Transient Voltage Suppressor

Version: A0 2023-2-1

Features

- IEC 61000-4-2(ESD)±30KV(air), ±30KV(contact)
- IEC61000-4-5(Lightning) 10A (8/20μS)
- 240Watts peak pulse power (tp=8/20μS)
- Low clamping voltage
- Moisture sensitivity level：Level 1
- Small package: DFN1006-2L

Exterior

DFN1006-2L

Application information

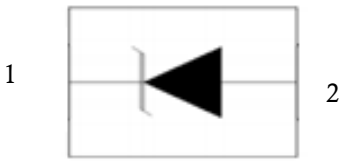
- DC power port

Package (top view)

Agency Approvals

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

Schematic



Part Number and Electrical Parameter

Part Number	I_{DRM}@V_{DRM}①		V_{BR}@I_R①		Vc@Ipp ②		Vc@Ipp ②		R_{DYN}@ TLP③	V_C@Ipp TLP③		C_O④
	μA	V	V	mA	V	A	V	A	Ω	V	A	pF
	MAX		MIN		MAX		MAX		TYP	TYP		MAX
BV-FA12ZB	1.0	12	13.5	1	19	5	24	10	0.17	17.7	16	60

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

① VBR is measured at IR=1mA，pin1 to pin2

② Surge Waveform: 8/20μS，pin1 to pin2

③ TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 1ns, RDYN is calculated from 4A to16A

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

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Part Numbering System

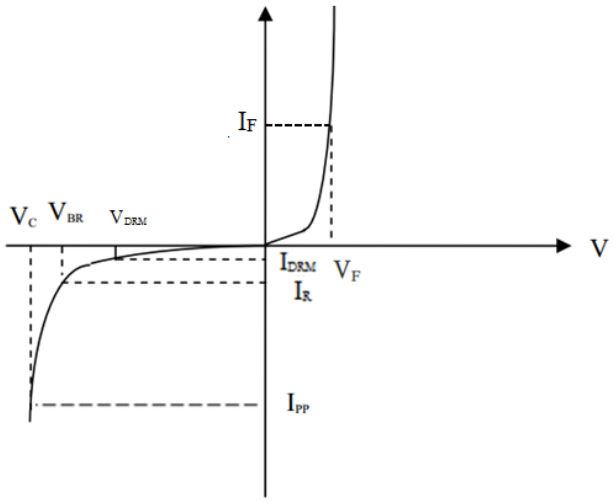
BV	FA	12	Z	B
(1)	(2)	(3)	(4)	(5)

(1) Bencent Transient Voltage Suppressor
(2) Package:DFN1006
(3) Off-state Voltage: 12V
(4) Normal Capacitance
(5) Bencent intenal code

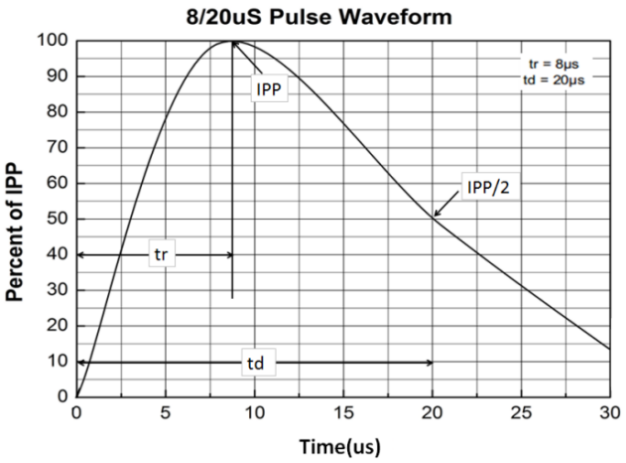
Mark

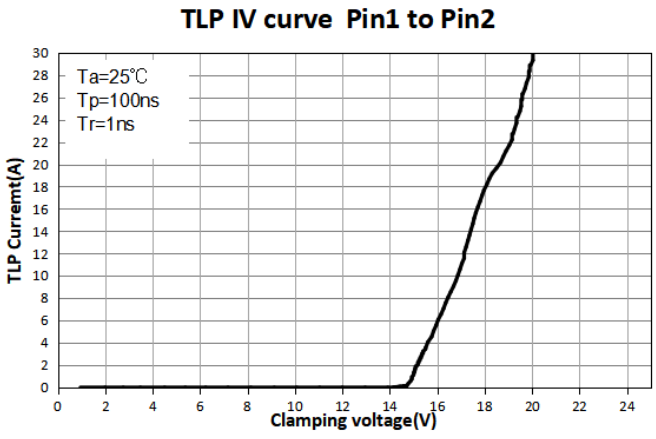
V-I Curve

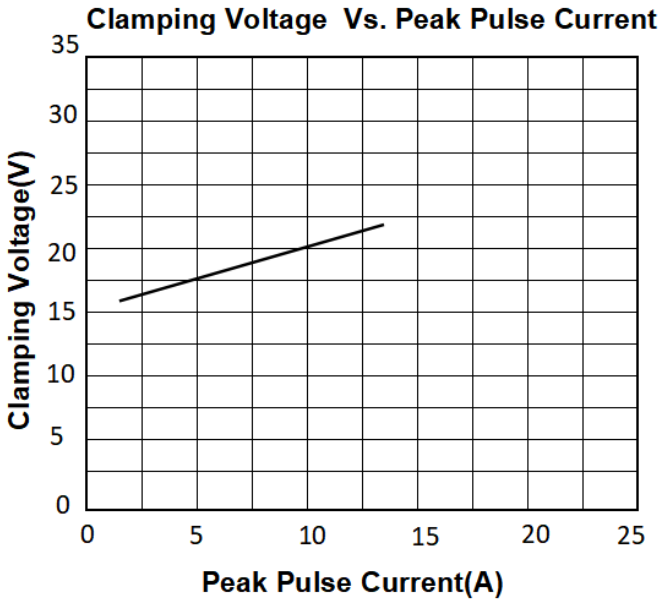
Parameters	Definition
V_C	Clamping voltage
Ipp	Surge waveform 8/20μs
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
P_{PP}	Peak Pulse Power Dissipation
V_F	Forward on-state voltage
I_F	Forward current



Typical Characteristics







Thermal Considerations

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

Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: 125±3℃ Bias=80%V_{DRM} Time:168H
High Temperature Life Test	Temperature: 150℃ Time:168H
High-low Temperature Cycle test	Temperature: From -40℃ to125℃ Dwell time ： 30min,10~100cycles
High Temperature &High Humidity Test	Temperature: 85℃Humidity:85% Time:168H
Pressure cooker Test	Temperature: 121℃，2atm. Humidity:100% Time:24H
Resistance of soldering heat	Temperature: 260±5℃ Time of dip soldering：10s，3times

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

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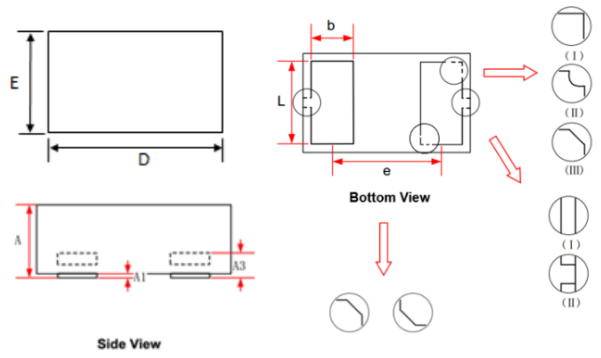
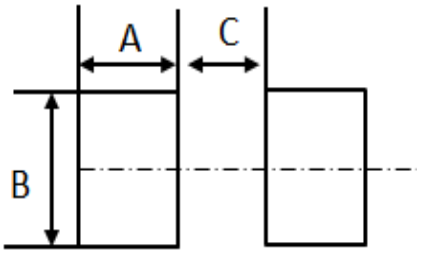
Product Dimensions



REF	mm	inch
A	0.35~0.55	0.014~0.022
A1	0.00~0.05	0.000~0.002
A3	0.125REF	0.005REF
D	0.95~1.10	0.037~0.043
E	0.55~0.70	0.022~0.028
L	0.45~0.55	0.018~0.022
e	0.65BSC	0.026BSC
b	0.15~0.35	0.006~0.014

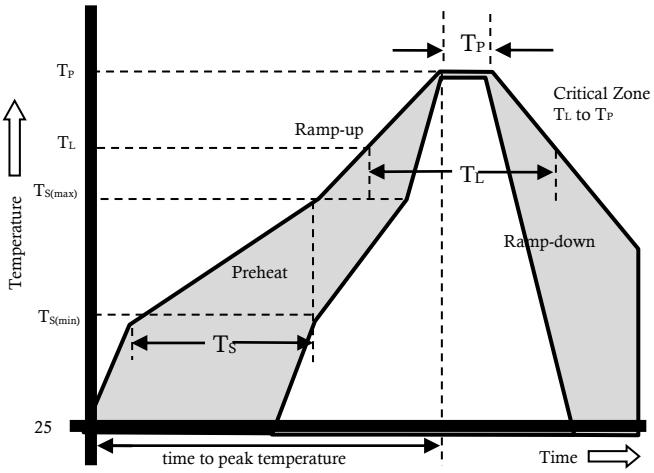
Recommended Soldering Pad



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） Tamp（T_L） to peal		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



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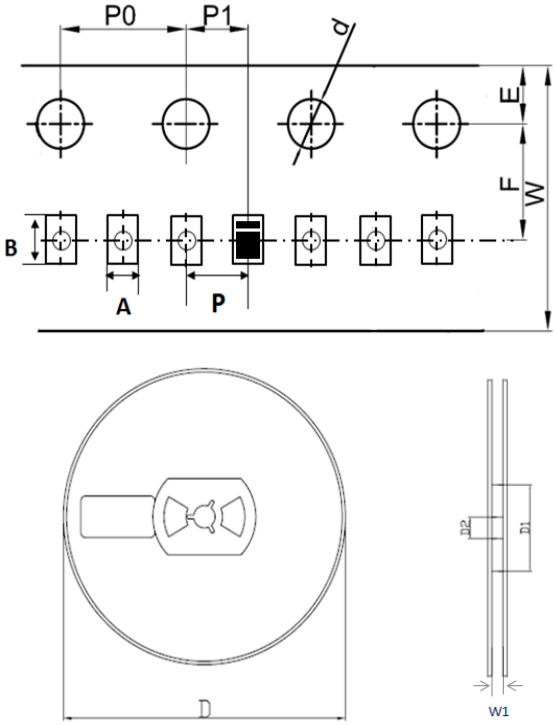
Package Reel Information



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	380	220	205