

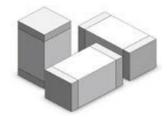
### SMD1812

### 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 highgrade but sensitive electronic circuits - be protected byarresters. The SMD5x5 series GDT offers high surge ratings in a miniature package. It's designed for surface mounting on PCB with small size 5.0x5.0x4.2mm. 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 SMD5x5 without destruction.

#### Features

- Non-Radioactive
- RoHS compliant
- Ultra low capacitance (<0.8pF)</li>
- UL recognized
- Excellent response to fast rising transients
- 5KA surge capability tested with 8/20µs pulse as defined by IEC 61000-4-5
- Square Outline

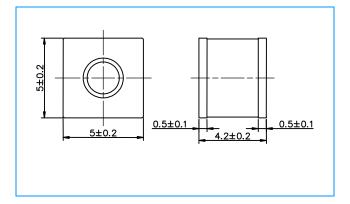


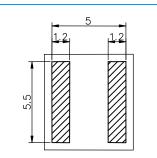


### **Applications**

- 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

### **Device Dimensions (Unit: mm)**





**Recommended pad outline** 

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## **Electrical Characteristics**

Part Number	DC Spark-over Voltage	Maximum I Spark-over		Minimum Insulatio Resistance	Maximum Capacitance	Arc Voltage	Nominal Impulse Discharge Current
	@100V/S	@100V/µs	@1KV/µs		@1MHz	@1A	@8/20µs ±5 times
BWF900N	90V±30%	600V	700V	1 GΩ (at 50V DC)	0.8pF	~15V	5.0KA
BWF151N	150V±20%	600V	750V	1 GΩ (at 50V DC)	0.8pF	~15V	5.0KA
BWF201N	200V±20%	600V	750V	1 GΩ (at 100V DC)	0.8pF	~15V	5.0KA
BWF231N	230V±20%	600V	750V	1 GΩ (at 100V DC)	0.8pF	~15V	5.0KA
BWF301N	300V±20%	800V	900V	1 GΩ (at 100V DC)	0.8pF	~15V	5.0KA
BWF351N	350V±20%	800V	900V	1 GΩ (at 100V DC)	0.8pF	~15V	5.0KA
BWF401N	400V±20%	900V	1000V	1 GΩ (at 100V DC)	0.8pF	~15V	5.0KA
BWF471N	470V±20%	900V	1000V	1 GΩ (at 100V DC)	0.8pF	~15V	5.0KA
BWF601N	600V±20%	1100V	1200V	1 GΩ (at 100V DC)	0.8pF	~15V	5.0KA

## **Electrical Rating**

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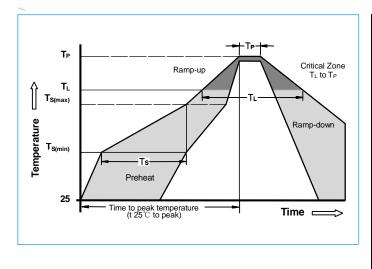
Item	Test Condition / Description		
DC Spark-over Voltage	The voltage is measured with a slowly rate of rise dv / dt=100V/s		
Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with a rise time of dv / dt=100V// $\mu s$ or 1KV/ $\mu s$		
Insulation Resistance	The resistance 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 8/20µs 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 ±40% of the nominal DC spark-over voltage. Dwell time between pulses is 3 minutes. $\begin{array}{c} & & \\ &$	To meet the specified value	

\_ Semiconductor component research and development, producer – Born semiconductor www.born-tw.com



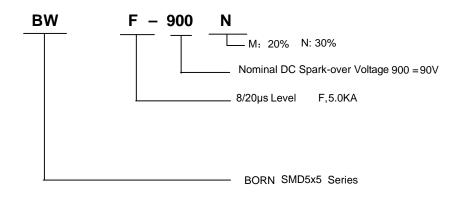
SMD1812

## **Recommended solderingprofile**



Reflow Condition		Pb - Free assembly	
Pre Heat	-Temperature Min(T <sub>s(min)</sub> )	150°C	
	-Temperature Max(Ts(max))	200°C	
	- Time (min to max)(t <sub>s</sub> )	60 -180 Seconds	
Average ramp up rate ( Liquidus Temp T⊾) to peak		3°C/second max	
T <sub>S(max)</sub> to TL - Ramp-upRate		5°C/second max	
Reflow	- Temperature (T⊾)(Liquidus)	217°C	
	- Time (min to max)(t <sub>s</sub> )	60 -150 Seconds	
Peak Temp	perature (T <sub>P</sub> )	260 +0/-5°C	
Time wit Temperatu	thin 5°C of actual peak tre ( $t_p$ )	10 - 30 Seconds	
Ramp-dow	n Rate	6°C/second max	
Time 25°C	to peak Temperature(T <sub>P</sub> )	8 minutes Max	
Do not exc	eed	260°C	

### **Part Numbering**



### **Cautions and warnings**

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- 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 ofburning).
- 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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 2N145B6L
 WPGT-2N230B6L
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 WPGT-2RM350A6L
 WPGT-2RM70A6L

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