BV-FK05U4CB

Order Code: BV-FK05U4CB

Version: X0 2020-09-21

Transient Voltage Suppressor

Features

- IEC61000-4-2(ESD)±17KV(air),±15KV(Contact)
- IEC61000-4-4(EFT) 40A (5/50nS)
- IEC61000-4-5(Lightning) 5A (8/20uS)
- Working Voltage: 5V
- 4 Lines Protection
- Low leakage current
- Moisture sensitivity level: Level 3

Exterior

DFN2510

Application Information

- High Definition Multi-Media Interface (HDMI1.3/1.4/2.0)
- Digital Visual Interface (DVI)
- Display Port Interface
- Serial ATA
- PCI Express
- USB 1.1/2.0/3.0/3.1/OTG

Package (top view)

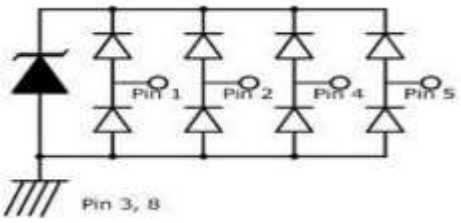
T4:Product Code

XXXX:Date Code

Agency Approvals

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

Schematic



Part Number and Electrical Parameter

Part Number	I_{DRM}@ V_{DRM}		V_{BR}①@ I_R		Vc@Ipp② 8/20μs			R_{DYN} @TLP③	Vc@Ipp TLP③		Co③	Co④
	μA	V	V	mA	V	V	A	Ω	V	A	pF	pF
	MAX		MIN		TYP	MAX		TYP	TYP		MAX	MAX
BV-FK05U4CB	1.0	5.0	6.0	1.0	8	10	5	0.3	10.5	16	0.40	0.65

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

① VBR is measured at IR=1mA, pin1, 2, 4, 5 to pin 3, 8

② Surge Waveform: 8/20μS, pin1,2,4,5 to pin 3,8

③ TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 2ns, averaging window from 60ns to 80ns.

④ Off-state capacitance is measured in VDC=0V,VRMS=1V, f=1MHz，IO to IO

⑤ Off-state capacitance is measured in VDC=0V,VRMS=1V, f=1MHz，IO to GND.

Transient Voltage Suppressor

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Part Numbering System

BV	FK	05	U	4	C	B
(1)	(2)	(3)	(4)	(5)	(6)	(7)

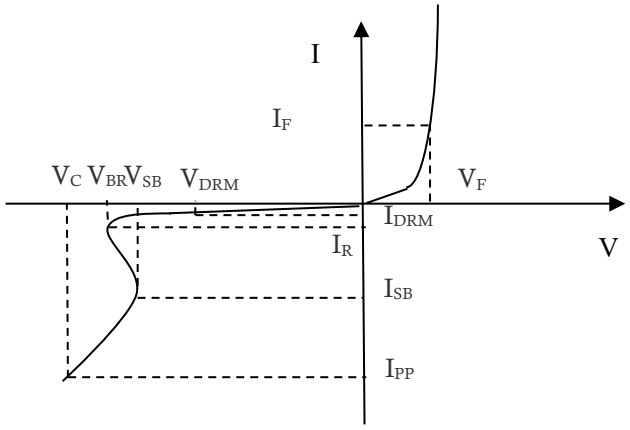
(1) Bencent Transient Voltage Suppressor
(2) Package: DFN2510
(3) Working Voltage:5.0V
(4) Low Capacitance
(5) 4 Lines Protection
(6) Bi-directional,IO to IO
(7) Bencent intenal code

Mark

T4:Product Code
XXXX:Date Code

V-I Curve

Parameters	Definition
VC	Clamping voltage
Ipp	Peak pulse current
VDRM	Stand-off Voltage
VBR	Breakdown Voltage
VSB	Snapback Voltage
IDRM	Reverse Leakage Current
IR	Test current
ISB	Test current
VF	Forward on-state voltage
IF	Forward current
Ppp	Peak Pulse Power Dissipation



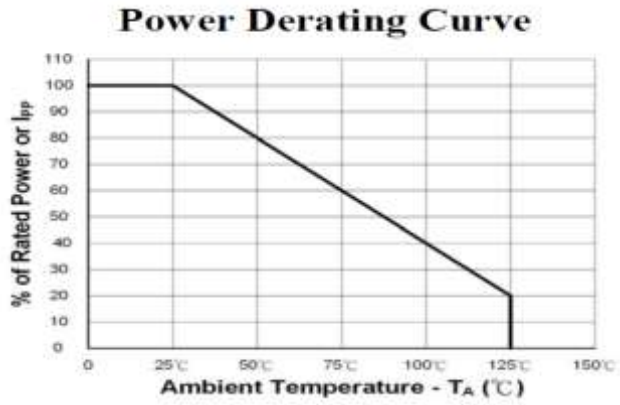
IO to GND

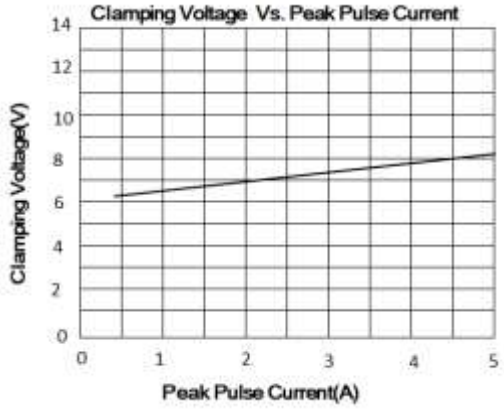
Thermal Consideration

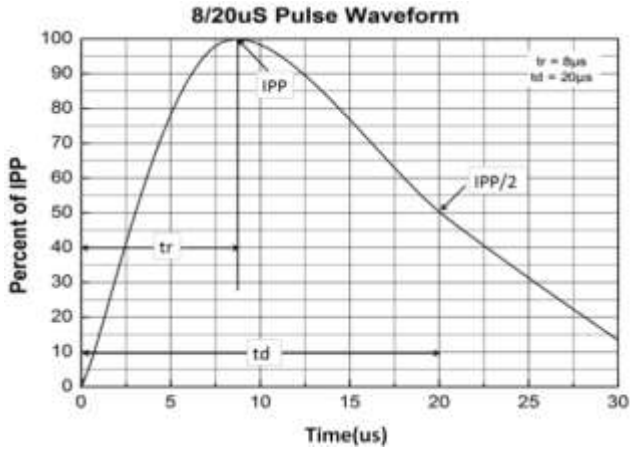
symbol	Parameter	Value	Unit
TJ	Operating Junction Temperature Range	-40 to +125	℃
TS	Storage Temperature Range	-55 to +150	℃

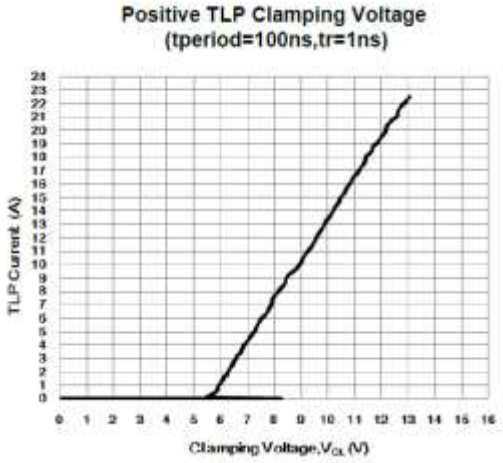
Transient Voltage Suppressor

Typical Characteristics









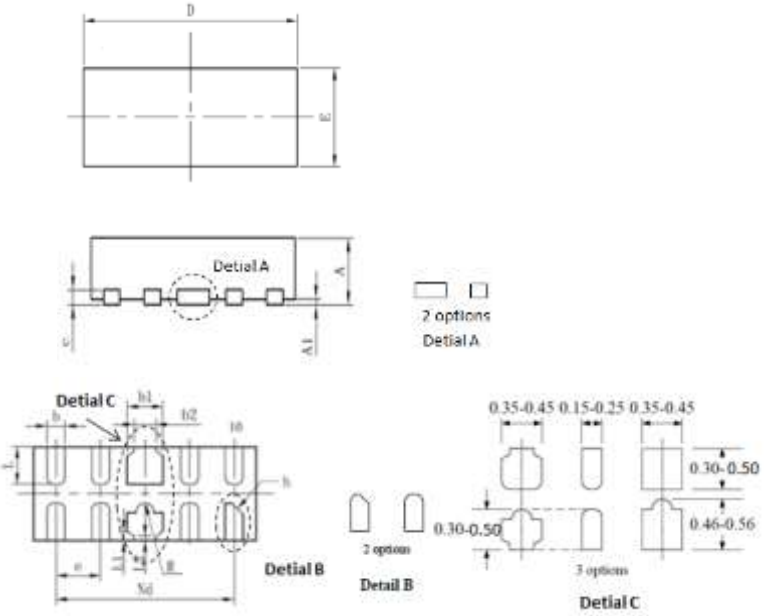
Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: 125±3℃ Bias=80%V_{DRM} Time: 168H
High Temperature Life Test	Temperature: 150℃ Time: 168H
High-low Temperature Cycle test	Temperature: From -40℃ to125℃ Dwell time: 30min, 10cycles
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

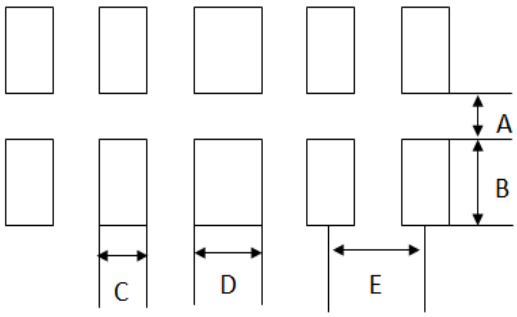
Transient Voltage Suppressor

Product Dimensions



REF	mm	inch
A	0.45~0.55	0.018~0.022
A1	0.00~0.05	0.000~0.002
b	0.15~0.25	0.006~0.01
b1	0.35~0.45	0.014~0.018
b2	0.13~0.3	0.005~0.012
c	0.1~0.2	0.004~0.008
D	2.40~2.60	0.094~0.102
e	0.50BSC	0.020BSC
Nd	2.00BSC	0.079BSC
E	0.90~1.10	0.035~0.043
L	0.30~0.50	0.012~0.020
L1	0.075REF	0.003REF
L2	0.05REF	0.002REF
h	0.08~0.15	0.003~0.006
R	0.05~0.15	0.002~0.006

Recommended Soldering Pad

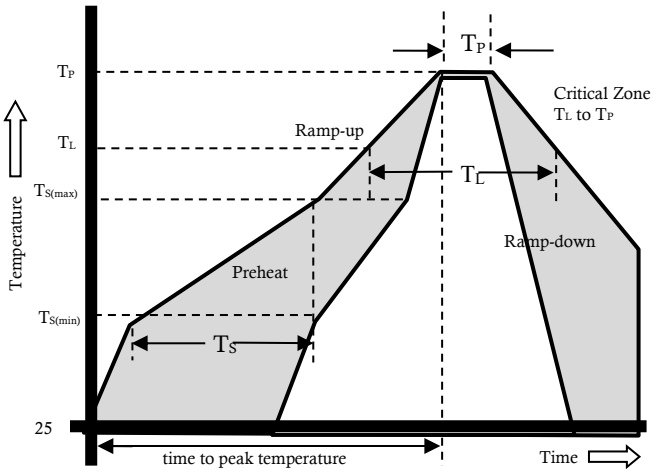


REF	mm	inch
A	0.2	0.008
B	0.6	0.024
C	0.3	0.012
D	0.45	0.018
E	0.5	0.020

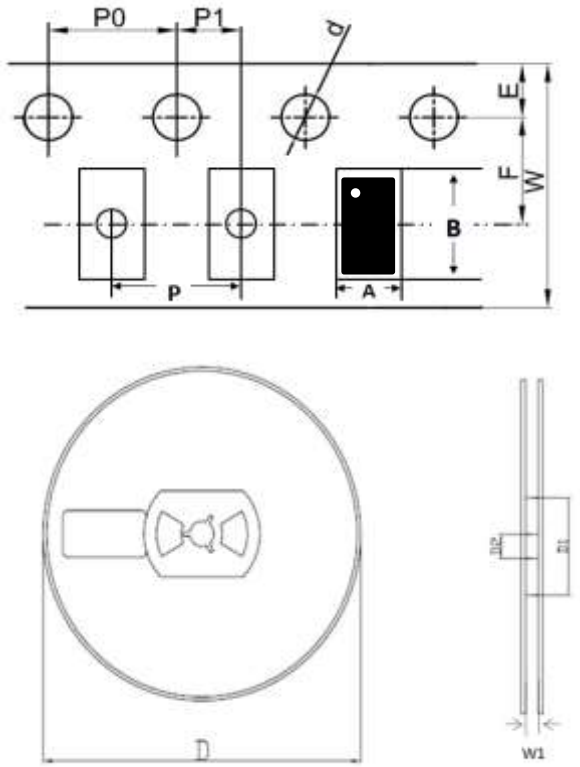
Transient Voltage Suppressor

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)		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	1.2+/-0.10	0.047+/-0.004
B	2.7+/-0.10	0.106+/-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