

Transient Voltage Suppressor

Version: A3 2023-07-25

Features

- IEC 61000-4-2(ESD)±15KV(air), ±8KV(contact)
- IEC61000-4-5(Lightning) 6A (8/20μS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 70Watts peak pulse power (tp=8/20μS)
- V_{SB} min value 4V
- Low clamping voltage
- Weight approx. 0.5 mg
- Small package: DFN1006
- Moisture sensitivity level: Level 1

Exterior



DFN1006

Application information

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Portable Instrumentation
- Digital Cameras
- MP3/MP4/PMP Players

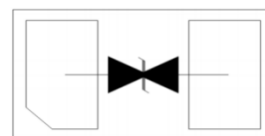
Package (top view)



Agency Approvals

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

Schematic



Part Number and Electrical Parameter

Part Number	$I_{DRM}@V_{DRM}$		$V_{BR}^{①}@I_R$		$V_C@I_{pp}^{②}$			$V_C@I_{pp}^{②}$			$R_{DYN}@TLP^{③}$	$V_C@I_{pp}TLP^{③}$		$Co^{④}$
	μA	V	V	mA	V	V	A		V	A	Ω	V	A	pF
	MAX		MIN		TYP	MAX		TYP	MAX		TYP	TYP		MAX
BV-FA03ZCD	1	3.3	4	1	6	7.6	1	8	15	6	0.28	9.1	16	15

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

① V_{BR} is measured at $I_R=1mA$

② Surge Waveform: 8/20μS.

③ TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 1ns$, R_{DYN} is calculated from 4A to 16A

④ Off-state capacitance is measured in $V_{DC}=0V, V_{RMS}=0.3V, f=1MHz$

Transient Voltage Suppressor

Part Numbering System

Mark

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

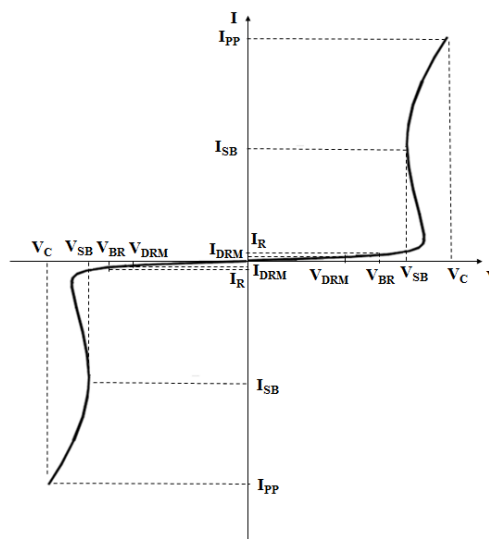
- (1) Bencent Transient Voltage Suppressor
- (2) Package:DFN1006
- (3) Off-state Voltage: 3.3V
- (4) Normal Capacitance
- (5) Bidirectional
- (6) Bencent internal code

3X

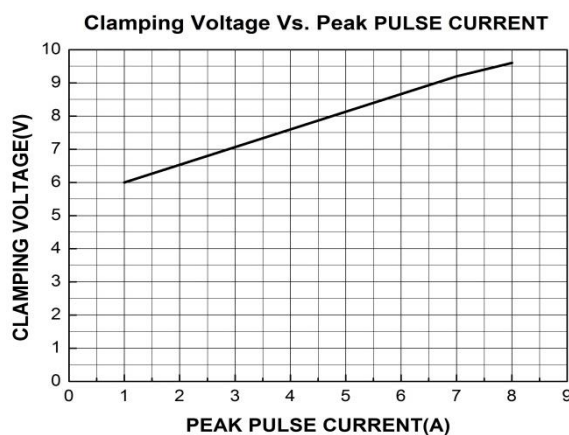
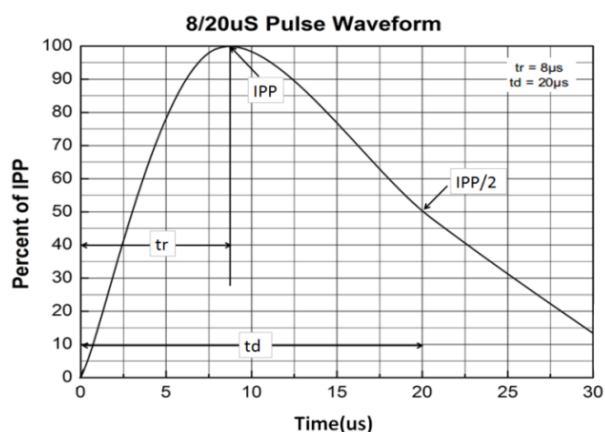
3X: Part Number

V-I Curve

Parameters	Definition
V_C	Clamping voltage
I_{PP}	Surge waveform 8/20us
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
V_{SB}	Snapback voltage
I_{SB}	Test current
P_{pp}	Peak Pulse Power Dissipation



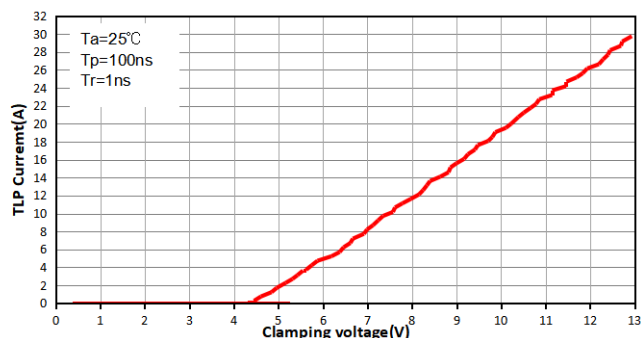
Typical Characteristics



Transient Voltage Suppressor

Version: A3 2023-07-25

TLP IV curve



Thermal Considerations

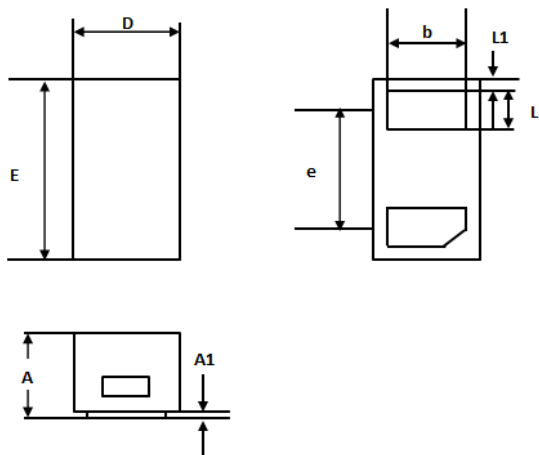
symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +125	$^\circ\text{C}$
T_S	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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°C Time:168H
High-low Temperature Cycle test	Temperature: From -40°C to 125°C Dwell time : 30min,10~100cycles
High Temperature &High Humidity Test	Temperature: 85°C Humidity:85% Time:168H
Pressure cooker Test	Temperature: 121°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

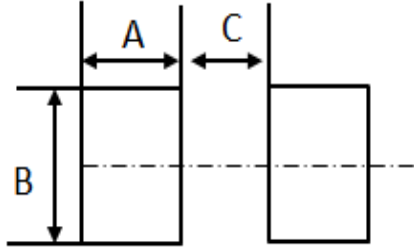


REF	mm	inch
A	0.35~0.55	0.014~0.022
A1	0.00~0.05	0.000~0.002
D	0.55~0.65	0.022~0.026
E	0.95~1.05	0.037~0.041
b	0.25~0.60	0.010~0.024
e	0.65BSC	0.026BSC
L	0.15~0.35	0.006~0.014
L1	0.05REF	0.002REF

Transient Voltage Suppressor

Version: A3 2023-07-25

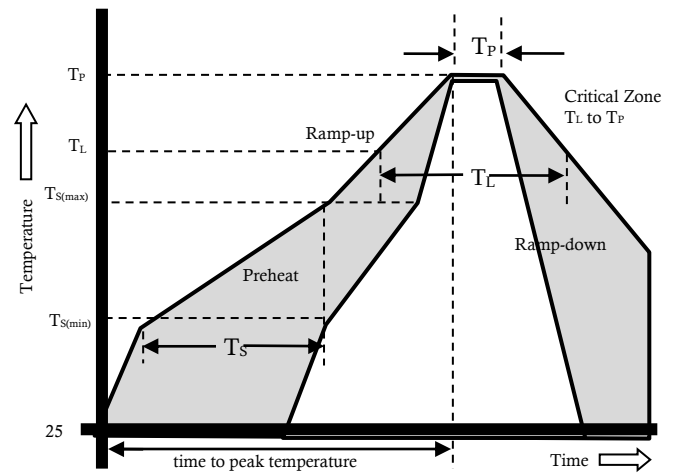
Recommended Soldering Pad



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

Reflow Profile

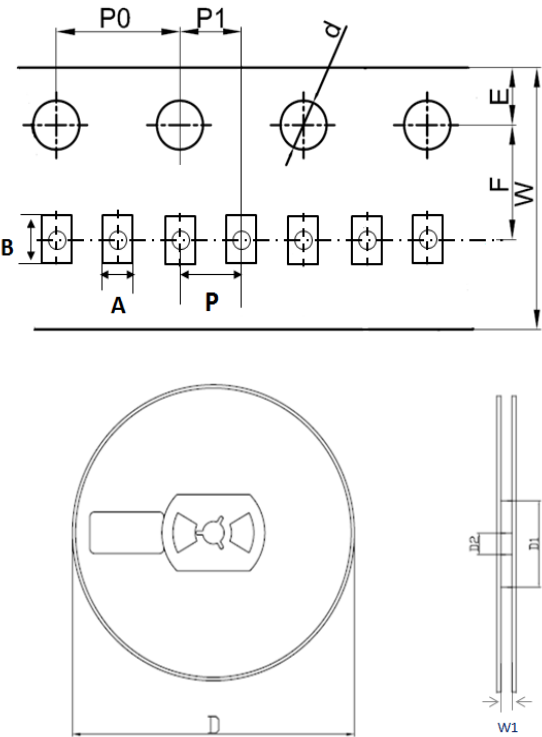
Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (min to max)	60 – 180 secs
Average ramp up rate (Liquid) T _{amp} (T _L) to peak		3°C/s max
T _S (max) to T _L - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 150 secs
Peak Temperature (T _P)		260±0/-5 °C
Time within 5°C of actual peak Temperature (T _P)		30secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T _P)		8 mins max.
Do not exceed		260°C



Transient Voltage Suppressor

Version: A3 2023-07-25

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