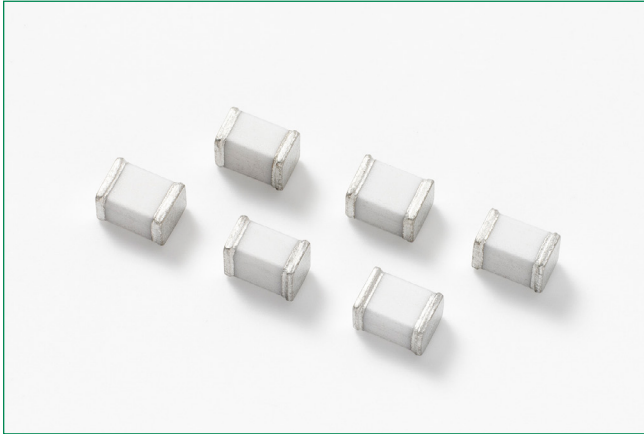


SJ Series

Gas Discharge Tubes



Web Resources

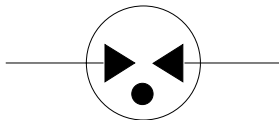


Download ECAD models, order samples, and find technical resources at www.littelfuse.com

Agency Approvals

Agency	Agency File Number
	E128662

2 Electrode GDT Graphical Symbol



Description

Littelfuse SJ series GDT offers high surge ratings in a miniature package. It's designed for surface mounting on PCB with small size 4.5x3.2x3.2mm. Low insertion loss is perfectly suited to broadband equipment applications. SJ series has very low capacitances and shows slight signal losses up to high frequencies in application of high frequency data lines.

Features & Benefits

- RoHS compliant and Lead-free
- GHz working frequency
- Excellent stability on multiple pulse duty cycle
- Excellent response to fast rising transients.
- Ultra Low Insertion Loss
- 3-5KA surge capability tested with 8/20μS pulse
- Ultra small devices (EIA 1812)
- Non-Radioactive
- Low capacitance (<0.5pF)
- Voltage Ranges 90V to 1000V
- UL Recognized
- Conform to ITU-T Rec. K. 12; IEC 61643-311
- Square Outline

Applications

- Communication equipment
- CATV equipment
- Test equipment
- Data lines
- Power supplies
- Telecom SLIC protection
- Broadband equipment
- ADSL equipment, including ADSL2+
- XDSL equipment
- Satellite and CATV equipment
- General telecom equipment

SJ Series

Gas Discharge Tubes

Electrical Characteristics

Part Number	Device Specifications (at 25°C)								Life Ratings			
	DC Breakdown in Volts (@100V/s)			Impulse Breakdown in Volts (@100V/μs)	Impulse Breakdown In Volts (@1 KV/μsec)	Insulation Resistance	Capacitance (@1MHz)	Arc Voltage (on state Voltage) @1Amp Min	Surge Life (@10A 10/1000μs)	Nominal Impulse Discharge Current (8/20μs)	Nominal AC Discharge Current (10x1sec @50Hz)	Max Impulse Discharge Current (2 Application @ 10/350μs)
	Min.	Typ.	Max.									
SI90	72	90	108	500	600	109Ω at 50VDC	0.4pF	8V	300 shots	10 shots (@5kA), 300 shots (@100A)	5A	500A
SJ150	120	150	180	500	600	109Ω at 100VDC		9V				
SJ230	184	230	276	600	700			10V				
SJ600	480	600	720	1000	1100	109Ω at 100VDC	0.5pF	20V	100 shots	15 shots (@3kA)	3A	
SJ800	640	800	960	1200	1300							
SJ1000	800	1000	1200	1400	1500							

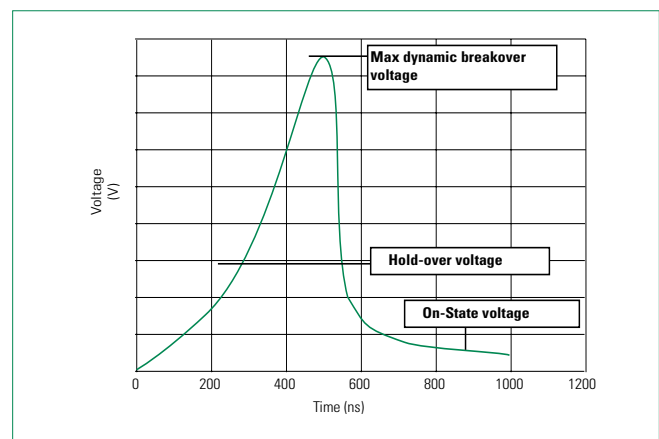
Product Characteristics

Materials	Device Tin Plated 17.5±12.5 Microns
	Construction Ceramic Insulator.
Storage and Operational Temperature	-40 to +125 °C

Typical Insertion Loss

@ 1.0 GHz = 0.01 dB
@ 1.4GHz = 0.1 dB
@ 1.8 GHz = 0.53 dB
@ 2.1 GHz = 0.81 dB
@ 2.45 GHz= 1 dB
@ 2.8 GHz = 1.2 dB
@ 3.1 GHz = 1.5 dB
@ 3.5 GHz = 2.1 dB

Voltage vs. Time Characteristic

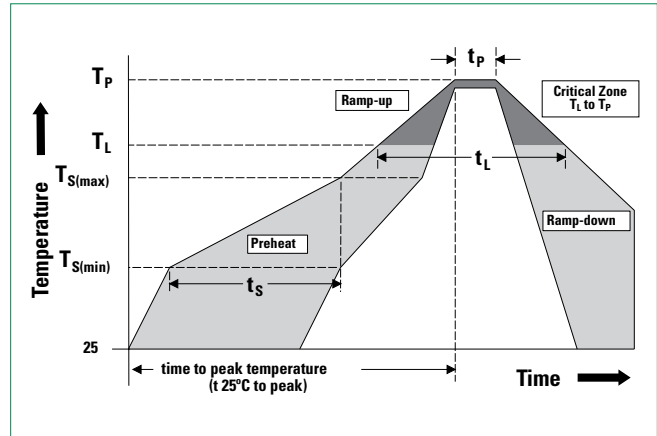


SJ Series

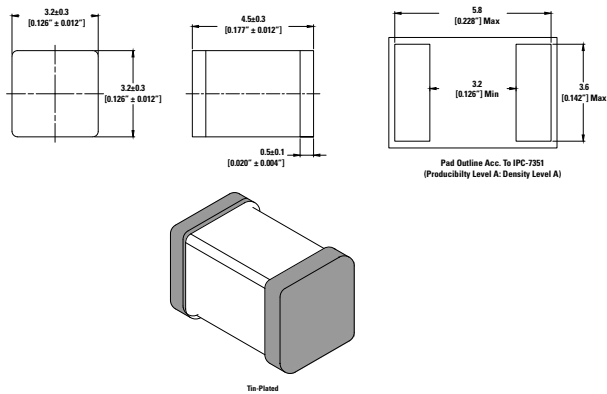
Gas Discharge Tubes

Soldering Parameters - Reflow Soldering (Surface Mount Devices)

Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (Min to Max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		5°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		10 – 30 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C



Device Dimensions

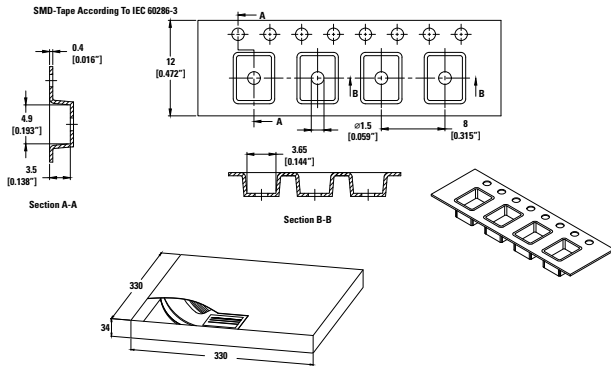


SJ Series

Gas Discharge Tubes

Tape and Reel Dimensions

(IEC 60286-3, dimension in mm)



Part Numbering System and Ordering Information

	SJ xxx
Series	
Breakdown Voltage	
	90 = 90V
	150 = 150V
	230 = 230V
	600 = 600V
	800 = 300V
	1000 = 1000V

Packaging

Part Number and Device Type		Quantity and Packaging Description
SJxxx	Surface mount	2200pcs/reel in tape and reel

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