

Transient Voltage Suppressor

Version: A1 2022-06-02

Features

- IEC61000-4-2(ESD)±30KV(air),±30KV(Contact)
- IEC61000-4-4(EFT) 40A (5/50nS)
- IEC61000-4-5(Lightning) 25A (8/20uS)
- Working Voltage: 3.3V
- 4 Lines Protection
- Low leakage current
- Moisture sensitivity level: Level 1

Exterior



Application Information

- 10/100/1000 EthernetDigital Visual Interface (DVI)
- RJ-45 Connectors
- T1/E1 Secondary Protection
- T3/E3 Secondary Protection
- Analog Video

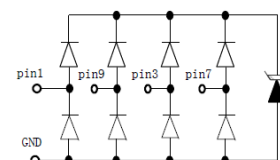
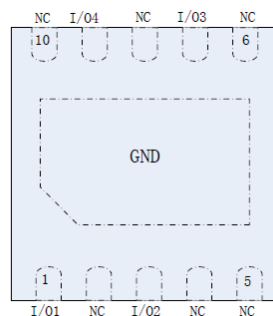
Package (top view)



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 _{DRM} @ V _{DRM}		V _{BR} ^① @ I _R		V _c @I _{pp} ^②		Co ^③	Co ^④
	μA	V	V	mA	V	A	pF	pF
	MAX		MIN		TYP		TYP	TYP
BV-FR03U4CA	0.5	3.3	4	1	17	25	2.8	5.5

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

- ① VBR is measured at IR=1mA, pin1, 3, 7, 9 to pin GND
- ② Surge Waveform: 8/20μS, pin1, 3, 7, 9 to pin GND
- ③ Off-state capacitance is measured in VDC=0.3V, f=1MHz, IO to IO
- ④ Off-state capacitance is measured in VDC=0.3V, f=1MHz, IO to GND.

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Part Numbering System

Mark

BV FR 03 U 4 C A
(1) (2) (3) (4) (5) (6) (7)

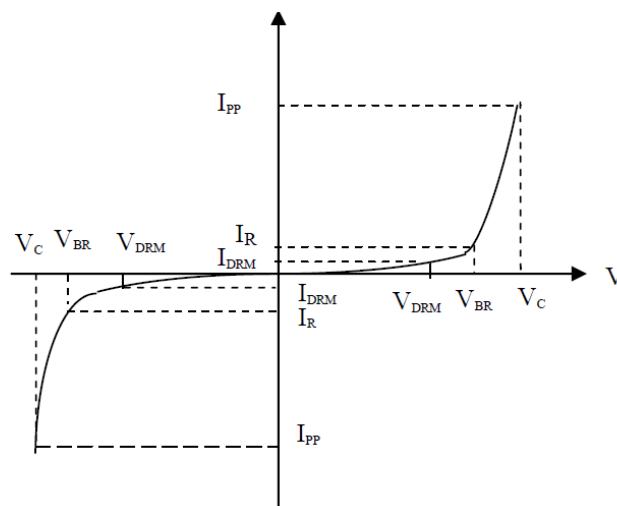
- (1) Bencent Transient Voltage Suppressor
- (2) Package: DFN2626
- (3) Working Voltage:3.3V
- (4) Low Capacitance
- (5) 4 Lines Protection
- (6) Bi-directional
- (7) Bencent internal code



M34:Product Code

V-I Curve

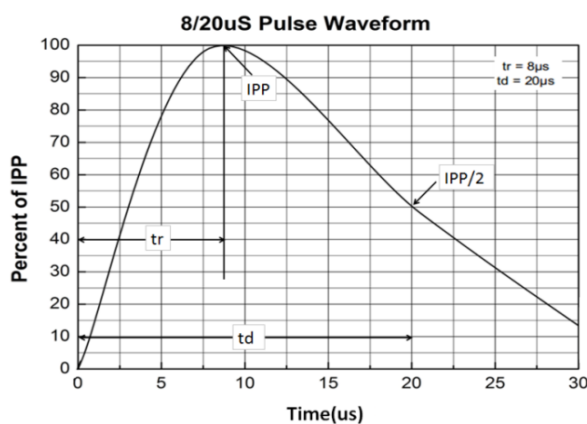
Parameters	Definition
V_C	Clamping voltage
I_{PP}	Surge waveform 8/20 μ s
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
V_{SB}	Snapback Voltage
I_{SB}	Test current
P_{PP}	Peak Pulse Power Dissipation



Thermal Consideration

symbol	Parameter	Value	Unit
TJ	Operating Junction Temperature Range	-40 to +125	°C
TS	Storage Temperature Range	-55 to +150	°C

Typical Characteristics



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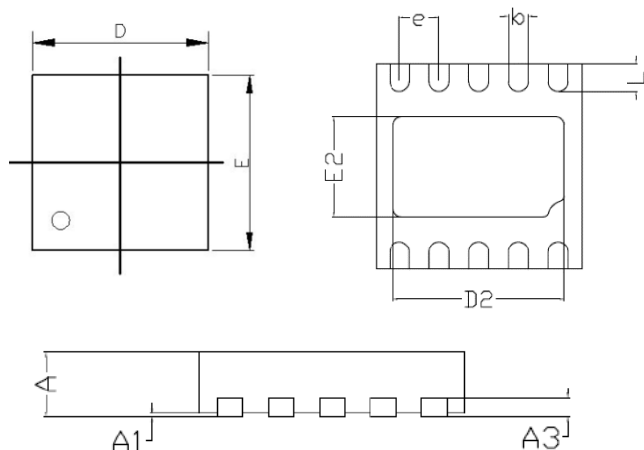
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Environmental Characteristics

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 -40°C to 125°C Dwell time: 30min, 10cycles
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

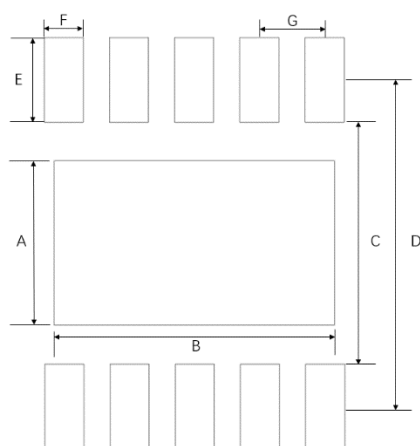
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	0.5~0.6	0.019~0.024
A1	0.00~0.05	0.000~0.002
A3	0.15REF	0.006REF
D	2.55~2.65	0.100~0.104
E	2.55~2.65	0.100~0.104
D2	2.00~2.25	0.078~0.089
E2	1.11~1.36	0.043~0.054
b	0.20~0.30	0.007~0.012
L	0.25~0.45	0.009~0.017
e	0.5BSC	0.19BSC

Recommended Soldering Pad

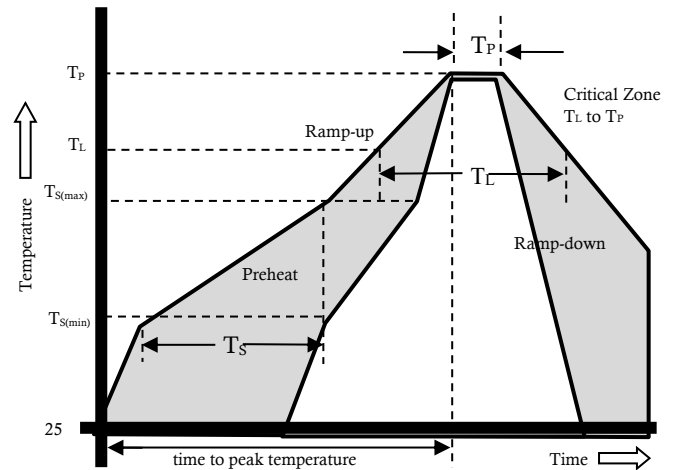


REF	mm	inch
A	1.26	0.049
B	2.15	0.846
C	1.85	0.072
D	2.50	0.098
E	0.65	0.025
F	0.30	0.011
G	0.50	0.019

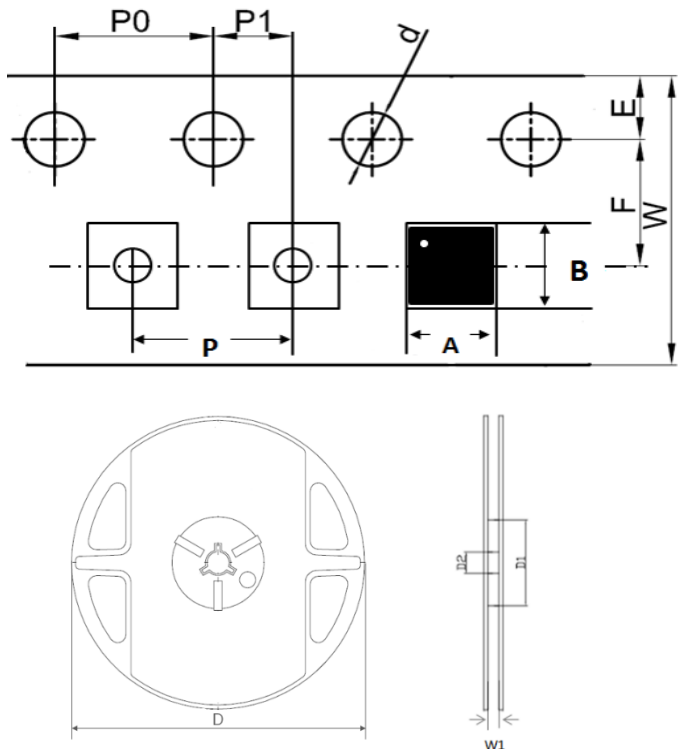
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Reflow Profile

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) 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)		25secs
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	3.00+/-0.10	0.118+/-0.004
B	3.00+/-0.10	0.118+/-0.004
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	4.00+/-0.20	0.157+/-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	3,000	90,000	178	390	370	220