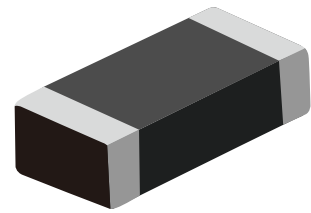


## FEATURES

- | Working Voltage From 5.5V to 385V DC
- | Low Capacitance Design (0.2pF) For Fast Data Transmission
- | Fast Response Time (<0.5ns)
- | Low Leakage Current
- | High Surge Current Ability
- | Suitable For ESD Protection
- | Bidirectional Clamping, High Energy
- | Good Temperature Coefficient



1812

## APPLICATIONS

- | Universal Serial Bus (USB)
- | Mobile Communication
- | Computer/DSP Product
- | Video and Audio Ports
- | Automotive Electronics
- | Armarium

## APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

## GENERAL CHARACTERISTICS DEFINITION

- | Operating Temperature Range :-55°C ~ +125°C
- | Storage Temperature Range :-40°C ~ +125°C

## ELECTRICAL CHARACTERISTICS

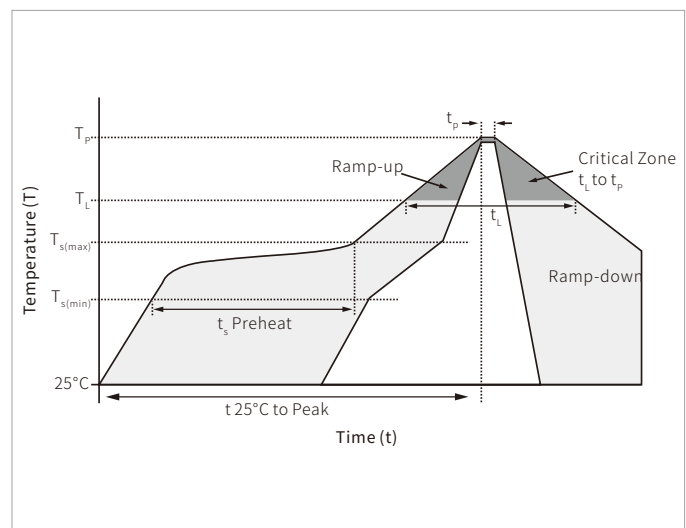
Part Number	Working Voltage		Breakdown Voltage @1mA DC (V)	Peak Current I <sub>pp</sub> (8/20μs) (A)	Clamping Voltage 8/20μs		Surge Voltage (V)
	V <sub>ac</sub> (V)	V <sub>dc</sub> (V)			(A)	(V)	
SMV1812B8.0A/H	4	5.5	8(6.6-9.9)	500/800	1-10	18	1000 & 2000
SMV1812B12A/H	7	9	12(10.2-13.8)	500/800	1-10	24	1000 & 2000
SMV1812B18A/H	11	14	18(15.3-21.7)	500/800	1-10	30	1000 & 2000
SMV1812B20A/H	12	16	22(19.8-24.2)	500/800	1-10	36	1000 & 2000
SMV1812B24A/H	14	18	24(21.6-26.4)	500/800	1-10	38	1000 & 2000
SMV1812B27A/H	17	22	27(24.3-29.7)	500/800	1-10	44	1000 & 2000
SMV1812B30A/H	18	24	30(27.2-33.0)	500/800	1-10	48	1000 & 2000
SMV1812B33A/H	20	26	33(29.7-36.3)	500/800	1-10	54	1000 & 2000
SMV1812B36A/H	22	28	36(32.7-39.6)	500/800	1-10	59	1000 & 2000
SMV1812B39A/H	25	30	39(35.1-42.9)	500/800	1-10	65	1000 & 2000
SMV1812B42A/H	26	33	42(38.1-46.2)	500/800	1-10	72	1000 & 2000
SMV1812B47A/H	30	38	47(42.3-51.7)	500/800	1-10	77	1000 & 2000
SMV1812B56A/H	35	45	56(50.4-61.6)	500/800	1-10	90	1000 & 2000
SMV1812B68A/H	40	56	68(61.2-74.8)	500/800	1-10	100	1000 & 2000
SMV1812B76A/H	45	60	76(69.1-83.6)	500/800	1-10	126	1000 & 2000
SMV1812B82A/H	50	65	82(73.8-90.2)	500/800	1-10	135	1000 & 2000
SMV1812B101A/H	60	85	100(90-110)	500/800	1-10	165	1000 & 2000
SMV1812B121A/H	75	100	120(108-132)	500/800	1-10	200	1000 & 2000
SMV1812B171A	110	140	170(154-187)	500	5-10	300	1000 & 2000
SMV1812B201A	130	170	200(185-225)	500	5-10	340	1000 & 2000
SMV1812B221A	140	180	220(198-242)	500	5-10	360	1000 & 2000
SMV1812B241A	150	200	240(216-264)	500	5-10	395	1000 & 2000
SMV1812B271A	175	225	270(243-297)	500	5-10	455	1000 & 2000
SMV1812B391A	250	320	390(351-429)	500	5-10	650	1000 & 2000
SMV1812B431A	275	350	430(387-473)	500	5-10	710	1000 & 2000
SMV1812B471A	300	385	470(423-517)	500	5-10	775	1000 & 2000
SMV1812B511A	320	415	510(459-561)	400	5-10	845	1000 & 2000
SMV1812B221H	140	180	220(198-242)	800	5-10	360	1000 & 2000
SMV1812B241H	150	200	240(216-264)	1000	5-10	395	1000 & 2000
SMV1812B271H	175	225	270(243-297)	1000	5-10	455	1000 & 2000
SMV1812B391H	250	320	390(351-429)	1000	5-10	650	1000 & 2000
SMV1812B431H	275	350	430(387-473)	1000	5-10	710	1000 & 2000
SMV1812B471H	300	385	470(423-517)	1000	5-10	775	1000 & 2000

## ENVIROMENTAL RELIABILITY TEST

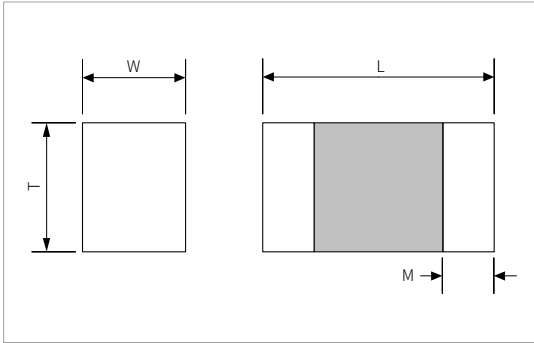
Characteristic	Test method and description			
High Temperature Storage	The specimen shall be subjected to 125°C for 1000 hours in a thermostatic bath without load and then stored at room temperature and humidity for 1 to 2 hours. The change of varistor voltage shall be within 10%			
Temperature Cycle	The temperature cycle of specified temperature shall be repeated five times and then stored at room temperature and humidity for one two hours. The change of varistor voltage shall be within 10%and mechanical damage shall be examined.	Step	Temperature	Period
		1	-40±3°C	30min±3
		2	Room Temperature	1~2hours
		3	125±2°C	30min±3
4	Room Temperature	1~2hours		
High Temperature Load	After being continuously applied the maximum allowable voltage at 85°C for 1000hours, the specimen shall be stored at room temperature and humidity for one or hours, the change of varistor voltage shall be within 10%			
Damp Heat Load/ Humidity Load	The specimen should be subjected to 40°C,90 to 95%RH environment, and the maximum allowable voltage applied for 1000 hours, then stored at room temperature and humidity for one or two hours. The change of varistor voltage shall be within 10%			
Low Temperature Storage	The specimen should be subjected to -40°C, without load for 1000 hours and then stored at room temperature for one two hours. The change of varistor voltage shall be within 10%.			

## SOLDERING RECOMMENDATIONS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	150°C
	Temperature Max ( $T_{s(max)}$ )	200°C
	Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Time (min to max) ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260°C



## DIMENSION SPECIFICATION



Size	L(mm)	W(mm)	T(mm)	M(mm)
1812	4.50±0.40	3.20±0.30	2.50Max.	0.25-1.00

## DRDING INF ORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SMV1812	1812	1000PCS	7"

**Headquarters**

No.3387 Shendu Road  
Pujiang I&E Park  
Minhang Shanghai China  
201000

**Hotline**

400-021-5756

**Web**

<https://www.semiware.com>

**Sales Center**

Tel: 86-21-3463-7458  
Email: [sales18@semiware.com](mailto:sales18@semiware.com)

**Customer Service**

Tel: 86-21-5484-1001  
Email: [sales17@semiware.com](mailto:sales17@semiware.com)

**Technical Support**

Tel: 86-21-3463-7654  
Email: [fae01@semiware.com](mailto:fae01@semiware.com)

**Complaint & Suggestions**

Tel: 86-21-3463-7172  
Ext: 8868  
Email: [cs03@semiware.com](mailto:cs03@semiware.com)

**By QR Code**

Website



Wechat

To find your local partner within Semiware's global website: [www.semiware.com](http://www.semiware.com)

© 2022 Semiware Semiconductor Inc.

The content of this document has been carefully checked and understood. However, neither Semiware nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Semiware does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Chinese law and resulting disputes shall be settled by the courts at the place of business of Semiware. Latest publications and a complete disclaimer can be downloaded from the Semiware website. All trademarks recognized.