

## Surface Single Gas Discharge Tube

### Description

Gas discharge Tubes (GDT) are classical components for protecting the installations of the telecommunications. It is essential that IT and telecommunications systems -with their high-grade but sensitive electronic circuits - be protected by arresters.

The 1812 series GDT offers high surge ratings in a miniature package. It's designed for surface mounting on PCB with small size 4.5x3.2x2.7mm. 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 2KA pulse in a miniature package 1812 without destruction.

### Features

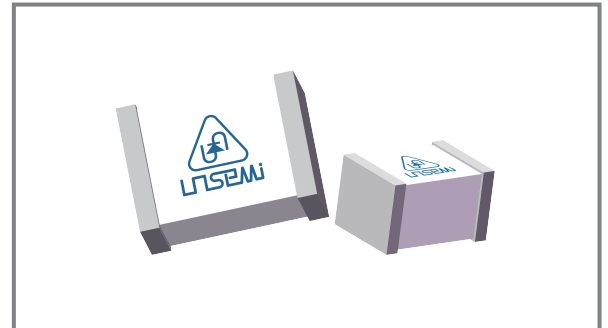
- ◆ Non-Radioactive
- ◆ ROHS compliant
- ◆ Ultra low capacitance (<1.0pF)
- ◆ UL recognized
- ◆ Excellent response to fast rising transients
- ◆ 2KA surge capability tested with 8/20μs pulse as defined by IEC 61000-4-5
- ◆ Square Outline

### Applications

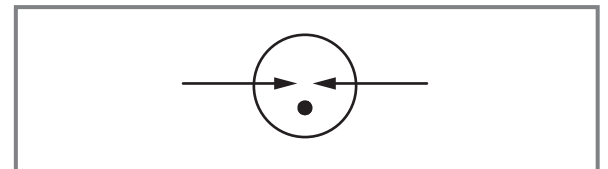
- ◆ Communication equipment
- ◆ CATV equipment
- ◆ Test equipment
- ◆ Data lines
- ◆ Power supplies
- ◆ Telecom SLIC protection
- ◆ Broadband equipment
- ◆ ADSL equipment, including ADSL2+
- ◆ XDSL equipment
- ◆ Satellite and CATV equipment
- ◆ General telecom equipment
- ◆ ESD protection




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### Schematic Symbol



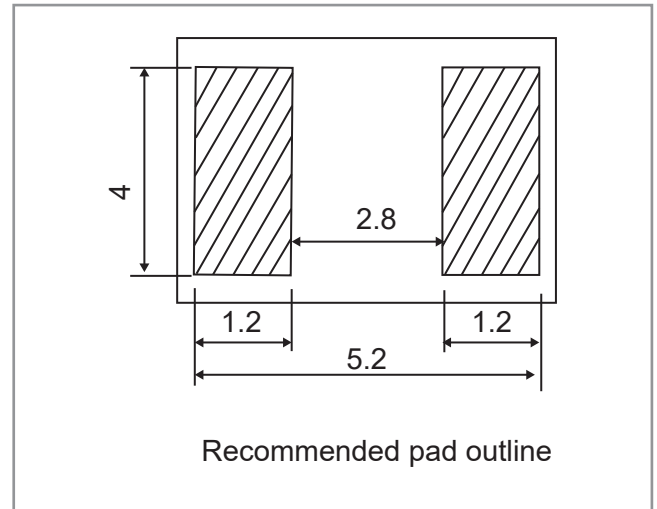
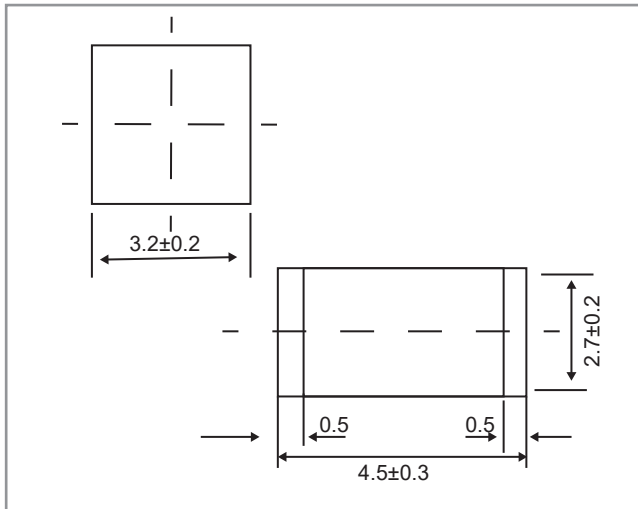
### Agency Approvals

AGENCY	AGENCY FIL ENUMBER
	E466847

### Product Characteristics

Materials	surface mount: Dull Tin-plated
Product Marking	Without
Storage and Operational Temperature	-40 to +90°C
Weight	~170mg

Dimensions (Unit: mm)



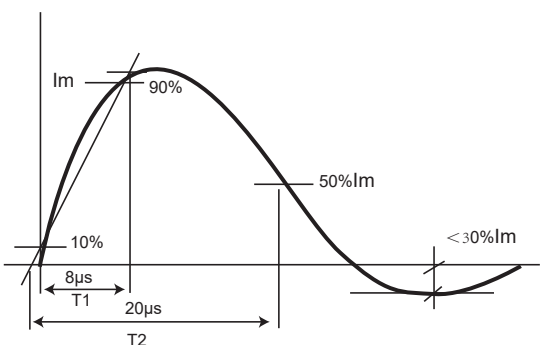
Electrical Characteristics

Part Number	DC Spark-over Voltage	Typical Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Nominal Impulse Dis charge Current
	@100V/S	@100V/μS	@1KV/μS		@1MHz	@1A	@8/20μS ±5times
UN1812-75CSMD	75V±30%	600V	700V	1 GΩ (at 50V)	1.0pF	~15V	2KA
UN1812-90CSMD	90V±30%	600V	700V	1 GΩ (at 50V)	1.0pF	~15V	2KA
UN1812-150CSMD	150V±30%	600V	700V	1 GΩ (at 50V)	1.0pF	~15V	2KA
UN1812-200CSMD	200V±30%	600V	750V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-230CSMD	230V±30%	600V	750V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-300CSMD	300V±30%	800V	900V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-350CSMD	350V±30%	800V	900V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-400CSMD	400V±30%	900V	1000V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-420CSMD	420V±30%	900V	1000V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-470CSMD	470V±30%	900V	1000V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-600CSMD	600V±30%	1100V	1200V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-800CSMD	800V±30%	1200V	1400V	1 GΩ (at 100V)	1.0pF	~15V	2KA
UN1812-1000CSMD	1000V±20%	1400V	1600V	1 GΩ (at 100V)	1.0pF	~16V	2KA

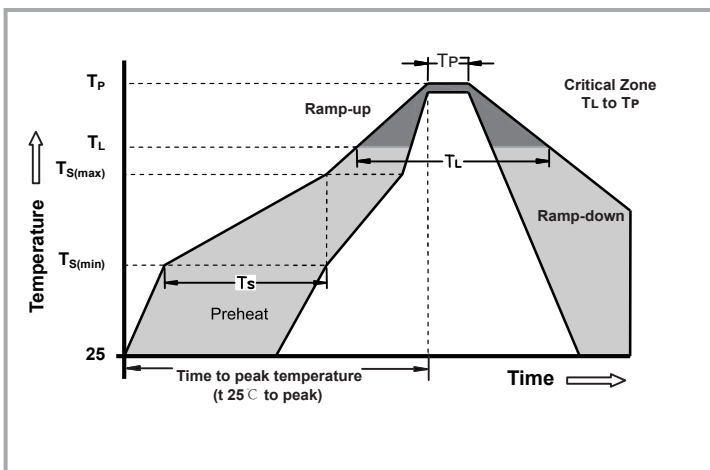
Notes:

- 1). Terms in accordance with ITU-T K.12 and GB/T 9043-2008
- 2). At delivery AQL 0.65 level II, DIN ISO 2859

**Electrical Rating**

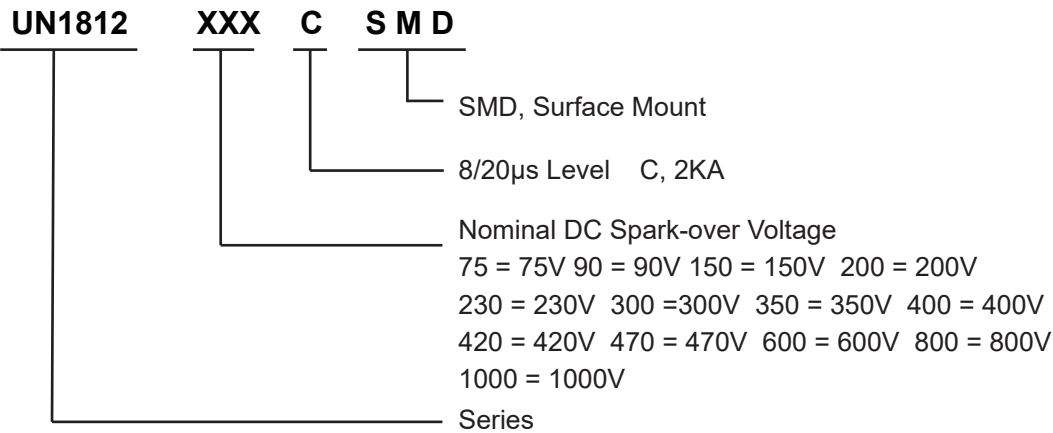
Item	Test Condition   Description	Requirement
DC Spark-over Voltage	The voltage is measured with a slowly rate of rise $dv / dt=100V/s$	To meet the specified value
Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with a rise time of $dv / dt=100V/\mu s$ or $1KV/\mu s$	
Insulation Resistance	The resistance of gas tube shall be measured each terminal each other terminal, please see above spec.	
Capacitance	The capacitance of gas tube shall be measured each terminal to each other terminal. Test frequency :1MHz	
Nominal Impulse Discharge Current	The maximum current applying a waveform of 8/20 $\mu s$ that can be applied across the terminals of the gas tube. One hour after the test is completed, re-testing of the DC spark-over voltage does not exceed $\pm 30\%$ of the nominal DC spark-over voltage. Dwell time between pulses is 3 minutes. 	

**Recommended soldering profile**

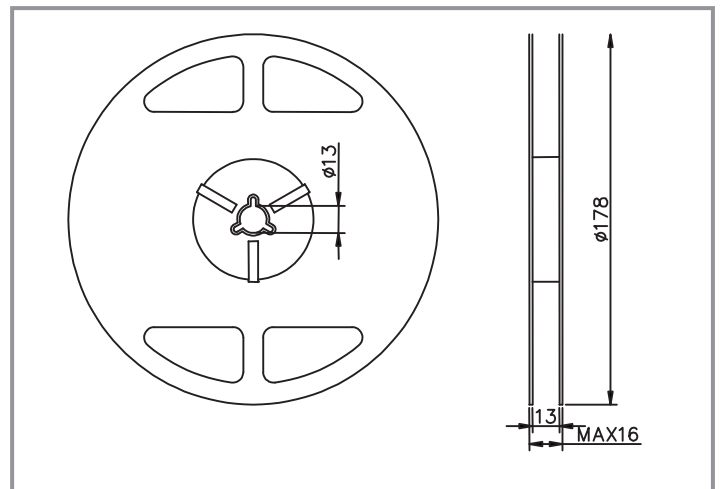
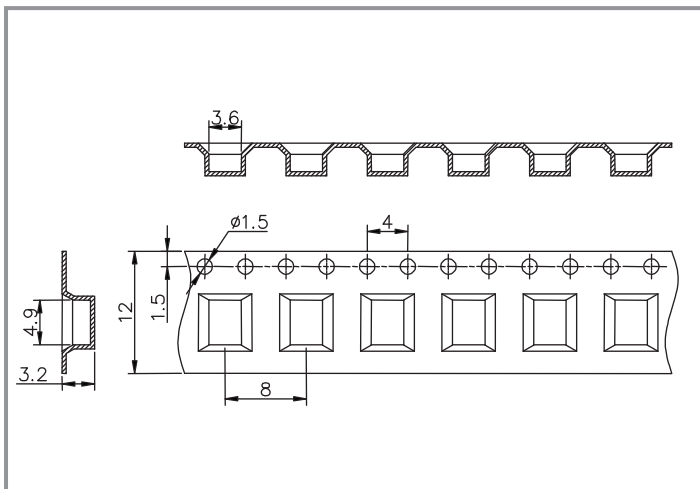


Reflow Condition		pd-Lead-free assembly
Pre Heat	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $T_s$ )	60 -180 Seconds
Average ramp up rate ( Liquidus Temp $T_L$ to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		5°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Time (min to max) ( $T_s$ )	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

**Part Numbering**



**Tape and Reel Dimensions Unit: mm**



Part Number	Description	Quantity
UN1812-XXXCSMD	12mm Tape & 13" Reel	2500

**Cautions and warnings**

- ◆ Gas discharge tubes (GDT) must not be operated directly in power supply networks.
- ◆ Gas discharge tubes (GDT) may become hot in case of longer periods of current stress (danger of burning).
- ◆ Gas discharge tubes (GDT) may be used only within their specified values. In the event of overload, the head contacts may fail or the component may be destroyed.
- ◆ Damaged Gas discharge tubes (GDT) must not be re-used.

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