

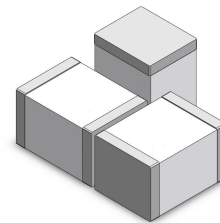
Surface Mount 2-Electrode Gas Discharge Tube (GDT)

SMD1812 Series

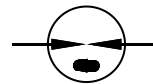
Description

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 SMD1812 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 500A pulse in a miniature package 1812 without destruction.



Schematic Symbol



Features

- ◆ Non-Radioactive
- ◆ Ultra low capacitance (<1.0 pF)
- ◆ 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

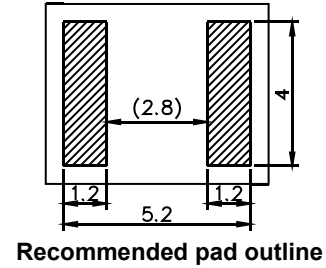
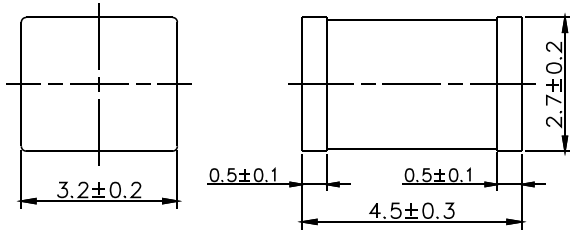
Product Characteristics

Materials	Dull Tin-plated
Product Marking	Without
Storage and Operational Temperature	-40 to +90°C
Weight	~180mg
Climatic category (IEC 60068-1)	40/ 90/ 21

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Device Dimensions (Unit: mm)



Electrical Characteristics

Part Number	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Nominal Impulse Discharge Current
	@100V/S	@100V/μs	@1KV/μs		@1MHz	@1A	@8/20μs ±5 times
SMD1812-090C	90V±30%	<600V	<700V	1 GΩ (at 50V DC)	<1.0pF	~15V	2 KA
SMD1812-150C	150V±30%	<600V	<700V	1 GΩ (at 50V DC)	<1.0pF	~15V	2 KA
SMD1812-200C	200V±30%	<600V	<750V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA
SMD1812-230C	230V±30%	<600V	<750V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA
SMD1812-300C	300V±30%	<800V	<900V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA
SMD1812-350C	350V±30%	<800V	<900V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA
SMD1812-400C	400V±30%	<900V	<1000V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA
SMD1812-420C	420V±30%	<900V	<1000V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA
SMD1812-470C	470V±30%	<900V	<1000V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA
SMD1812-600C	600V±30%	<1100V	<1200V	1 GΩ (at 100V DC)	<1.0pF	~15V	2 KA

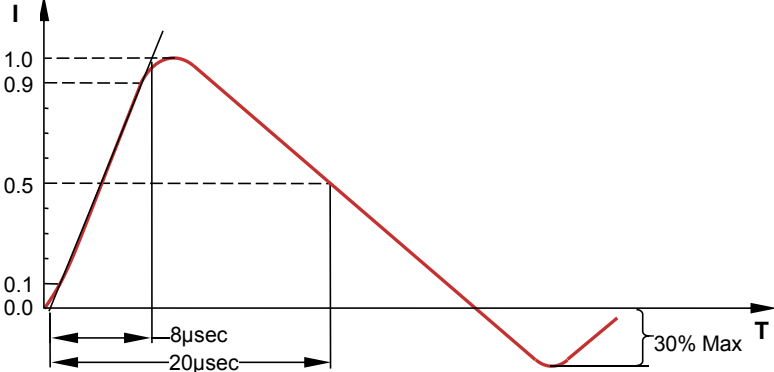
Notes:

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

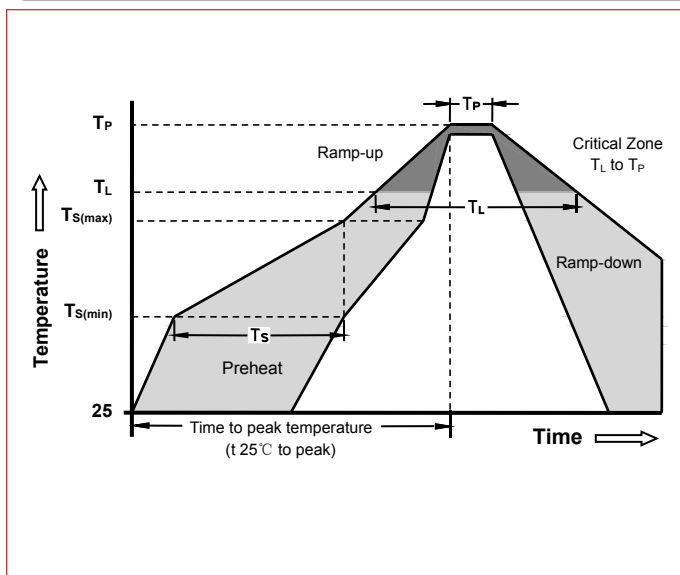
Surface Mount 2-Electrode Gas Discharge Tube (GDT)

SMD1812 Series

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	<p>The maximum current applying a waveform of 8/20μs 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.</p> 	

Recommended soldering profile

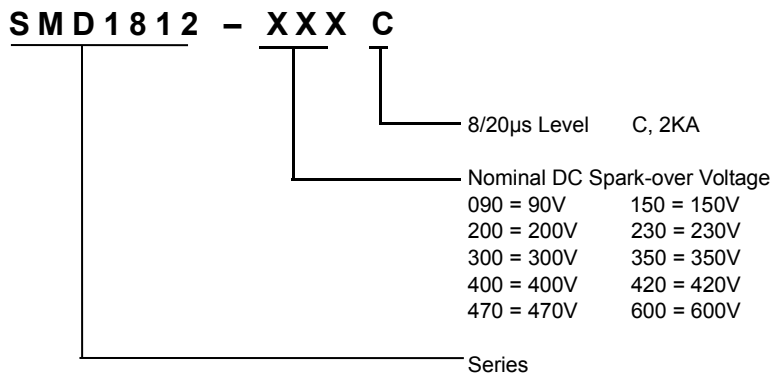


Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		5°C/second max
Reflow	- Temperature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

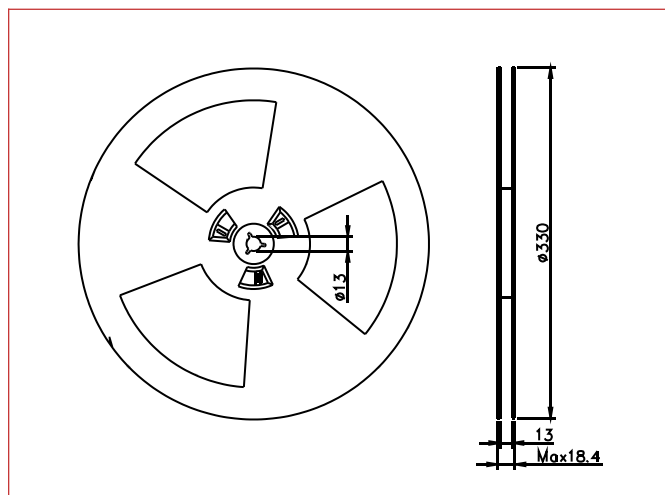
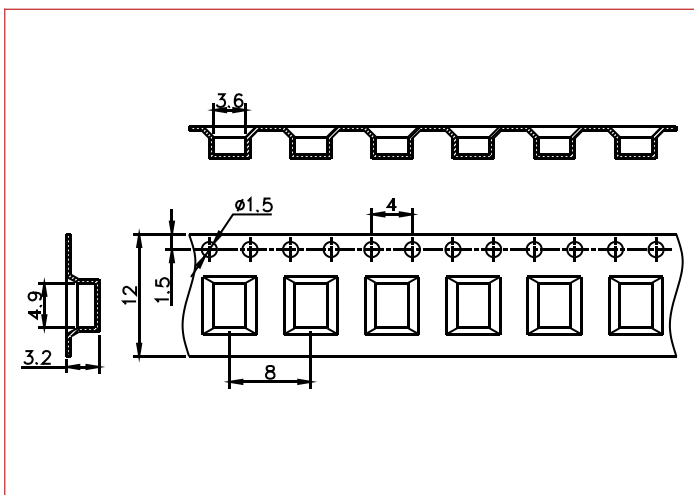
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Part Numbering



Tape and Reel Dimensions (Unit: mm)



Packaging

Part Number	Description	Quantity
SMD1812-XXXC	12mm Tape & 13" Reel	2500 PCS

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.