

Transient Voltage Suppressor

Version: A1 2024-7-10

Features

- IEC 61000-4-2 (ESD) $\pm 20\text{KV}$ (air), $\pm 20\text{KV}$ (contact)
- IEC61000-4-4(EFT): 40A (5/50ns)
- IEC61000-4-5(surge): 4A (8/20 μs)
- 48Watts peak pulse power ($t_p=8/20\mu\text{s}$)
- Low capacitance: 0.4pF (Max)
- Small package: DFN1006
- Moisture sensitivity level: Level 1

Exterior



DFN1006

Application Information

- Cellular handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

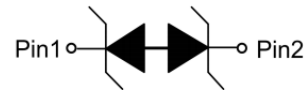
Package (top view)



Agency Approvals

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

Schematic(top view)



Part Number and Electrical Parameter

Part Number	I _{DRM} @V _{DRM} ^①		V _{BR} @I _R ^①		V _C @I _{pp} ^②		R _{DYN} @TLP ^③	V _C @I _{pp} TLP ^③		Co ^④
	μA	V	V	mA	V	A	Ω	V	A	pF
	MAX		MIN		TYP		TYP	TYP		MAX
BV-FA05UCL	1	5.3	6	1	12	4	0.44	16.5	16	0.4

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

① I_{DRM} is measured at V_{DRM} =5.3V, V_{BR} is measured at I_R=1mA

② Surge Waveform: 8/20 μs

③ TLP parameter: Z₀ = 50 Ω , t_p = 100ns, t_r = 1ns, R_{DYN} 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 05 U C L
(1) (2) (3) (4) (5) (6)

- (1) Bencent Transient Voltage Suppressor
- (2) Package:DFN1006
- (3) Off-state Voltage: 5.3V
- (4) Low Capacitance
- (5) Bidirectional
- (6) Bencent internal code

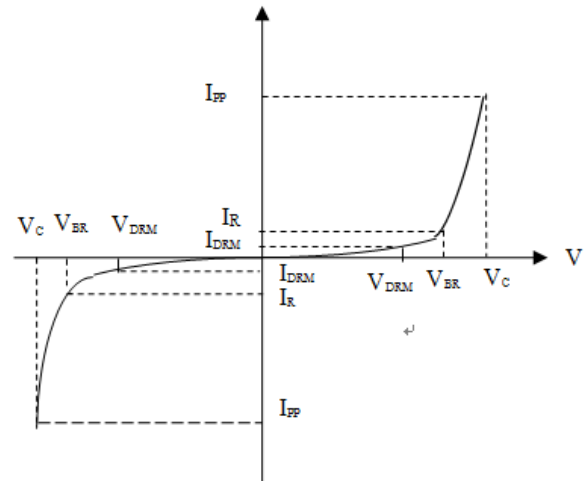
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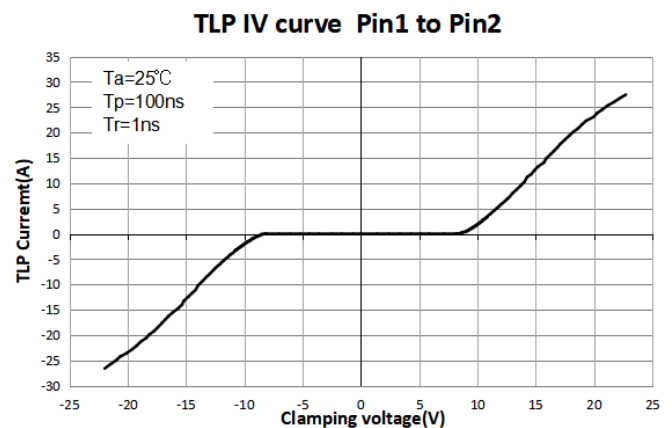
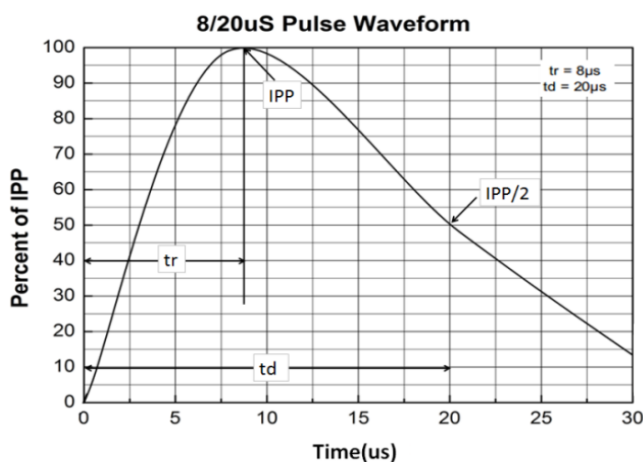
L5: Part number

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

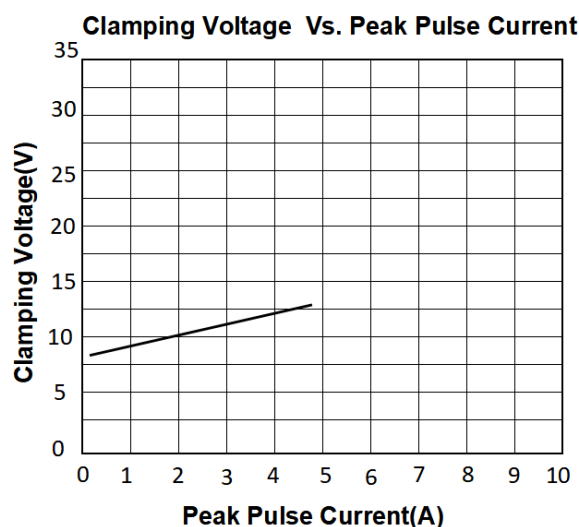


Typical Characteristics



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Thermal Considerations

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

Environmental Characteristics

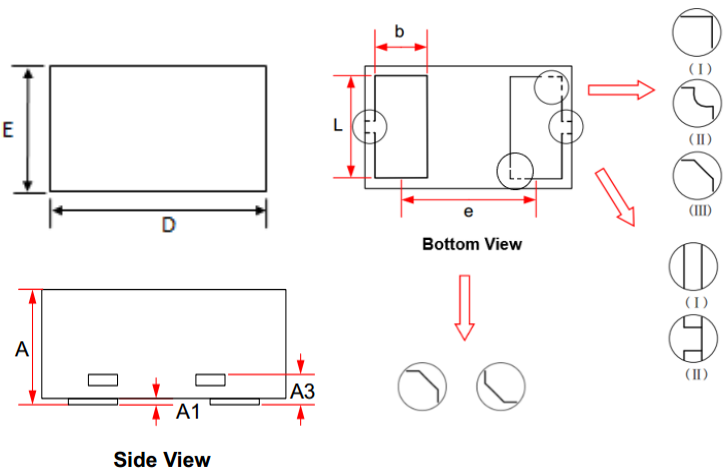
Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: $150 \pm 3^\circ\text{C}$ Bias= $80\%V_{\text{DRM}}$ Time: 168H
High Temperature Life Test	Temperature: 150°C Time: 168H
High-low Temperature Cycle test	Temperature: From -55°C to 150°C Dwell time: 30min, 100cycles
High 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

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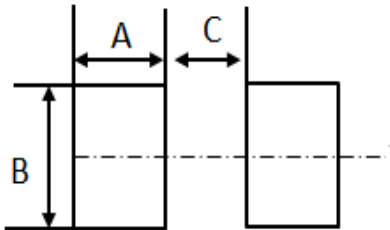
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Product Dimensions



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

Notes:

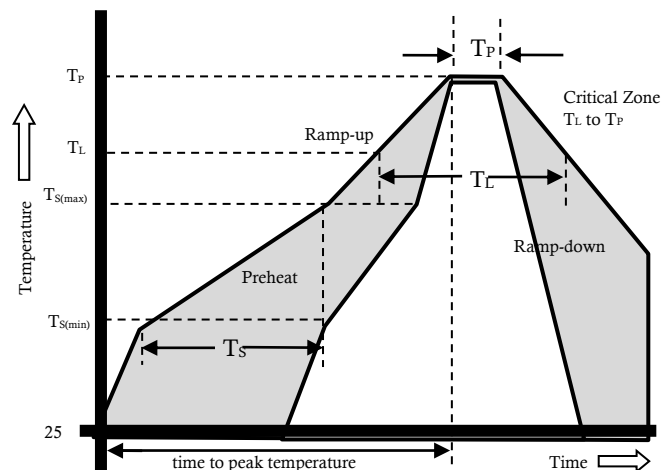
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met

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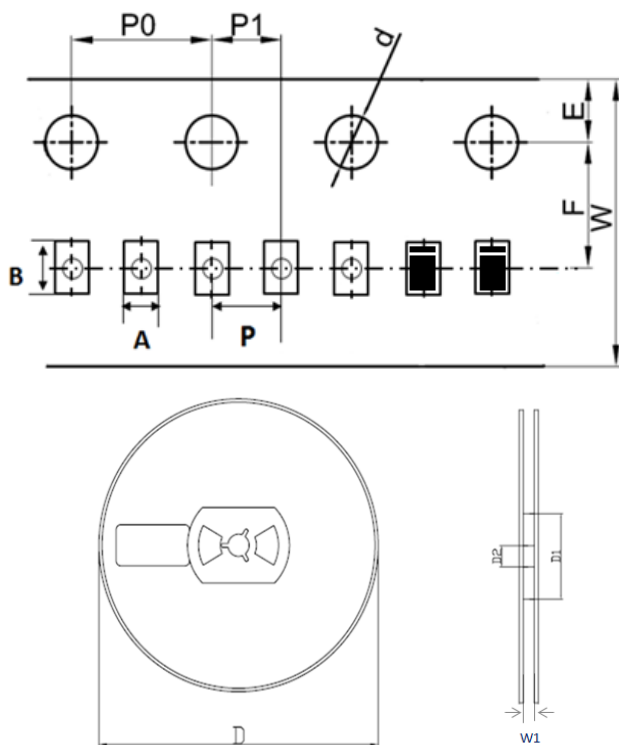
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Reflow Profile

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) 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



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	380	220	205