

SE Series









Agency Approvals

AGENCY	AGENCY FILE NUMBER
71	E128662

2 Electrode GDT Graphical Symbol



Additional Information







Resources



Samples

Description

Littelfuse SE series GDT offers high surge ratings in a miniature package. It's designed for surface mounting on PCB with small size 3.2x1.6x1.6mm. Low insertion loss is perfectly suited to broadband equipment applications. The capacitance does not vary with voltage, and will not cause operational problems with ADSL2+, where capacitance variation across Tip and Ring is undesirable. These devices are extremely robust and are able to divert a 500A-600A pulse in a miniature package 1206 without destruction.

Features

- 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
- 0.5-0.6KA surge capability tested with 8/20µS pulse as defined by IEC 61000-4-5
- Ultra small devices offered in a variety of mounting lead forms
- Non-Radioactive
- Low capacitance (< 0.5 pF)
- Voltage Ranges 140V to 500V
- UL recognized
- Conforms to ITU-T K12, IEC 1000-4-5
- 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

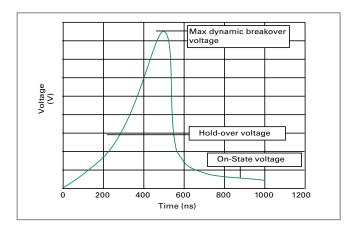


Electrical Characteristics Device Specifications (at 25°C) Life Ratings DC Breakdown Impulse Insulation Arc Glow Nominal Impulse Capacitance Glow Nominal Breakdown Breakdown in Volts Resistance Voltage to Arc Voltage Impulse **Impulse** Discharge Discharge in Volts In Volts **Transition** (@100V/µs) Current Current Current Part (x10 @8/20μs (x10 @5/320µs Number MAX MIN MAX MIN TYP MAX 800 900 <0.5 pf <1.0 A SE140 98 140 182 SE200 140 200 260 700 1100 < 0.3 pf<1.0 A 0.5 kA SE230 172 230 276 600 800 <0.5 pf <1.0 A $>1G\Omega$ (at ~10 V ~60 V 150 A 100VDC) SE350 265 350 495 900 1150 <0.5 pf <1.0 A SE470 329 611 1050 1200 <0.3 pf <1.0 A 0.5 kA 470 0.5 kA SE500 400 500 600 1050 1200 < 0.3 pf<1.0 A

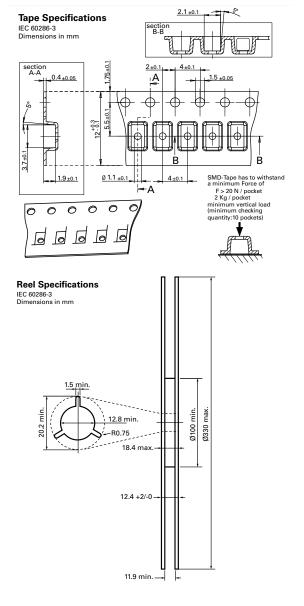
Product Characteristics

Materials	Device Tin Plated 17.5±12.5 Microns Construction Ceramic Insulator.
Storage and Operational Temperature	-40 to +90 °C

Voltage vs. Time Characteristic



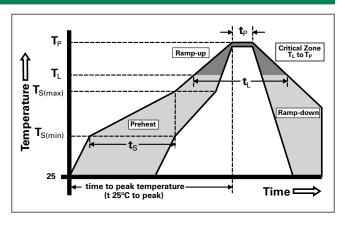
Tape and Reel Dimensions (IEC 60286-3, dimension in mm)





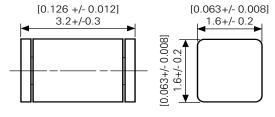
Soldering Parameters - Reflow Soldering (Surface Mount Devices)

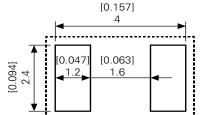
Reflow Condition		Pb – Free assembly
Pre Heat	-Temperature Min (T _{s(min)})	150°C
	-Temperature Max (T _{s(max)})	200°C
	-Time (Min to Max) (t _s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T _L) to peak		3°C/second max
T _{S(max)} to T _L - Ramp-up Rate		5°C/second max
Reflow	-Temperature (T _L) (Liquidus)	217°C
	-Temperature (t _L)	60 – 150 seconds
PeakTemperature (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

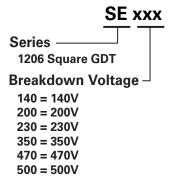
Dimensions in mm and inch [...]





Recommended Pad Layout

Part Numbering System and Ordering Information



Packaging

Part Number	Packaging Option	Quantity
SE140	Tape and Reel	3,000
SE200	Tape and Reel	3,000
SE230	Tape and Reel	3,000
SE350	Tape and Reel	3,000
SE470	Tape and Reel	3,000
SE500	Tape and Reel	3,000

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