

## Transient Voltage Suppressor

### Features

- IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air),  $\pm 30\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 7A (8/20 $\mu$  S)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 70 Watts peak pulse power (tp=8/20 $\mu$  S)
- Low clamping voltage
- Weight approx. 0.5 mg
- Small package: DFN1006
- Moisture sensitivity level: Level 1

### Exterior



DFN1006


### Application information

- 1.8v power, Signal port
- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Peripherals, Pagers

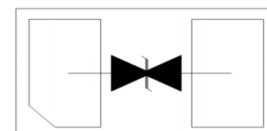
### Package (top view)



### Agency Approvals

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

### Schematic



### Part Number and Electrical Parameter

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{BR}}^{\text{①}}@I_{\text{R}}$		$V_{\text{c}}@I_{\text{pp}}^{\text{②}}$		$V_{\text{c}}@I_{\text{pp}}^{\text{②}}$		$C_{\text{o}}^{\text{③}}$
	$\mu\text{A}$	V	V	mA	V	A	V	A	pF
	MAX		MIN		MAX		MAX		TYP
BV-FA03ZCB	1	3.3	3.5	1	6	1	10	7	12

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

①  $V_{\text{BR}}$  is measured at  $I_{\text{R}}=1\text{mA}$

② Surge Waveform: 8/20 $\mu$  S.

③ Off-state capacitance is measured in  $V_{\text{DC}}=0\text{V}, V_{\text{RMS}}=0.3\text{V}, f=1\text{MHz}$

## Transient Voltage Suppressor

Part Numbering System

Mark

BV FA 03 Z C B  
(1) (2) (3) (4) (5) (6)

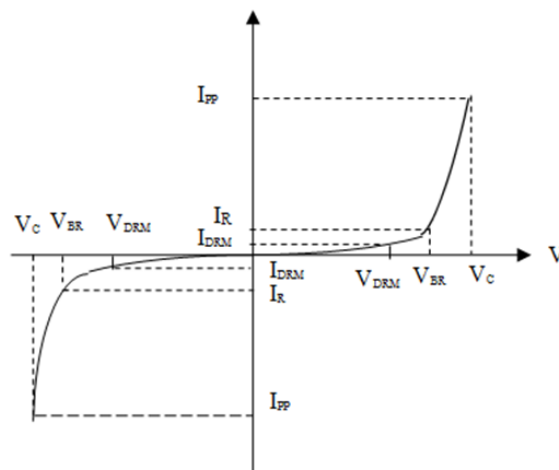
- (1) Bencent Transient Voltage Suppressor
- (2) Package: DFN1006
- (3) Off-state Voltage: 3.3V
- (4) Normal Capacitance
- (5) Bidirectional
- (6) Bencent internal code



T: Part Number

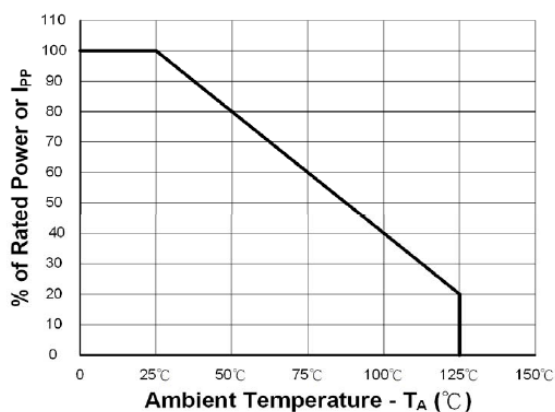
### V-I Curve

Parameters	Definition
VC	Clamping voltage
Ipp	Surge waveform 8/20μ s
VDRM	Stand-off Voltage
VBR	Breakdown Voltage
IDRM	Reverse Leakage Current
IR	Test current
PPP	Peak Pulse Power Dissipation

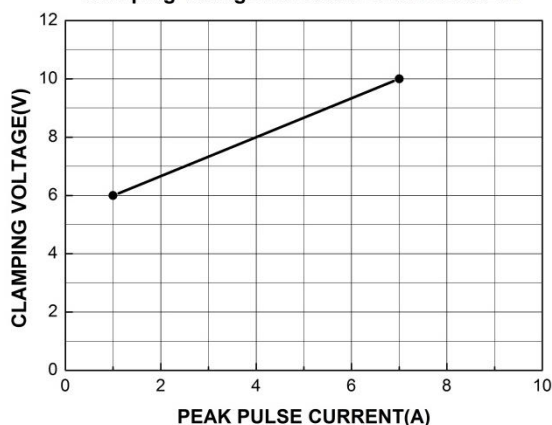


### Typical Characteristics

Power Derating



Clamping Voltage Vs. Peak PULSE CURRENT



### Thermal Considerations

symbol	Parameter	Value	Unit
T <sub>J</sub>	Operating Junction Temperature Range	-40 to +125	°C
T <sub>S</sub>	Storage Temperature Range	-55 to +150	°C

**Transient Voltage Suppressor**

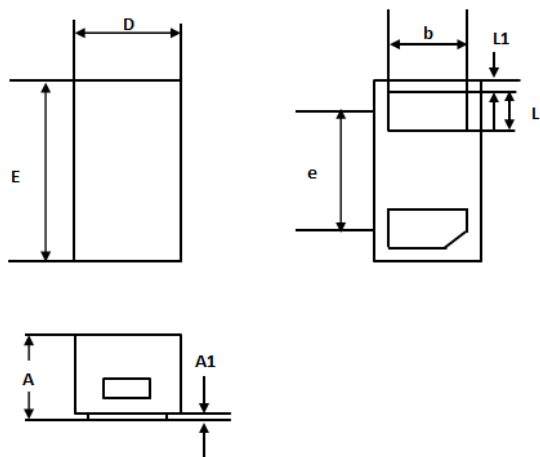
Version: A2 2019-04-24

Environmental Characteristics

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

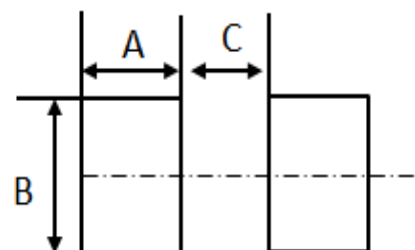
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	0.45~0.55	0.018~0.022
A1	0.00~0.05	0.000~0.002
D	0.55~0.65	0.022~0.026
E	0.95~1.05	0.037~0.041
b	0.40~0.60	0.016~0.024
e	0.65BSC	0.026BSC
L	0.15~0.35	0.006~0.014
L1	0.05REF	0.002REF

Recommended Soldering Pad

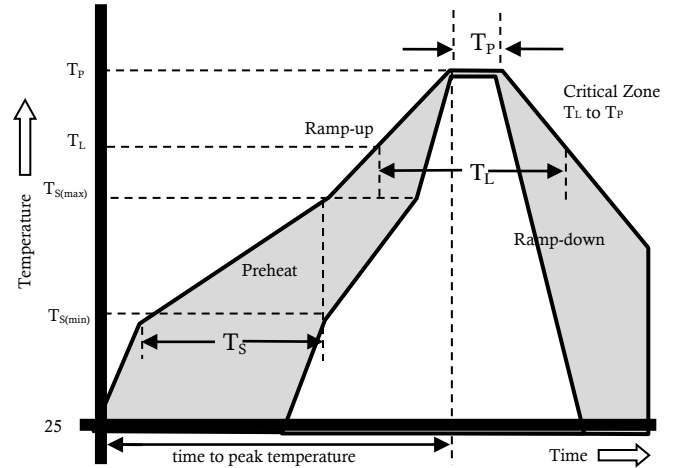


REF	mm	inch
A	0.35	0.014
B	0.60	0.024
C	0.35	0.014

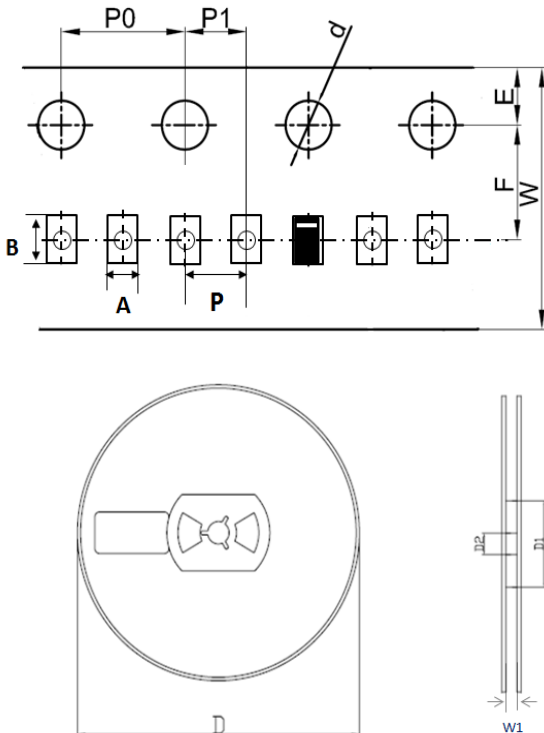
**Transient Voltage Suppressor**

**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 (Liquid) T <sub>amp</sub> (T <sub>L</sub> ) to peak		3°C/s max
T <sub>S</sub> (max) to T <sub>L</sub> - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T <sub>L</sub> ) (Liquid)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 secs
Peak Temperature (T <sub>P</sub> )		260±0/-5 °C
Time within 5°C of actual peak Temperature (T <sub>P</sub> )		30secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T <sub>P</sub> )		8 mins max.
Do not exceed		260°C



**Package Reel Information**



REF	mm	inch
A	0.70+/-0.05	0.028+/-0.002
B	1.15+/-0.05	0.045+/-0.002
d	1.50+0.1/-0	0.059+0.004/-0
D	178.00+/-2.00	7.008+/-0.079
D1	55.00+/-3.00	2.165+/-0.118
D2	13.00+/-0.50	0.512+/-0.020
E	1.75+/-0.10	0.069+/-0.004
F	3.50+/-0.20	0.138+/-0.008
P	2.00+/-0.20	0.079+/-0.008
P0	4.00+/-0.20	0.157+/-0.008
P1	2.00+/-0.20	0.079+/-0.008
W	8.00+/-0.20	0.315+/-0.008
W1	9.50+/-1.00	0.374+/-0.039

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	10,000	300,000	178	390	370	220

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