Transient Voltage Suppressor

Version: A1 2024-8-14

Features

- IEC 61000-4-2(ESD)±30KV(air), ±30KV(contact)
- IEC61000-4-5(Lightning) 8A (8/20uS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 96Watts peak pulse power (tp=8/20μS)
- Low clamping voltage
- Weight approx. 1.0 mg
- Moisture sensitivity level：Level 1
- V_{SB} min value 5.3V
- Small package: DFN1006-3L

Exterior

DFN1006-3L

Application information

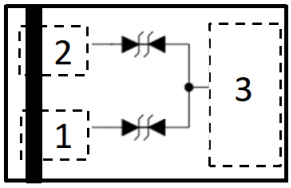
- Smart Phone and Tablet PC
- TV and Set Top Box
- Wearable Devices
- PDA

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}		V_{BR}①@I_R		Vc@Ipp②		Vc@Ipp②	
	μA	V	V	mA	V	A	V	A
	MAX		MIN		MAX		MAX	
	0.5	5	5.3	1	9	1	12.0	8
BV-FA05Z2CT	C_O③		R_{DYN}@TLP④		Vc@Ipp TLP④		ESD Contact mode⑤	
	pF		Ω		V	A	V	kV
	TYP	MAX	TYP		TYP		TYP	
	15	18	0.18		9.5	16	8.8	6

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 Off-state capacitance is measured in VDC=0V,VRMS=0.3V,f=1MHz

④ TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 1ns, RDYN is calculated from 4A to 16A.

⑤ Contact discharge mode, according to IEC61000-4-2

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Part Numbering System

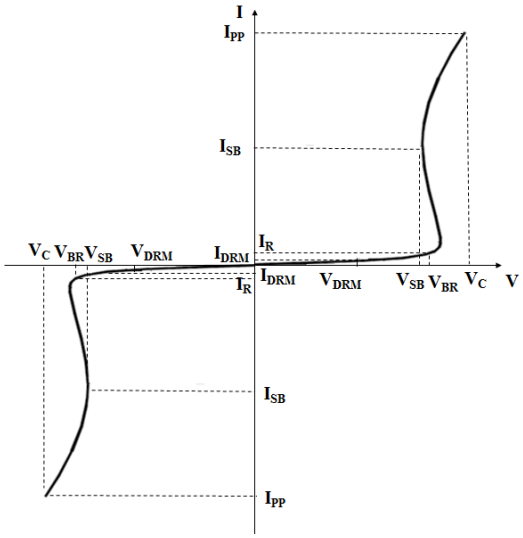
BV	FA	05	Z	2	C	T
(1)	(2)	(3)	(4)	(5)	(5)	(7)

(1) Bencent Transient Voltage Suppressor
(2) Package: DFN1006-3L
(3) Working Voltage:5.0V
(4) Normal Capacitance
(5) 2 Lines Protection
(6) Bi-directional
(7) Bencent intenal code

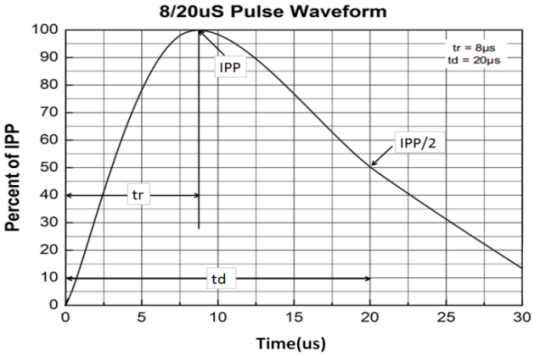
Mark

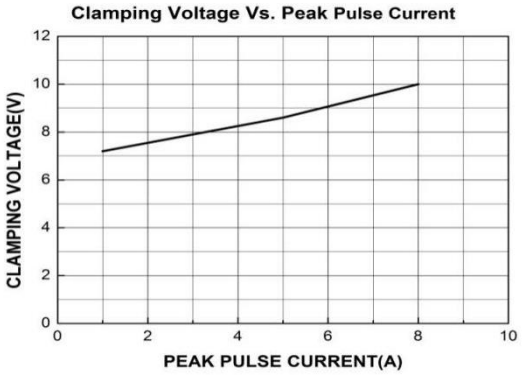
V-I Curve

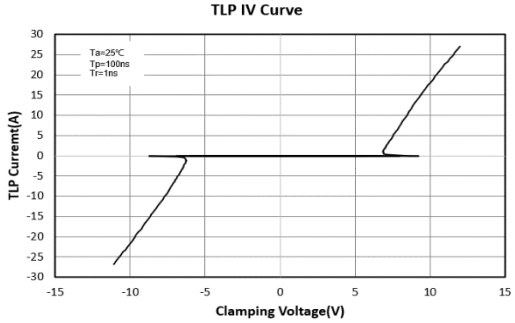
Parameters	Definition
V_C	Clamping voltage
I_{pp}	Surge waveform 8/20us
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
V_{SB}	Snapback voltage
I_{SB}	Test current
Ppp	Peak Pulse Power Dissipation



Typical Characteristics







Thermal Considerations

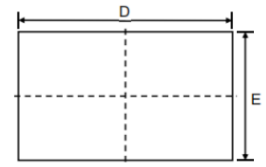
symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +125	℃
T_S	Storage Temperature Range	-55 to +150	℃

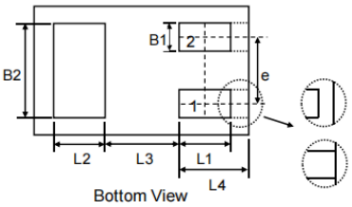
Environmental Characteristics

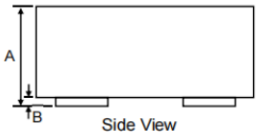
Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: 125±3℃ Bias=80%V_{DRM} Time:168H
High Temperature Life Test	Temperature: 150℃ Time:168H
High-low Temperature Cycle test	Temperature: From -55℃ to125℃ Dwell time ： 30min,10~100cycles
High Temperature &High Humidity Test	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

Product Dimensions

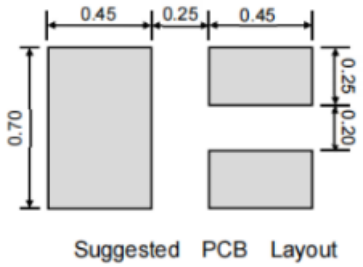






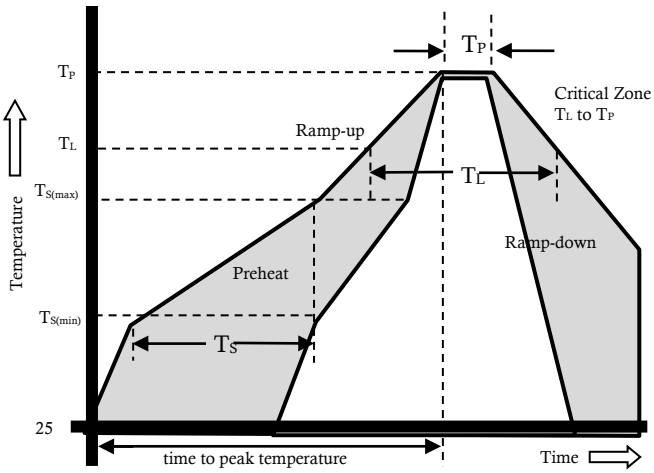
REF	mm	inch
A	0.40~0.55	0.013~0.022
B	0.00-0.05	0.000-0.002
B1	0.10-0.20	0.004-0.008
B2	0.45-0.55	0.018-0.22
D	0.90~1.10	0.035~0.043
E	0.50~0.70	0.020~0.028
e	0.35	0.014
L1	0.20-0.30	0.008-0.012
L2	0.20-0.30	0.008-0.012
L3	0.39	0.015
L4	0.25-0.35	0.01-0.014

Recommended Soldering Pad



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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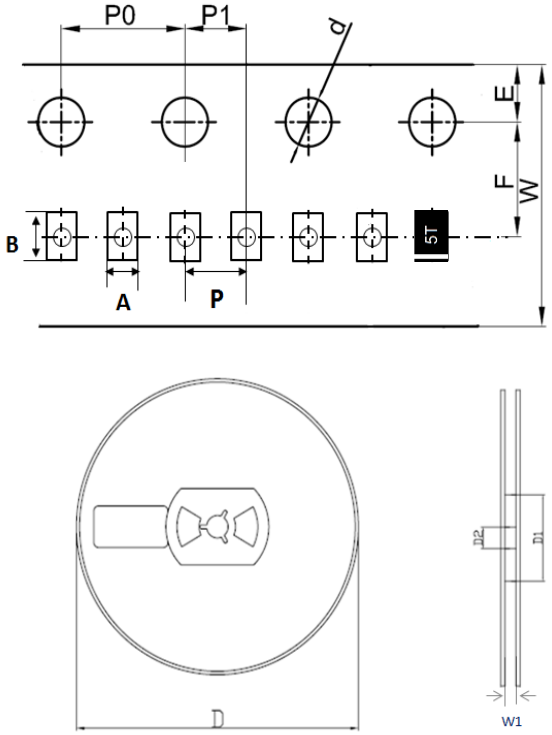
Package Reel Information



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