

Transient Voltage Suppressor

Version: A1 2019-04-23

Features

- IEC 61000-4-2(ESD)±30KV(air), ±30KV(contact)
- IEC61000-4-5(Lightning) 3A (8/20μ S)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 100 Watts peak pulse power (tp=8/20μ S)
- Low clamping voltage
- Weight approx. 0.5 mg
- Small package: DFN1006
- Moisture sensitivity level: Level 1

Exterior



DFN1006

Application information

- Signal port
- USB 2.0, 10/100 Ethernet, Firewire, DVI
- Mobile communication
- Consumer products (STD, MP3, DVD, DSC...)
- LCD display, camera
- Notebooks and desktop computers, peripherals

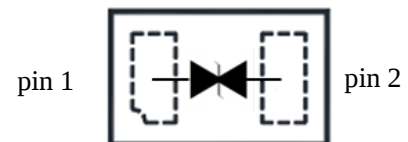
Package (top view)



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	Direction	$I_{DRM}@V_{DRM}$		$V_{BR}^{①}@I_R$			$V_C@I_{pp}^{②}$		$Co^{③}$
		μA	V	V		mA	V	A	pF
		MAX		MIN	MAX		TYP		MAX
BV-FA814ZCB	pin1 to pin2	1	8	8.5	14	1	24	3	13
	pin2 to pin1	1	14	14.5	20	1	25.5	3	

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

① V_{BR} is measured at $I_{BR}=1mA$

② Surge Waveform: 8/20μ S.

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

Part Numbering System

BV FA 814 Z C B
 (1) (2) (3) (4) (5) (6)

(1) Bencent Transient Voltage Suppressor

(2) Package:DFN1006

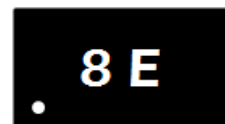
(3) Off-state Voltage: 8V 14V

(4) Normal Capacitance

(5) Bidirectional

(6) Bencent intenal code

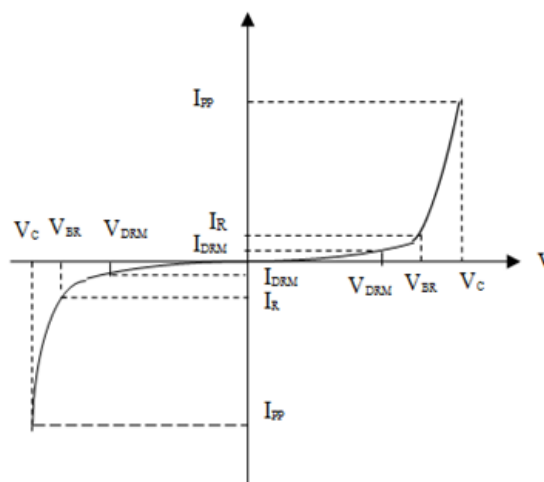
Mark



8E: Part Number

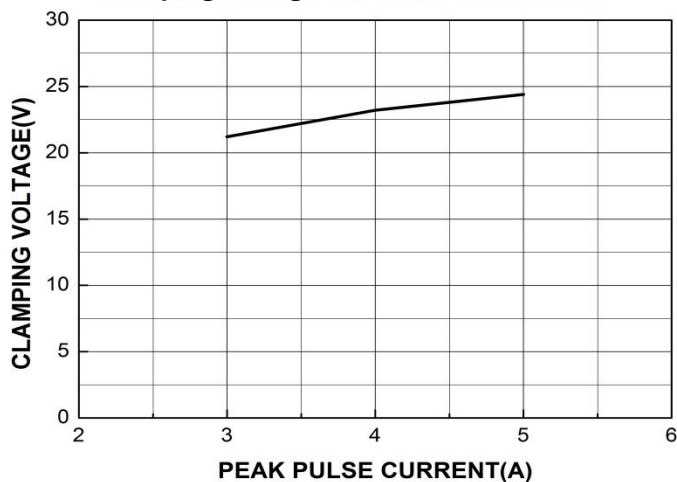
V-I Curve

Parameters	Definition
V_C	Clamping voltage
I_{PP}	Surge waveform 8/20 μ 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



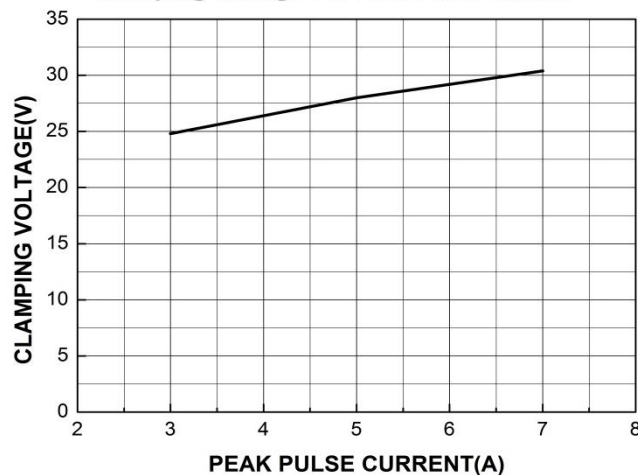
Typical Characteristics

Clamping Voltage Vs. Peak Pulse Current



pin1 to pin2

Clamping Voltage Vs. Peak Pulse Current



Pin2 to pin1

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Thermal Considerations

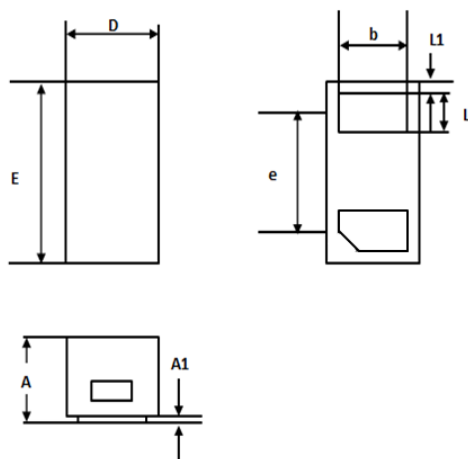
symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +125	°C
T_S	Storage Temperature Range	-55 to +150	°C

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

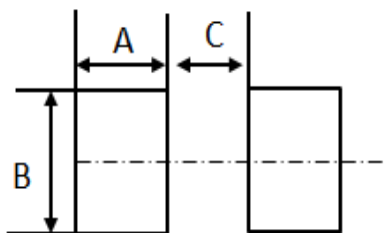
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	0.45~0.55	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



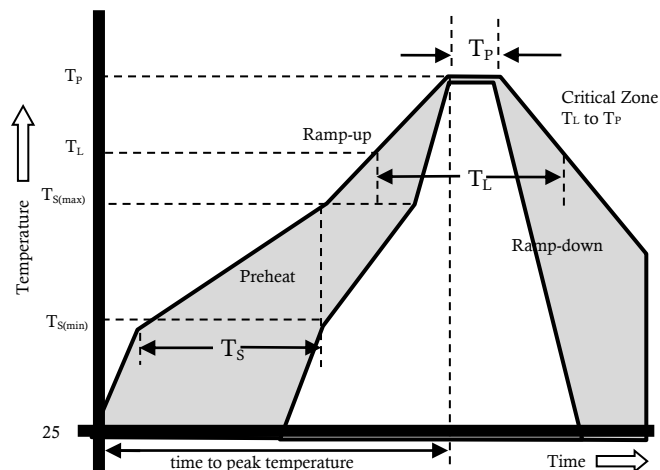
REF	mm	inch
A	0.35	0.014
B	0.60	0.024
C	0.35	0.014

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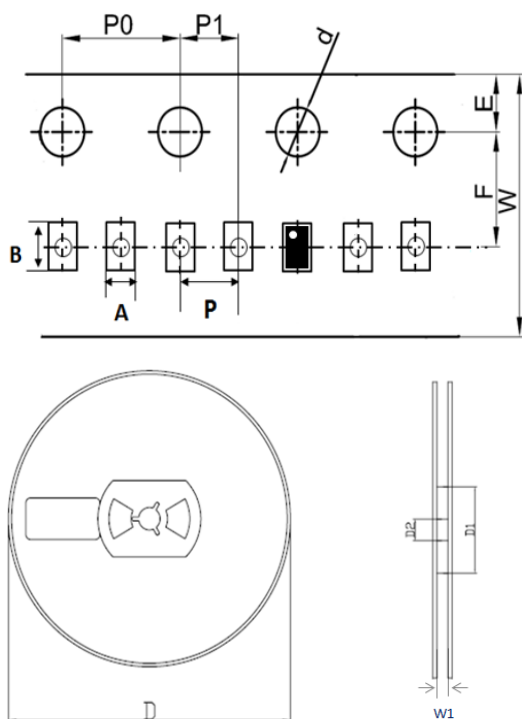
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Reflow Profile

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)		3°C/s max
Tamp (T _L) to peal		
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



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