

# Gas Discharge Tubes

## Heavy Duty Delta Range

### RoHS SL1411A Series Two-terminal Gas Plasma Arrester

The Greentube™ SL1411A (Delta) Series Gas Plasma Arrester (improved gas discharge tube (GDT)) features a high-performance transient voltage suppressor designed for heavy-duty protection of telecom and industrial equipment.

The Delta range offers high levels of performance and durability on fast-rising transients in the domain of 100 V/μs to 1 kV/μs, which are those most likely from induced lightning disturbances. The high surge rating of these devices makes them ideal for arduous service conditions and Outside Plant locations.

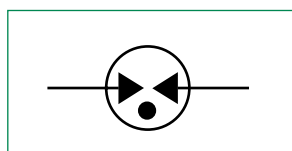
The Delta range also features ultra low capacitance (typically 1 pF or less) and optimized internal geometry which provides low insertion loss at high frequencies, so are ideal for the protection of broadband equipment.

#### FEATURES

- RoHS compliant and Lead-free
- Can be used to meet the requirements of GR-1361, RUS PE-80, ITU K.12 and YD/T940, 950, 1082, 993, 694
- Excellent response to fast rising transients
- Up to 1.5 GHz working frequency
- 10 kA surge capability tested with 8/20μs pulse as defined by IEC 61000-4-5 (20 kA for 90 V)
- 20,000 A single shot surge capability tested with 8/20μs pulse as defined by IEC 61000-4-5
- Excellent service life characteristics

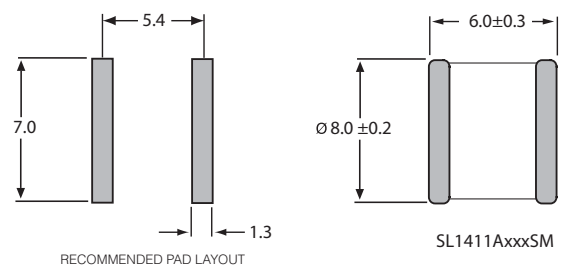
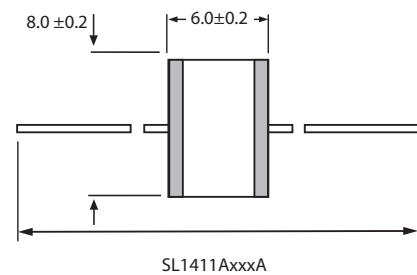
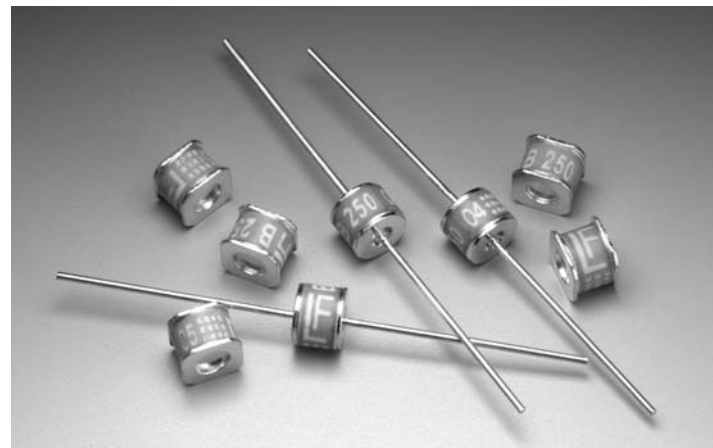
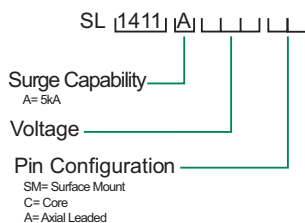
#### Applications:

- Outside Plant and MDF protector modules.
- ADSL equipment.
- XDSL equipment (including ADSL2, VDSL, VDSL2).
- Satellite and CATV equipment.
- General telecom equipment.
- Cell phone base stations.

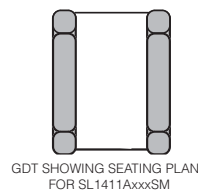


2 ELECTRODE GDT

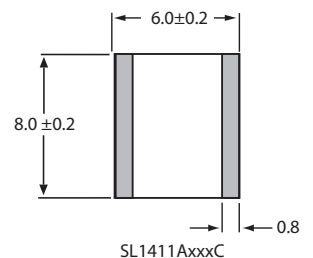
#### ORDERING INFORMATION



RECOMMENDED PAD LAYOUT



GDT SHOWING SEATING PLANE FOR SL1411AxxxSM



All dimensions in mm

#### Mechanical Specifications:

- Weight:** 2.7g (0.095 oz.)  
**Materials:** Electrode Base: Nickel Iron Alloy  
 Electrode Plating: Bright Sn  
 Body: Ceramic  
**Device Marking:** Littelfuse 'LF' marking, Voltage and date code.

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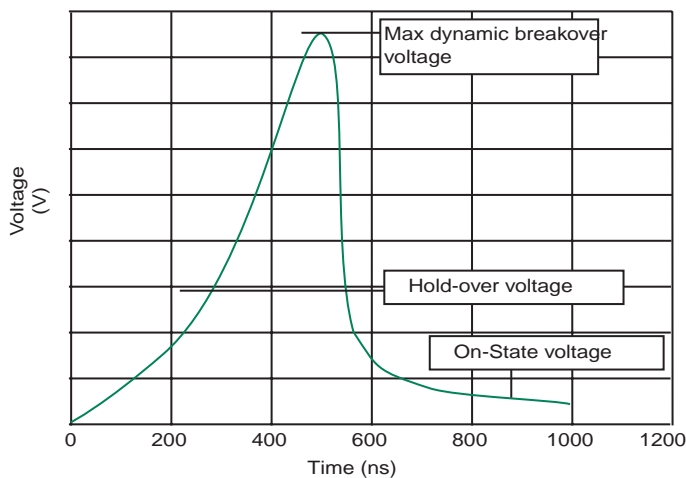
Part Number*	DC Breakover Voltage @100 V/s <sup>1,2</sup> Volts		MAX Dynamic Breakover Voltage <sup>3</sup>		AC Discharge Current <sup>4</sup> Amps	Max Repetitive Impulse Current <sup>5</sup> kAmps	MAX Single Impulse Current		Max Leakage Current <sup>6</sup> nAmps	Holdover Voltage <sup>7,8</sup> Volts	Nominal On-state Voltage @1A Volts
	MIN	MAX	100 V/μs Volts	1kV/μs Volts			8/20 μs kAmps	10/350 μs kAmps			
SL1411A075	60	90	450	700	10	10	20	3	50	50	20
SL1411A090	72	108	450	700	10	10	20	3	50	50	20
SL1411A230	184	276	450	650	10	10	20	3	100	135	20
SL1411A250	200	300	475	700	10	10	20	3	100	135	20
SL1411A350	280	420	600	800	10	10	20	3	100	135	20
SL1411A470	400	540	700	1000	10	10	20	3	100	135	20
SL1411A600	510	690	850	1100	10	10	20	3	100	135	20
SL1411A800	680	920	1100	1300	10	10	20	3	100	135	20
SL1411A1000	850	1150	1300	1500	10	10	20	3	100	135	20

\*Max capacitance is 1.5 pF, measured at 1 MHz.

#### Notes:

1. At delivery AQL 0.65 level II, DIN ISO 2859
2. In ionized mode
3. Comparable to the silicon measurement Switching Voltage ( $V_S$ )
4. 10 shots, AC 60 Hz, 1μs duration
5. 10 shots, 8/20 μs waveform
6. Measured at 100 V, except for devices 90 VDC which are measured at 50 V
7. With network applied, 52V for 75 VDC and 90VDC ratings
8. Tested according to ITU-T Rec. K 12

**Voltage vs Time Characteristic**



#### Service Life Rating

10A, 10/1000μs, 1500 operations
100A, 10/1000μs, 100 operations
300A, 10/1000μs, 50 operations