

Transient Voltage Suppressor

Version: A2 2021-06-24

Features

- IEC 61000-4-2(ESD) $\pm 25\text{KV}$ (air), $\pm 25\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 5A (8/20 μS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 60Watts peak pulse power (tp=8/20 μS)
- Low clamping voltage
- Weight approx. 1.0 mg
- Moisture sensitivity level: Level 1
- V_{SB} min value 5.5V
- Small package: DFN1006-2L

Exterior



DFN1006-2L


Application information

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

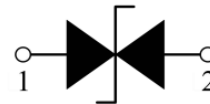
Package (top view)



Agency Approvals

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

Schematic



Part Number and Electrical Parameter

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{BR}}^{\text{①}}@I_{\text{R}}$		$V_{\text{c}}@I_{\text{pp}}^{\text{②}}$		$V_{\text{c}}@I_{\text{pp}}^{\text{②}}$		$C_{\text{o}}^{\text{③}}$	
	μA	V	V	mA	V	A	V	A	pF	
	MAX		MIN		MAX		MAX		TYP	MAX
BV-FA05ZCD	0.5	5	5.6	1	10	1	12	5	15	18

Absolute maximum ratings measured at $T = 25^{\circ}\text{C}$ RH = 45%-75% (unless otherwise noted).

① V_{BR} is measured at $I_{\text{R}} = 1\text{mA}$

② Surge Waveform: 8/20 μS .

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

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Part Numbering System

Mark

BV FA 05 Z C D
(1) (2) (3) (4) (5) (6)

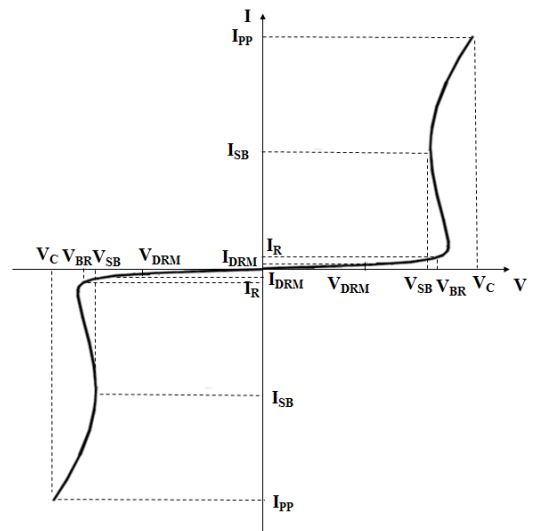
- (1) Bencent Transient Voltage Suppressor
- (2) Package:DFN1006-2L
- (3) Off-state Voltage: 5V
- (4) Normal Capacitance
- (5) Bidirectional
- (6) Bencent internal code



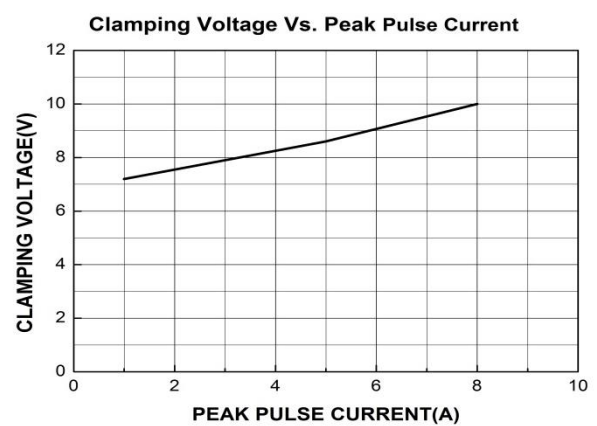
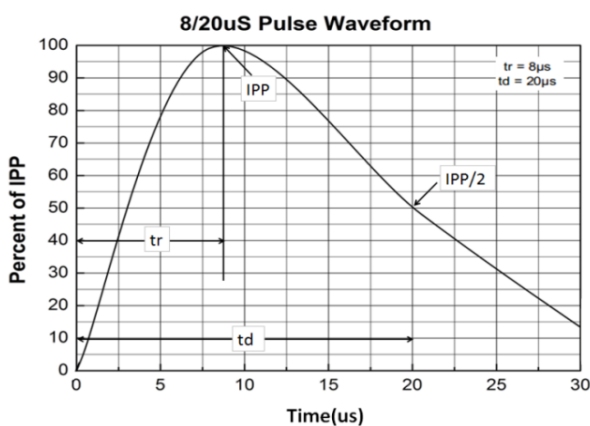
PD: Part Number

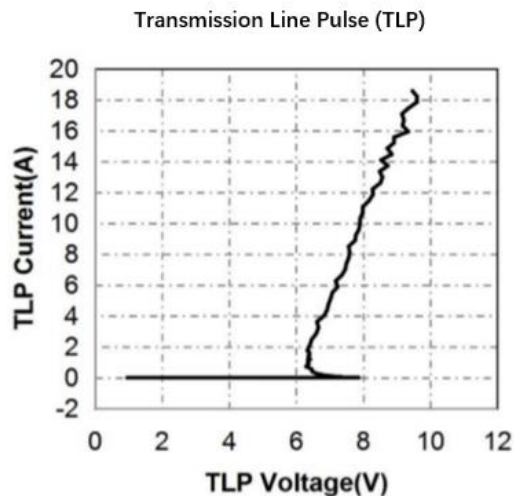
V-I Curve

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
P_{pp}	Peak Pulse Power Dissipation



Typical Characteristics





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

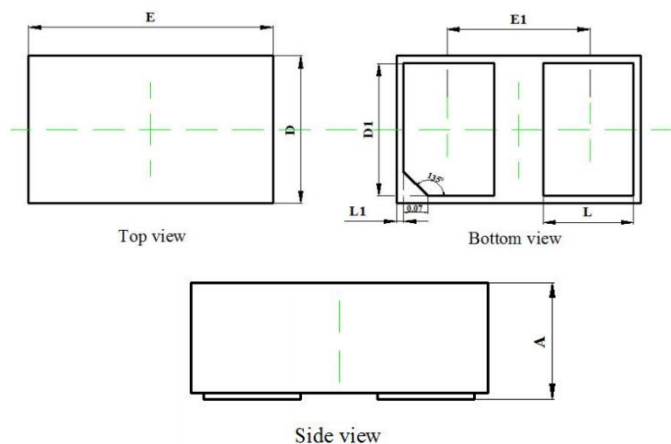
Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: $125 \pm 3^\circ\text{C}$ Bias= $80\%V_{\text{DRM}}$ Time:168H
High Temperature Life Test	Temperature: 150°C Time:168H
High-low Temperature Cycle test	Temperature: From -55°C to 125°C Dwell time : 30min, 10~100cycles
High 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

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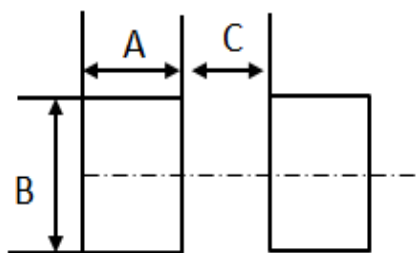
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Product Dimensions



REF	mm	inch
A	0.35~0.45	0.014~0.018
D	0.55~0.65	0.022~0.026
E	0.95~1.05	0.037~0.041
D1	0.42~0.52	0.017~0.020
E1	0.55~0.65	0.022~0.026
L	0.27~0.37	0.011~0.015
L1	0.00~0.10	0.000~0.004

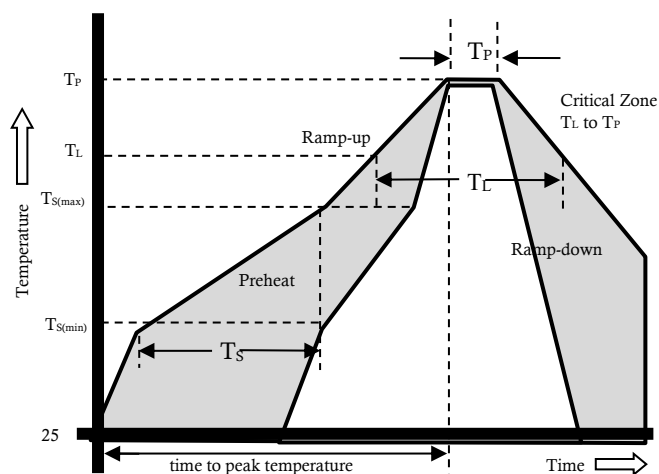
Recommended Soldering Pad



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

Reflow Profile

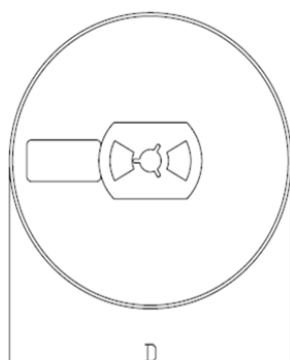
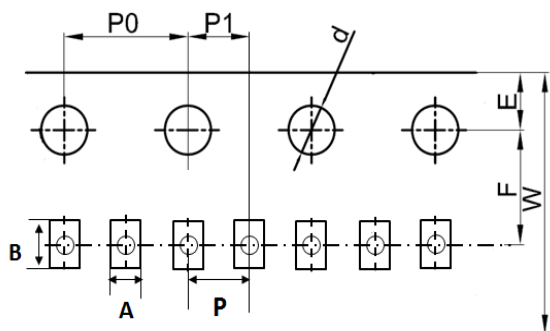
Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (min to max)	60 – 180 secs
Average ramp up rate (Liquid) T _{amp} (T _L) to peak		3°C/s max
T _{s(max)} to T _L - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 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	390	370	220