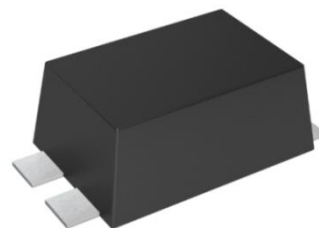


**Transient Voltage Suppressor**
**Features**

- IEC 61000-4-2(ESD) ± 15KV(air), ± 8KV(contact)
- Small size: SMB-T
- Surge rating 1KA@8/20us
- Bi-directional
- Moisture sensitivity level: Level 1

**Exterior**

**Application Information**

- DC12V

**Agency Approvals**

Icon	Description
<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

**Part Number and Electrical Parameter**

Part Number	I <sub>DRM</sub> @V <sub>DRM</sub>		V <sub>BR</sub> <sup>①</sup> @I <sub>R</sub>		V <sub>c</sub> @I <sub>pp</sub> <sup>②</sup>		I <sub>pp</sub> <sup>③</sup>	Co <sup>④</sup>
	μA	V	V	mA	V	A	A	PF
	MAX		MIN		MAX		MIN	MAX
BV-SMBT-20CA	1	20	22.2	1	24.5	1	1000	2500

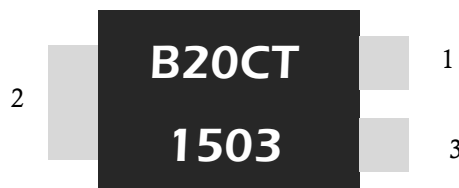
Absolute maximum ratings measured at T= 25°C RH = 45%-75% (unless otherwise noted).

- ① V<sub>BR</sub> is measured at I<sub>R</sub>=1Ma (PIN1or3 to 2)
- ② Surge Waveform: 10/1000μS (PIN1and3 to 2)
- ③ Surge Waveform: 8/20μS (PIN1and3 to 2)
- ④ Off-state capacitance is measured in V<sub>DC</sub>=0V, V<sub>RMS</sub>=1V, f=1MHz (PIN1and3 to 2)

**Part Numbering System**

BV    SMBT    20    C    A  
 (1)    (2)    (3)    (4)    (5)

- (1) Bencent TVS
- (2) Package: SMB-T
- (3) VDRM=20V
- (4) Bidirectional polar
- (5) Suffix 'A' denotes 5% tolerance devices

**Mark**


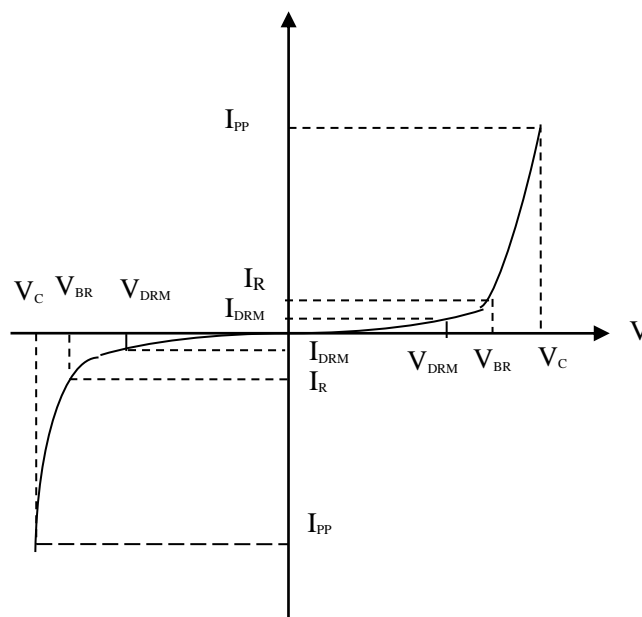
B20CT: Part Number  
 1503: March, 2015

**Transient Voltage Suppressor**

Version: A3 2021-03-12

**V-I Curve**

Parameters	Definition
$V_C$	Clamping voltage
$I_{PP}$	Surge waveform 10/1000 $\mu$ s
$V_{DRM}$	Stand-off Voltage
$V_{BR}$	Breakdown Voltage
$I_{DRM}$	Reverse Leakage Current
$I_R$	Test current
$P_{pp}$	Peak Pulse Power Dissipation


**Thermal Considerations**

symbol	Parameter	Value	Unit
$T_J$	Operating Junction Temperature Range	-55 to +150	$^{\circ}$ C
$T_S$	Storage Temperature Range	-55 to +150	$^{\circ}$ C

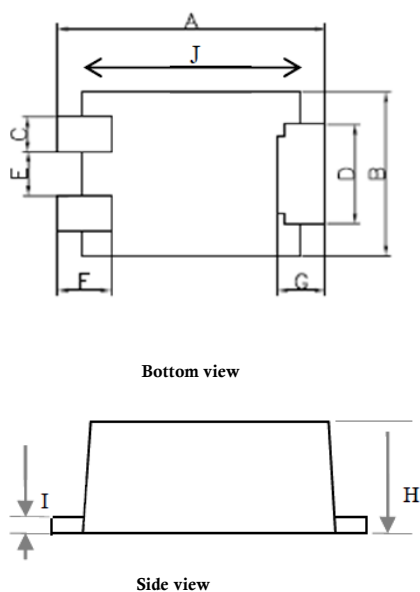
**Environmental Characteristics**

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: $150 \pm 3^{\circ}$ C, Bias=80% $V_{DRM}$ Time: 168H
High Temperature Life Test	Temperature: $150^{\circ}$ C Time: 168H
High-low Temperature Cycle Test	Temperature: From $-40^{\circ}$ C to $125^{\circ}$ C Dwell time: 30min, 10-100 cycles
High Temperature & High Humidity Test	Temperature: $85^{\circ}$ C Humidity: 85% Test time: 168H
Pressure Cooker Test	Temperature: $121^{\circ}$ C, 2atm. Humidity: 100% Test time: 24H to 168H
Resistance of Soldering Heat	Temperature: $260 \pm 5^{\circ}$ C Time of dip soldering: 10s, 3times

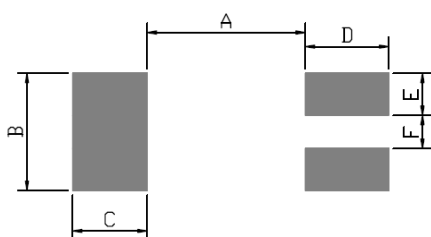
Note: The above testing items can be specified by customers by contacting Bencent service

**Transient Voltage Suppressor**

Version: A3 2021-03-12

**Product Dimensions**


REF	mm	inch
A	5.4±0.15	0.213±0.006
B	3.3±0.3	0.130±0.012
C	0.7±0.03	0.028±0.001
D	2.0±0.2	0.079±0.008
E	0.9±0.2	0.035±0.008
F	0.9±0.3	0.035±0.012
G	0.9±0.3	0.035±0.012
H	2±0.3	0.079±0.012
I	0.25±0.05	0.010±0.002
J	4.4±0.2	0.173±0.008

**Recommended Soldering Pad**


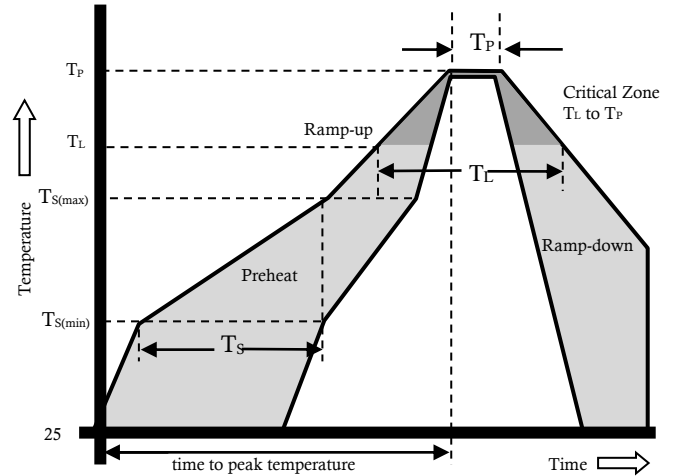
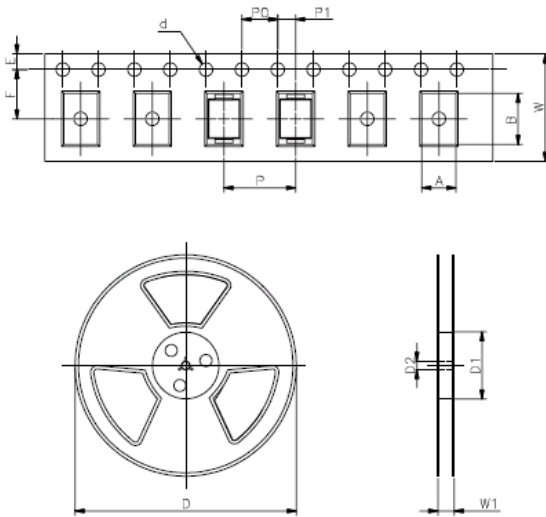
REF	mm	inch
A	3.35	0.132
B	2.3	0.091
C	1.2	0.047
D	1.15	0.045
E	1	0.039
F	0.6	0.024

**Transient Voltage Suppressor**

Version: A3 2021-03-12

**Reflow Profile**

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time (Min to Max)	60 – 180 secs.
Average ramp up rate (Liquidus Temp (T <sub>L</sub> ) to peak)		3°C/sec. Max.
Ts(max) to T <sub>L</sub> - Ramp-up Rate		3°C/sec. Max.
Reflow	- Temperature (T <sub>L</sub> ) (Liquidus)	+217°C
	- Temperature (T <sub>L</sub> )	60 – 150 secs.
Peak Temp (T <sub>P</sub> )		+(260+0/-5)°C
Time within 5°C of actual Peak Temp (T <sub>P</sub> )		20 – 40 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp (T <sub>P</sub> )		8 min. Max.
Do not exceed		+260°C


**Package Reel Information**


REF	mm	inch
A	3.65+/-0.3	0.144+/-0.012
B	5.69+/-0.1	0.244+/-0.004
d	1.5+/-0.1	0.059+/-0.004
D	type330.0	type13.0
D1	100+/-3	3.937+/-0.118
D2	13+/-0.3	0.512+/-0.012
E	1.5+/-0.2	0.059+/-0.008
F	5.65+/-0.2	0.222+/-0.008
P	8.0+/-0.2	0.315+/-0.008
P0	4.0+/-0.2	0.157+/-0.008
P1	2.0+/-0.2	0.079+/-0.008
W	12.0+/-0.2	0.472+/-0.008
W1	16.8+/-2.0	0.661+/-0.079

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3,000	48,000	330	360	360	385

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