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SL1011A and SL1411A Series









Agency Approvals

AGENCY AGENCY FILE NUMBER

E128662

2 Electrode GDT Graphical Symbol



Additional Information



Datasheet SL1011A



Datasheet SL1411A



Resources SL1011A



Resources SL1411A



Samples SL1011A



Samples SL1411A

Description

The SL1011A and SL1411A series provides high levels of protection against fast rising transients in the 100V/µs to 1kV/µs range usually caused by lightning disturbances.

The SL1011A and SL1411A series offers low capacitance (< 1.5pf) which provides low insertion loss at high frequencies.

SL1011A offers 5kA protection without destruction whereas the SL1411A offer 10kA surge protection without destruction (maximum single surge of 12kA @ $8/20\mu$ s).

Features

- Lead-free and RoHS compliant
- Low insertion loss
- Excellent response to fast rising transients
- Ultra low capacitance
- 5kA (SL1011A) or 10kA (SL1411A) surge capability tested with 8/20µs pulse as defined by IEC 61000-4-5 2nd edition

Applications

- Broadband equipment
- ADSL equipment
- XDSL equipment
- Satellite and CATV equipment
- General telecom equipment



Electrical Characteristics

	Device Specifications (at 25°C)					Life Ratings									
Part Number	DC Breakdown in Volts ^{1,2} (@ 100V/s)		Impulse Breakdown in Volts³ (@100V/µs)	Impulse Breakdown In Volts (@1kV/µs)	Insulation Resistance	Capaci- tance (@1MHz)	Arc Voltage (on state Voltage) @1Amp Min	Surge Life (@100A 10/1000µs)	Nominal Impulse Discharge Current (8/20µs)	Nominal AC Discharge Current (10x1s @50-60Hz)	AC Dischage Current (9 Cycles @ 50Hz)	DC Holdover Voltage ⁴	Discharg	mpulse ge Current lication)	
	MIN	TYP	MAX	MAX		MIN	MAX	TYP					TYP	@ 8/20μs	@ 10/350μs
SL1011A075 SL1411A075	60	75	90	500	700	10¹0 Ω									
SL1011A090 SL1411A090	72	90	108	500	600	(at 50V)							50 V		
SL1011A145	116	145	174	500	650										
SL1011A150 SL1411A150	120	150	180	500	650										
SL1011A230 SL1411A230	184	230	276	550	700					SL1011A: 10 shots (@5kA)	SL1011A: 5 A	SL1011A: 20 A			
SL1011A250 SL1411A250	200	250	300	600	800	10¹º Ω	1.5 pF	~20 V	300 shots	SL1411A:	SL1411A:	SL1411A:		SL1411A: 12 kA	1 kA
SL1011A260	210	260	310	600	800	(at 100V)				10 shots (@10kA)	10 A	65 A			
SL1011A350 SL1411A350	280	350	420	800	900					(GTOKA)			135 V		
SL1011A470 SL1411A470	376	470	564	1000	1100										
SL1011A500	400	500	600	1100	1200	1									
SL1011A600 SL1411A600	480	600	720	1200	1400										

Notes:

- 1. At delivery AQL 0.65 level II, DIN ISO 2859
- In ionized mode
 Comparable to the silicon measurement Switching Voltage (Vs)
- 4. Tested according to ITU-T Rec. K.12 < 150 msecs.

Product Characteristics

Materials	Leaded Device: Nickel-plated with Tin- plated wires Core and Surface Mount: Dull Tin-plated
Product Marking	Littelfuse 'LF' Mark, voltage and date code

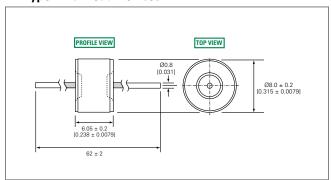
Glow to Arc Transition Current	< 0.5 Amps
Glow Voltage	~60 Volts
Storage and Operational Temperature	-40 to +90°C



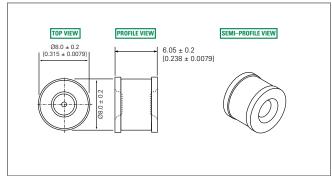
Device Dimensions

For SL1011A Series:

'A' Type Axial Lead Devices

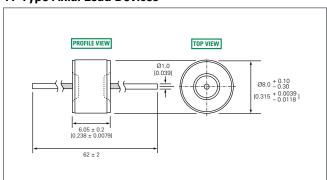


'C' Type Core Devices

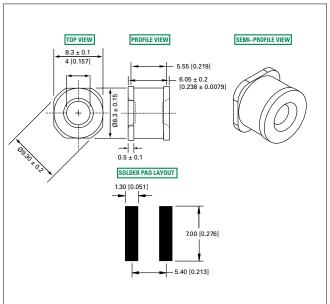


For SL1411A series:

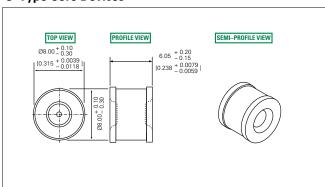
'A' Type Axial Lead Devices



'SM' Type Surface Mount Devices



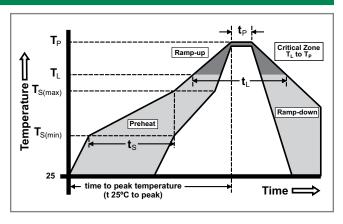
'C' Type Core Devices



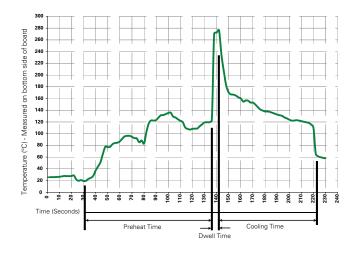


Soldering Parameters - Reflow Soldering (Surface Mount Devices)

Reflow Co	ondition	Pb-free assembly		
	-Temperature Min (T _{s(min)})	150°C		
Pre Heat	-Temperature Max (T _{s(max)})	200°C		
	-Time (Min to Max) (t _s)	60 – 180 seconds		
Average F	Ramp-up Rate (Liquidus Temp ık)	3°C/second max.		
T _{S(max)} to T	- Ramp-up Rate	5°C/second max.		
Reflow	-Temperature (T _L) (Liquidus)	217°C		
Rellow	-Temperature (t _L)	60 – 150 seconds		
PeakTemp	perature (T _P)	260 ^{+0/-5} °C		
Time with	in 5°C of Actual Peak ure (t _p)	10 – 30 seconds		
Ramp-dov	vn Rate	6°C/second max.		
Time 25°C	to PeakTemperature (T _P)	8 minutes max.		
Do not ex	ceed	260°C		



Soldering Parameters - Wave Soldering (Thru-Hole Devices)



Recommended Process Parameters:

Wave Parameter	Lead-Free Recommendation		
Preheat:			
(Depends on Flux Activation Temperature)	(Typical Industry Recommendation)		
Temperature Minimum:	100° C		
Temperature Maximum:	150° C		
Preheat Time:	60-180 seconds		
Solder Pot Temperature:	280° C Maximum		
Solder DwellTime:	2-5 seconds		

Soldering Parameters - Hand Soldering

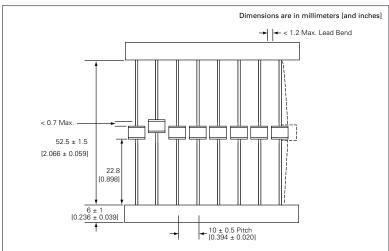
Solder Iron Temperature: 350° C +/- 5°C

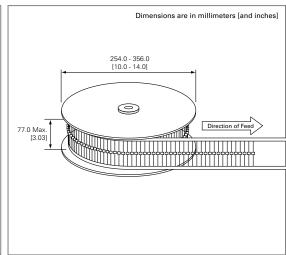
Heating Time: 5 seconds max.



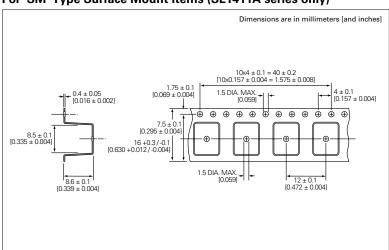
Packaging Dimensions

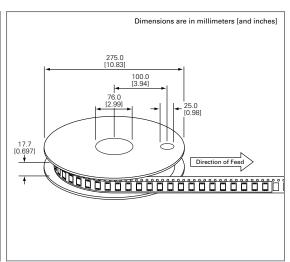
For Axial Lead Items





For 'SM' Type Surface Mount Items (SL1411A series only)





For 'C' Type Core Items: Packed in plastic bag (500 pcs)



Part Numbering System and Ordering Information

For SL1011A series:

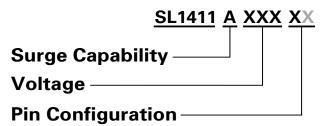
SL1011A XXX X Voltage Pin Configuration

A = Axial Lead

C = Core

Remarks: Formed leads are available on request

For SL1411A series:



A = Axial Lead

C = Core

SM = Surface Mount