

Transient Voltage Suppressor

Version: A1 2017-03-22

Features

- IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 12A@8/20uS
- IEC61000-4-4(EFT) 40A, (5/50nS)
- Low Capacitance (1.2pF) For High-speed
- 200 Watts Peak Pulse Power per Line(tp=8/20uS)
- Interfaces Working Voltages: 3.3V
- Moisture sensitivity level: Level 1
- Ultra-small package Requires Less Than 2.0x1.0mm of PCB area

Exterior



DFN2010-8L

Application Information

- 10/100/1000 Ethernet
- Integrated magnetics /RJ-45 connectors
- LAN/WAN Equipment
- Security Cameras
- Industrial Controls
- Notebooks & Desktop Computers

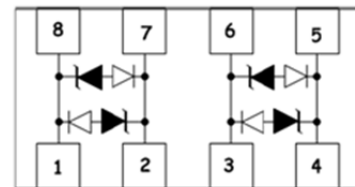
Package (top view)



Agency Approvals

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

Schematic Symbol



Part Number and Electrical Parameter

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{BR}}@I_{\text{R}}$		$V_{\text{C}}@I_{\text{pp}}^{\text{①}}$		$V_{\text{C}}@I_{\text{pp}}^{\text{①}}$		$\text{Co}^{\text{②}}$
	μA	V	V	mA	V	A	V	A	pF
	MAX		MIN		MAX		MAX		MAX
BV-FG03U4CA	0.1	3.0	3.5	1	7	1	17	12	1.2

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

① Surge Waveform: 8/20 μ S. Pin 1,8 to Pin 2,7; Pin 3,6 to Pin 4,5;

② Off-state capacitance is measured in $V_{\text{DC}}=0\text{V}$, $f=1\text{MHz}$; Pin 1,8 to Pin 2,7; Pin 3,6 to Pin 4,5;

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Part Numbering System

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

- (1) Bencent Transient Voltage Suppressor
- (2) Package:DFN2010
- (3)Off-state Voltage: 3V
- (4)Low capacitance
- (5)4 Lines protection
- (6)Bi-directional
- (7)Customer code

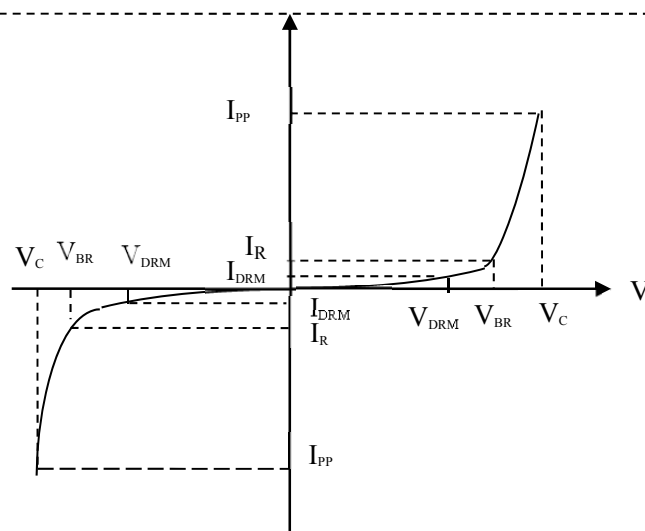
Mark



U33: Part Number

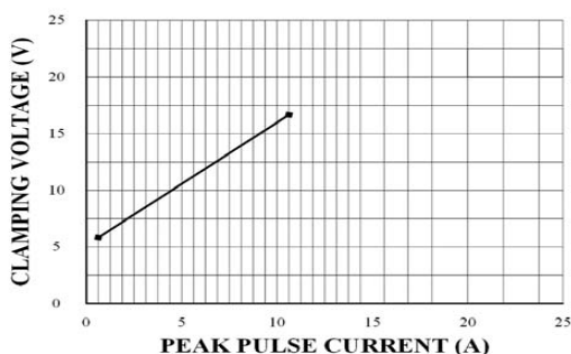
V-I Curve

Parameters	Definition
V_C	Clamping voltage
I_{pp}	Peak pulse current
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
P_{pp}	Peak Pulse Power Dissipation

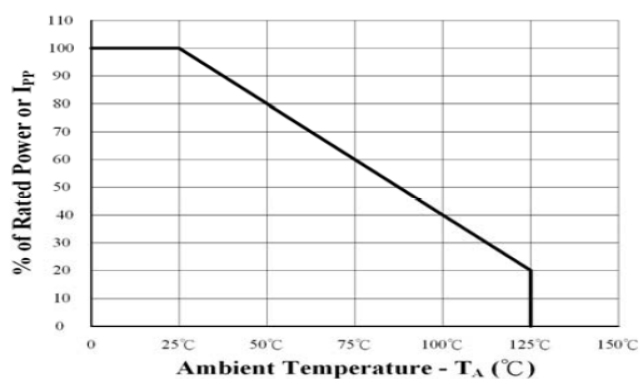


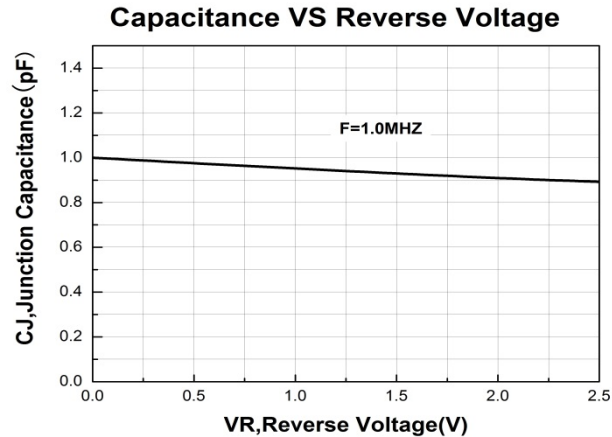
Typical Characteristics

Clamping Voltage vs. Peak Pulse Current
(8x20μs)



Power Derating Curve





Thermal Considerations

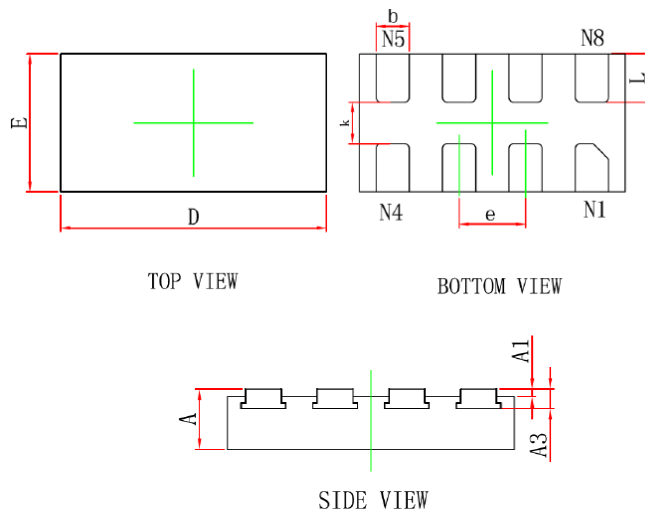
symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +150	°C
T_S	Storage Temperature Range	-55 to +150	°C

Environmental Characteristics

Testing items	Technical standards
High Temperature Storage Test	Temperature: 150°C Time: 168H
High-low Temperature Cycle test	Temperature: From -55°C to 125°C Dwell time : 30min, 20-100cycles
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±5°C Time of dip soldering: 10s, 3times

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

Product Dimensions

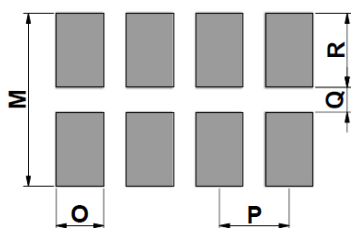


REF	mm	inch
A	0.350-0.420	0.014-0.017
A1	0.000-0.050	0.000-0.002
A3	0.120REF	0.005REF
D	1.924-2.076	0.076-0.082
E	0.924-1.076	0.036-0.042
K	0.200MIN	0.008MIN
b	0.180-0.280	0.007-0.011
e	0.500TYP	0.20TYP
L	0.274-0.426	0.011-0.017

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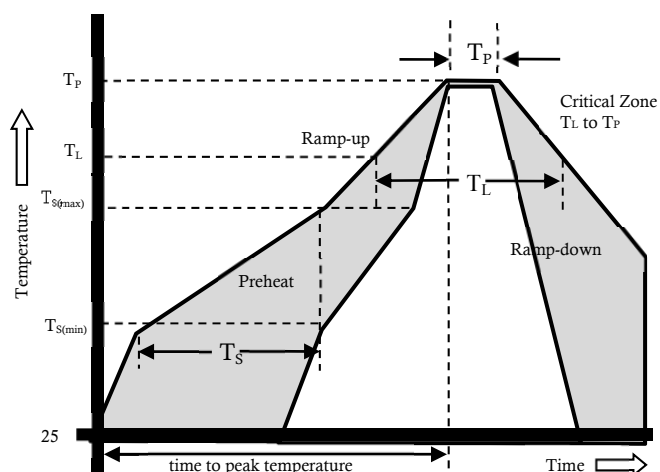
Recommended Soldering Pad



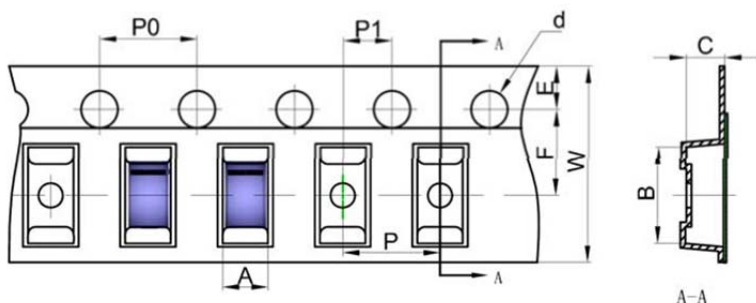
REF	mm	inch
M	1.24	0.049
O	0.34	0.013
P	0.50	0.020
Q	0.18	0.007
R	0.53	0.021

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)		3°C/s Max
Tamp (T _L) to peak		
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



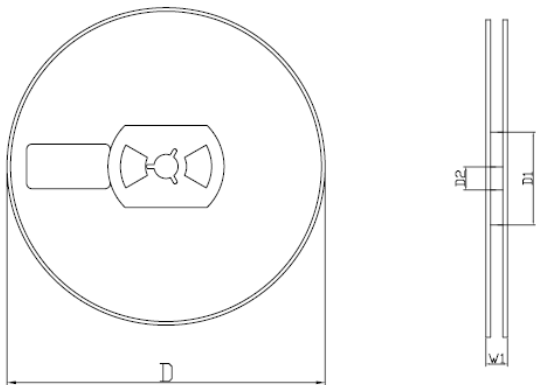
Package Reel Information



REF	mm	inch
A	1.07-1.17	0.038-0.042
B	2.00-2.20	0.079-0.087
C	0.50-0.65	0.020-0.026
d	1.45-1.65	0.057-0.065
P	3.90-4.10	0.154-0.161
P0	3.90-4.10	0.154-0.161
P1	1.95-2.05	0.077-0.081
E	1.65-1.85	0.065-0.073
F	3.30-3.70	0.130-0.146

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REF	mm	inch
W	7.90-8.30	0.311-0.327
W1	8.50-10.50	0.335-0.413
D	178REF	7REF
D1	52.00-58.00	2.047-2.283
D2	12.50-13.50	0.492-0.531

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	10000	300,000	178	390	370	220