

## Spark Gap (SPG) Data Sheet

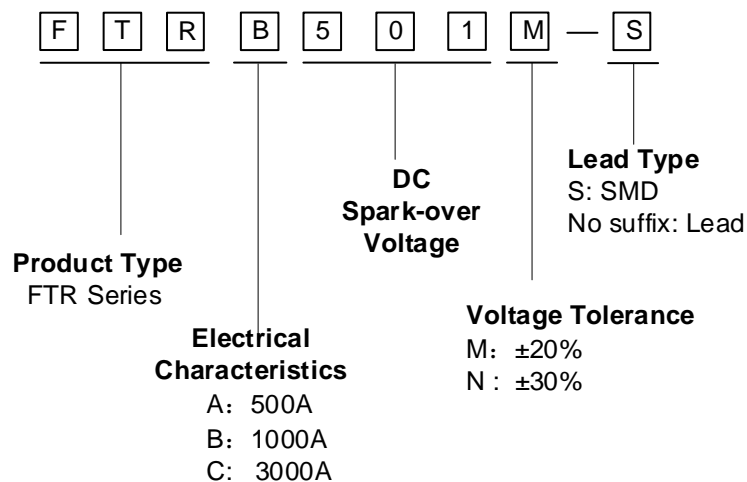
### Features

- 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	Nominal Impulse Discharge Current
		V <sub>s</sub>	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

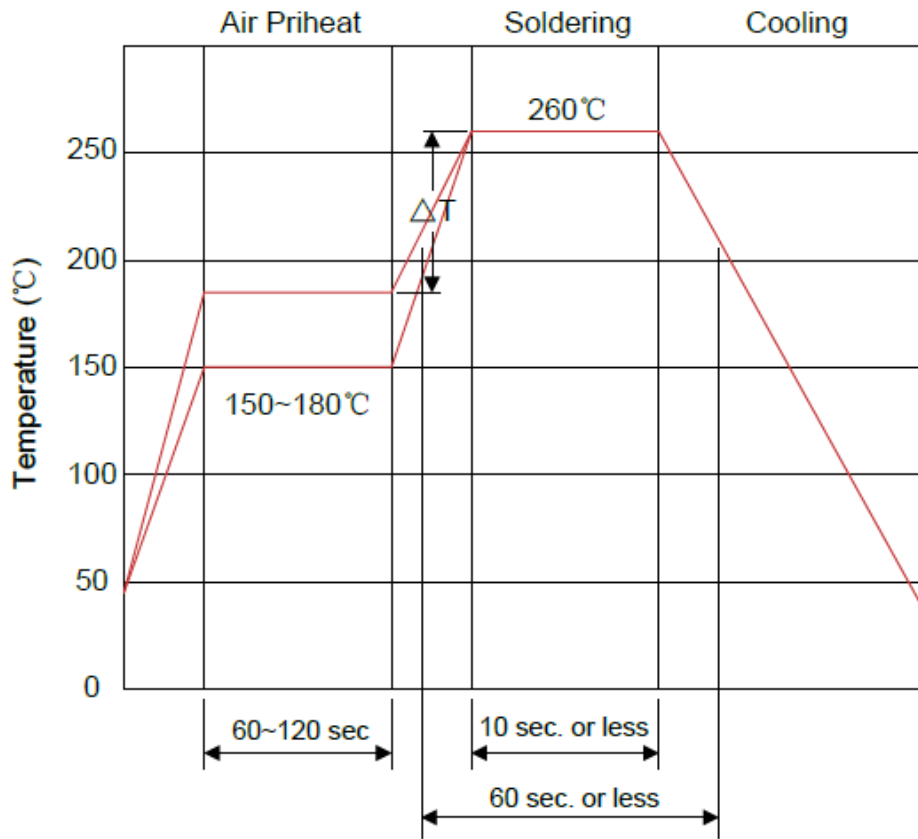
L Type		Symbol	Dimension (mm)
		L	4.30±0.50
		L1	28.00±3.00
		D	Φ2.60±0.50
		d	Φ0.50±0.05
S Type		L	5.00±0.50
		D	Φ2.80±0.50
		d	Φ2.60±0.50
		t	0.40±0.10
		Recommended Pad Size(mm)	

**Electrical Ratings**

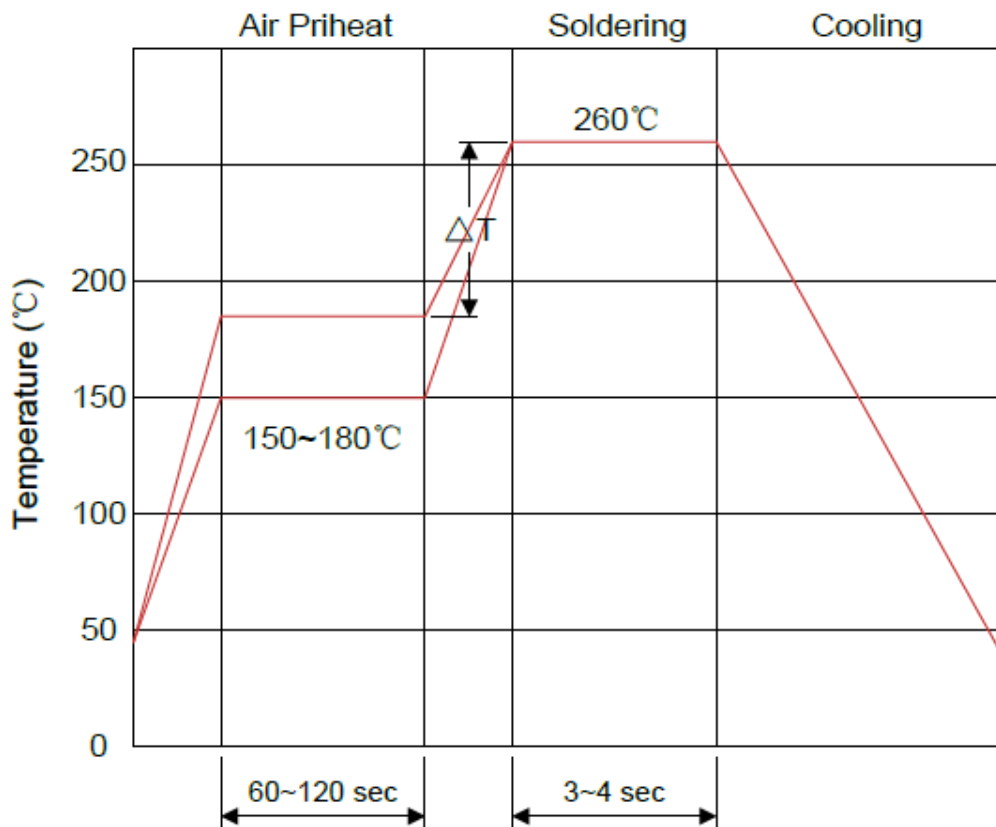
Items	Test Condition/Description	Standard
DC spark-over voltage	Measure starting discharge voltage (Vs) by gradually increasing applied DC voltage. Test current is 0.5mA max. And the DC voltage ascends up within 100V/s(Vs<1000V) or 500V/s(Vs≥1000V).	Meet specified value.
Capacitance	Measure the electrostatic 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.	ΔVs/Vs   ≤30% Characteristics of other items must meet the specified value.
Surge Current Capacity	The following impulse current for specified current applied ±5 times, each time interval 60 seconds. Thereafter, outer appearance shall be visually examined.	
	Type	Impulse current
	Vs<400V	1.2/50us&8/20us, 1000A
Vs≥400V	1.2/50us&8/20us, 1000A electrically connected with a resistor (1~2Ω)	
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.	Lead wire is evenly covered by solder.
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



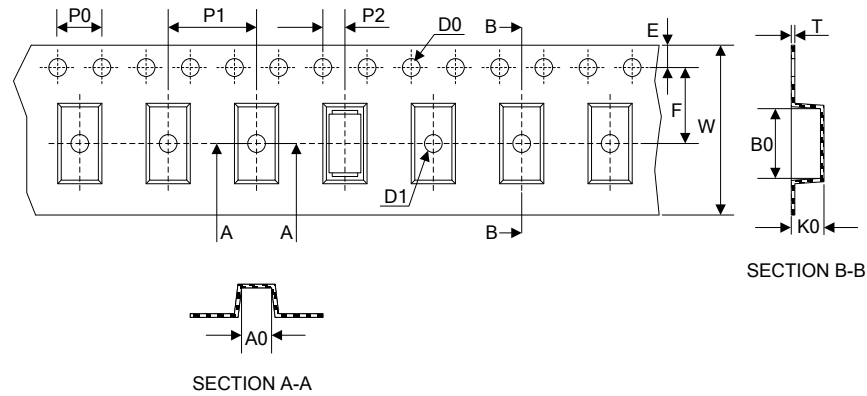
### Packaging

#### Axial Packing

Tape		Symbol	Dimension (mm)		
		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					

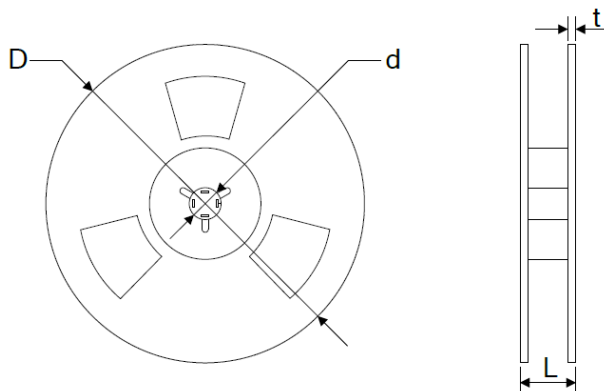
### SMD Packing

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	