Transient Voltage Suppressor

Version: A3 2022-8-31

Features

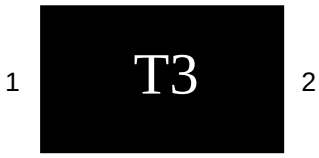
- IEC 61000-4-2 (ESD)±20KV(air),±18KV (contact)
- IEC61000-4-4(EFT):40A (5/50ns)
- IEC61000-4-5(surge)：6A（8/20us）
- 42Watts peak pulse power (tp=8/20μs)
- Low capacitance: 0.25pF (Typical)
- Small package:DFN1006-2L
- Moisture sensitivity level:Level 1

Exterior

Application Information

- USB 2.0, USB 3.0, USB 3.1
- 1G/2.5G/5G/10G Ethernet
- SATA and eSATA interface
- Portable Electronics and Notebooks

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(top view)

Part Number and Electrical Parameter

Part Number	I_{DRM}@V_{DRM}		V_{BR}①@I_R		V_H@I_H①		Vc@Ipp②		R_{DYN}@ TLP③	V_C@Ipp TLP③		C_O④	
	μA	V	V	mA	V	mA	V	A	Ω	V	A	pF	
	MAX		MIN		MIN		TYP		TYP	TYP		TYP	MAX
BV-FA03UCE	0.1	3.3	5	1	2	50	7	6	0.33	9.5	16	0.25	0.35

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

① V_{BR} is measured at I_R=1mA, V_H is measured at I_H=50mA

② Surge Waveform: 8/20μS

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

Transient Voltage Suppressor

Part Numbering System

BV	FA	03	U	C	E
(1)	(2)	(3)	(4)	(5)	(6)

(1) Bencent Transient Voltage Suppressor
(2) Package: DFN1006-2L
(3) Off-state Voltage: 3.3V
(4) Low Capacitance
(5) Bi-directional
(6) Bencent internal code

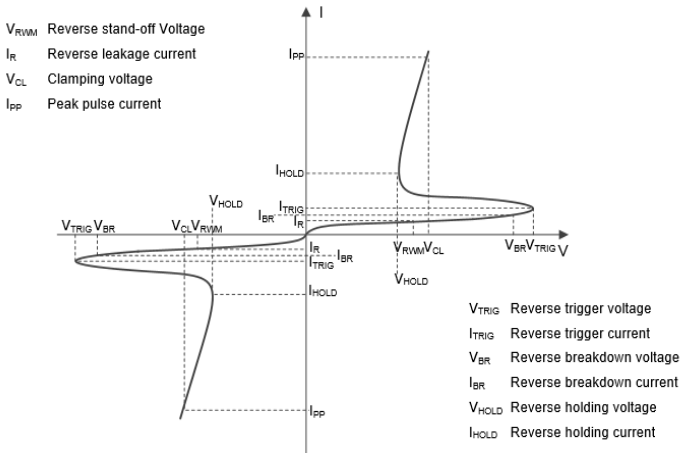
Mark

T3

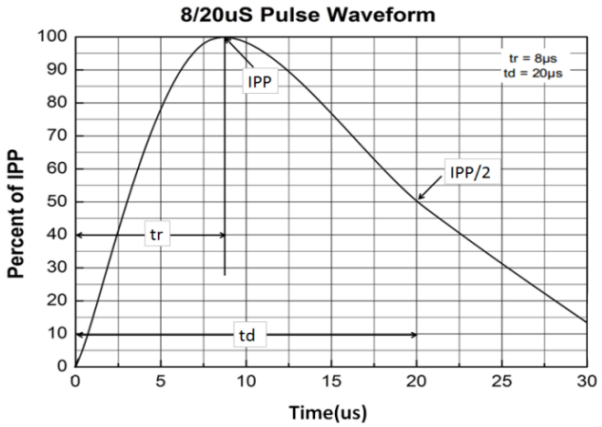
T3: Part Number

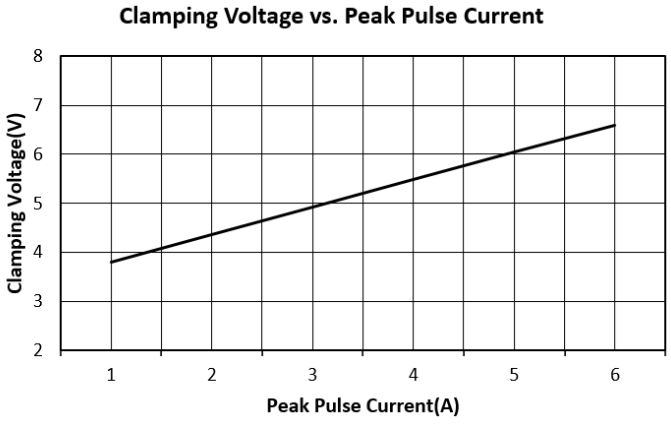
V-I Curve

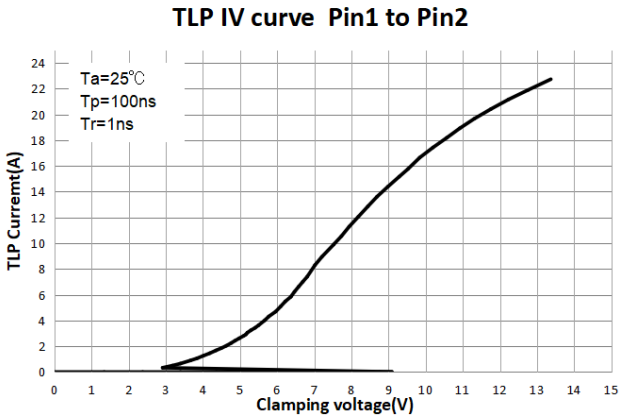
Parameters	Definition
V_{CL}	Clamping Voltage
I_{pp}	Surge waveform 8/20μs
V_{RWM}	Reverse stand-off Voltage
I_R	Reverse leakage Current
V_{BR}	Breakdown Voltage
I_{BR}	Reverse breakdown Current
I_{TRIG}	Reverse trigger Current
V_{TRIG}	Reverse trigger Voltage
V_{HOLD}	Reverse holding Voltage
I_{HOLD}	Reverse holding Current
P_{PP}	Peak Pulse Power Dissipation

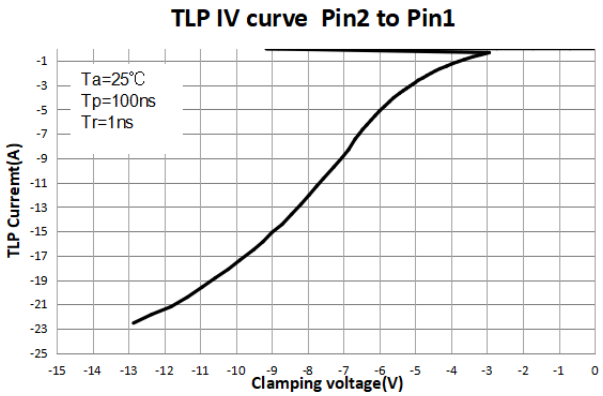


Typical Characteristics









Thermal Considerations

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

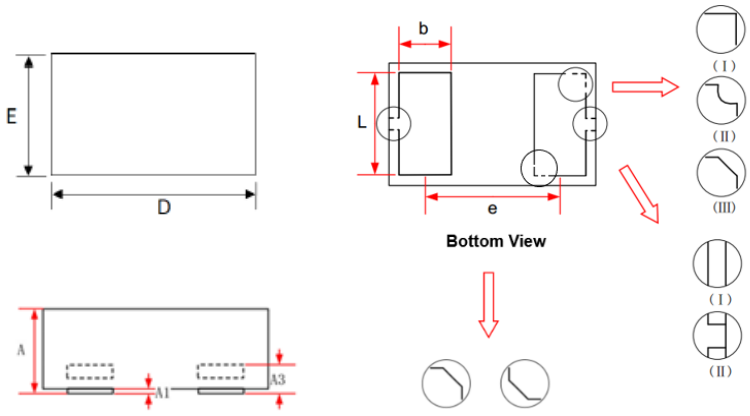
Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: 150±3℃ Bias=80%V_{DRM} Time: 168H
High Temperature Life Test	Temperature: 150℃ Time: 168H
High-low Temperature Cycle test	Temperature: From -55℃ to150℃ Dwell time: 30min, 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

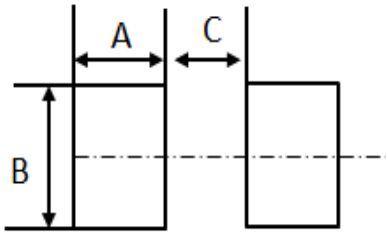
Transient Voltage Suppressor

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



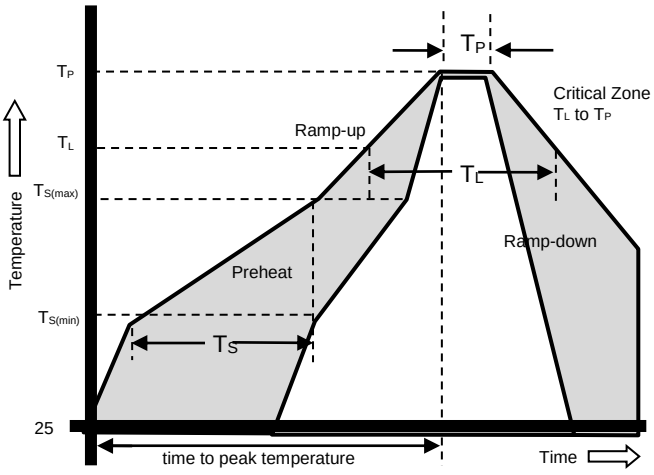
REF	mm	inch
A	0.35	0.014
B	0.60	0.024
C	0.35	0.014

Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met

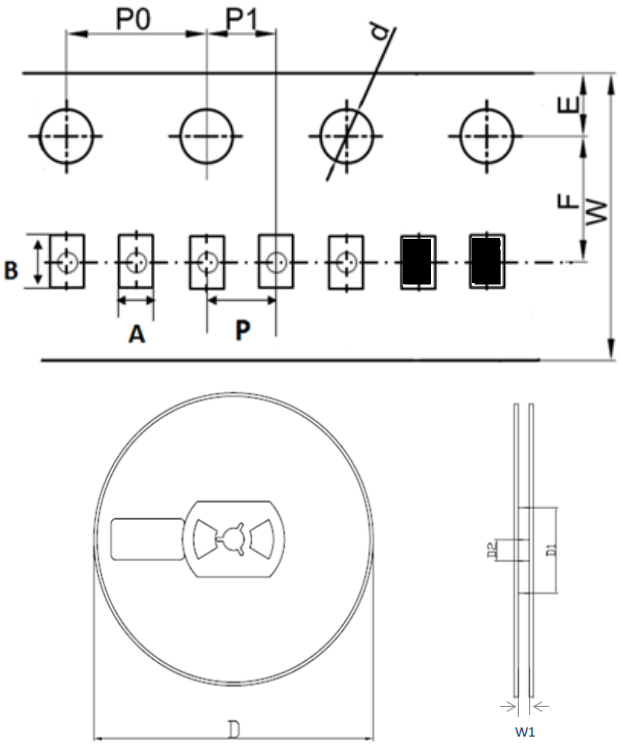
Reflow Profile

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



Transient Voltage Suppressor

Package Reel Information



REF	mm	inch
A	0.65+/-0.10	0.026+/-0.004
B	1.20+/-0.1	0.047+/-0.004
d	1.50+/-0.1	0.059+/-0.004
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+/-0.30	0.315+/-0.012
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