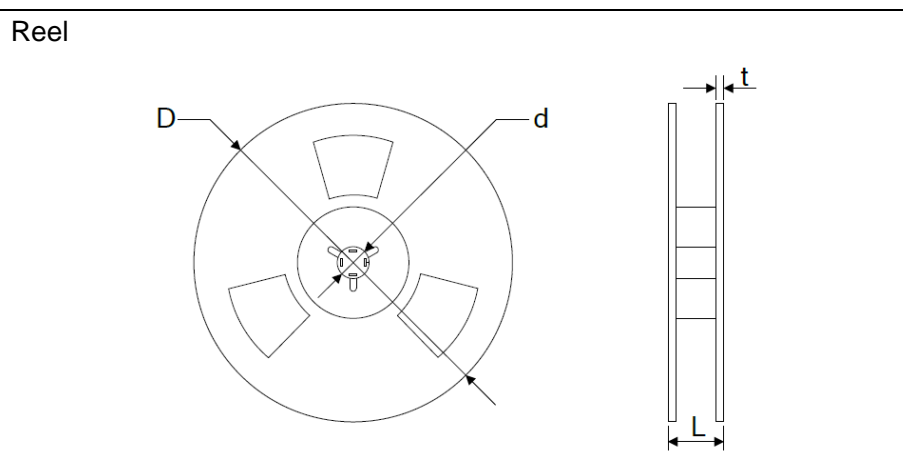
SMD Packing

Tape



Symbol	Dimension (mm)
W	12.00±0.20
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.05
D0	Φ1.50±0.05
D1	Φ1.00±0.10
E	1.75±0.10
F	5.50±0.05
A0	2.40±0.10
B0	4.10±0.10
K0	2.40±0.10
T	0.25±0.05

Reel



D	178.0±2.0
d	13.0±1.0
L	15.0±3.0
Quantity: 2000PCS	