

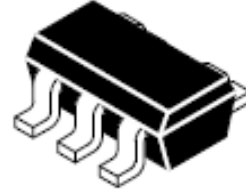
Transient Voltage Suppressor

Version: A0 2022-08-30

Features

- IEC61000-4-2(ESD)±20KV(air),±20KV(contact)
- IEC61000-4-5(Lightning) 5A (8/20uS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 75 Watts peak pulse power per Line (tp=8/20μS)
- Low clamping voltage
- Weight 8 mg (Approximate)
- Moisture sensitivity level: Level 1

Exterior



SOT-363

Application Information

- USB 2.0
- Video Graphics Cards
- DVI
- IEEE 1394
- Monitors and Flat Panel Displays
- Notebooks
- 100/1000M Ethernet

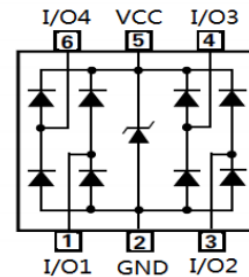
Package (top view)



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} @I _R		V _C @I _{pp} ^①		R _{DYN} @TLP ^②		V _C @I _{pp} TLP ^②		Co ^③	Co ^④
	μA	V	V	mA	V	A	Ω		V	A	pF	pF
	MAX		MIN		MAX		TYP		TYP		MAX	MAX
BV-E605U4CA	1	5.0	6.0	1	15	5	0.6		18.3	16	0.8	0.4

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

①Surge Waveform: 8/20μS.Pin 1,3,4,6 to Pin 2.

②TLP parameter: Z₀ = 50Ω, tp = 100ns, tr = 1ns, RDYN is calculated from 4A to16A

③Off-state capacitance is measured in V_{DC}=0V, f=1MHz.Pin 1,3,4,6 to Pin 2.

④Off-state capacitance is measured in V_{DC}=0V, f=1MHz,any I/O to I/O.

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Part Numbering System

Mark

BV E6 05 U 4 C A
(1) (2) (3) (4) (5) (6) (7)

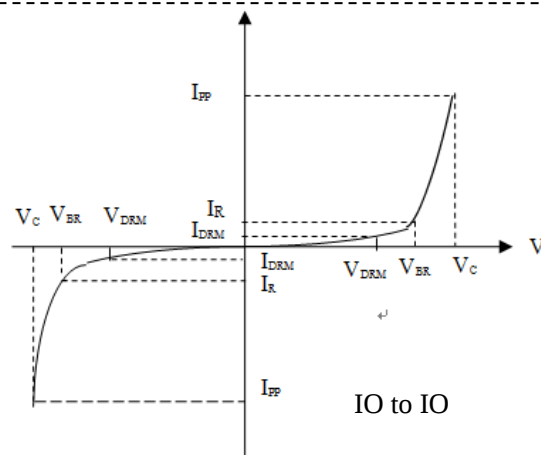
- (1) Bencent Transient Voltage Suppressor
- (2) Package: SOT-363
- (3) Stand-off Voltage: 5V
- (4) Low Capacitance
- (5) 4 Lines protection
- (6) Bi-directional
- (7) Bencent internal code



F54: Part Number

V-I Curve

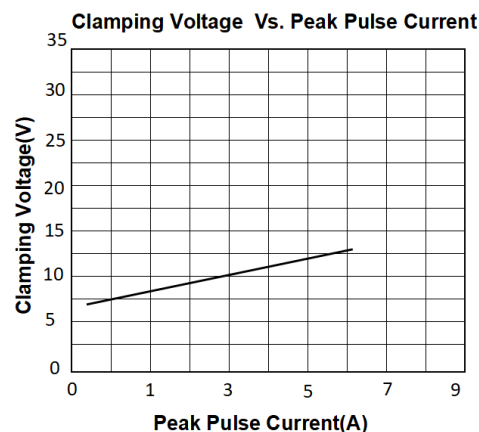
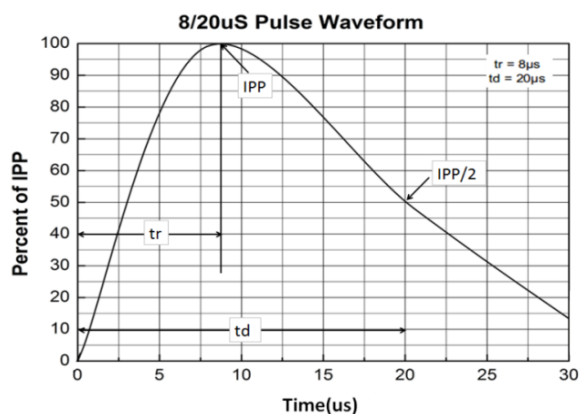
Parameters	Definition
V_C	Clamping Voltage
I_{PP}	Surge Waveform 8/20 μ s
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test Current
P_{pp}	Peak Pulse Power Dissipation

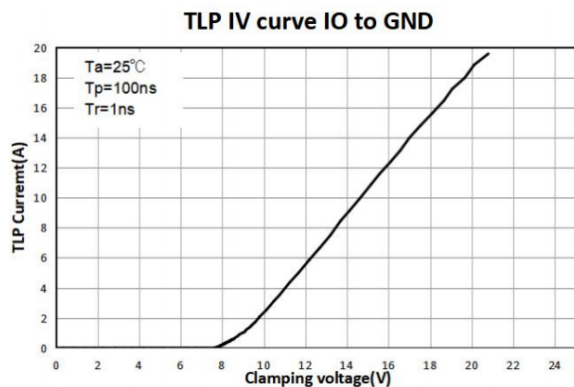


Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +125	$^{\circ}\text{C}$
T_S	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$

Typical Characteristics



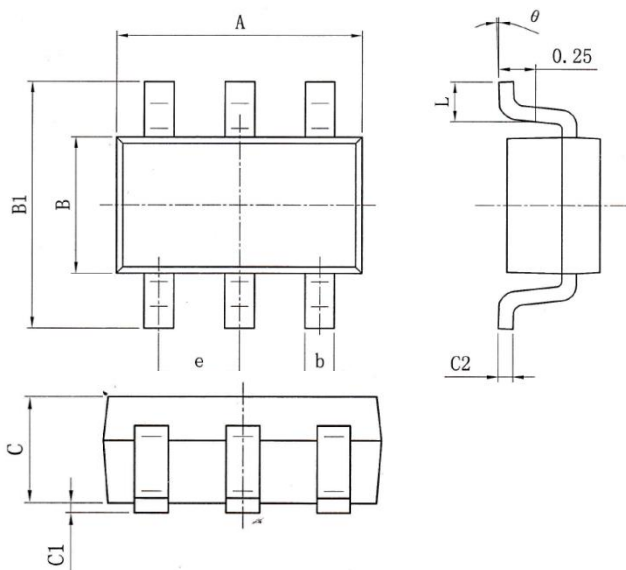


Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: 125±3°C Bias=80%V _{DRM} Time:168H
High Temperature Life Test	Temperature: 150°C Time:168H
High-low Temperature Cycle test	Temperature: From -55°C to125°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±5°C Time of dip soldering: 10s, 3times

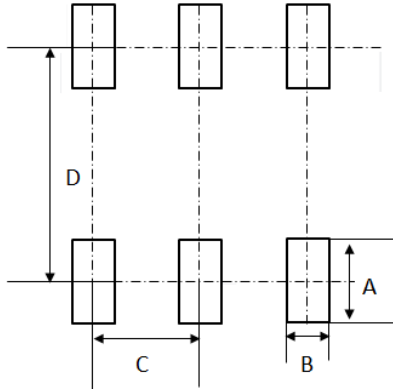
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	1.85~2.2	0.073~0.087
B	1.10~1.40	0.043~0.055
B1	2.10~2.50	0.083~0.098
C	0.9~1.0	0.035~0.039
C1	0~0.1	0.000~0.004
C2	0.08~0.15	0.003~0.006
L	0.22~0.55	0.009~0.022
b	0.2~0.35	0.008~0.014
e	0.65BSC	0.026BSC
θ	0° ~8°	

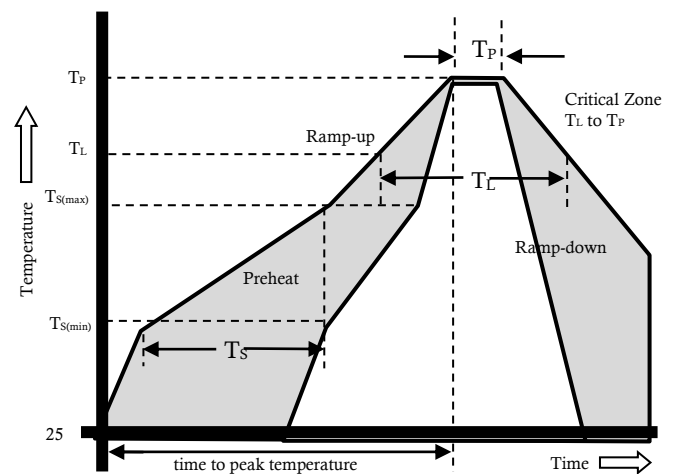
Recommended Soldering Pad



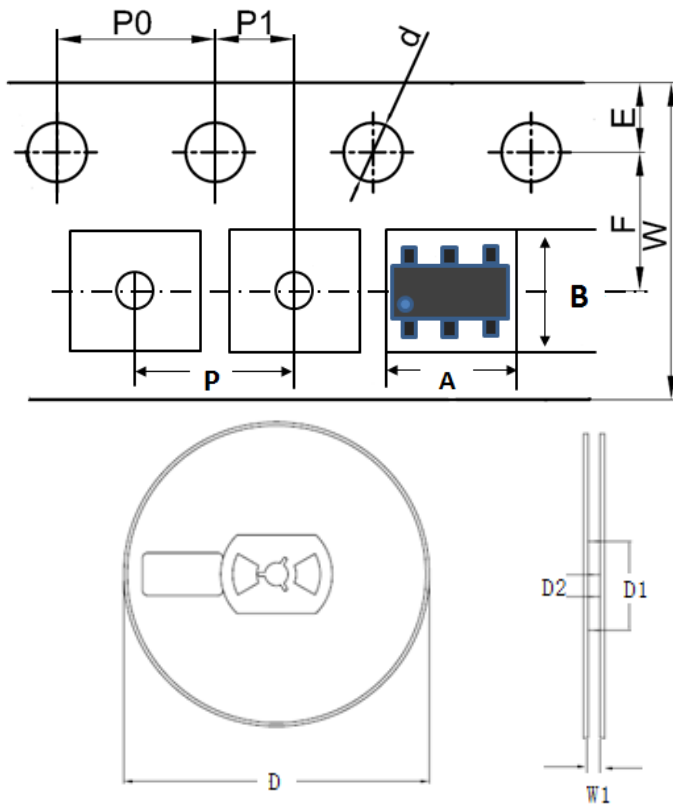
REF	mm	inch
A	0.80	0.031
B	0.40	0.016
C	0.65	0.026
D	1.90	0.075

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 peal		
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	2.30+/-0.2	0.122+/-0.008
B	2.45+/-0.2	0.114+/-0.008
d	1.5+0.1/-0	0.059+0.004/-0
D	178+/-2.0	7.008+/-0.079
D1	55+/-3	2.165+/-0.118
D2	13+/-0.5	0.512+/-0.020
E	1.75+/-0.1	0.069+/-0.004
F	3.5+/-0.2	0.138+/-0.008
P	4.0+/-0.2	0.158+/-0.008
P0	4.0+/-0.2	0.158+/-0.008
P1	2.0+/-0.2	0.079+/-0.008
W	8.0+/-0.2	0.315+/-0.008
W1	9.5+/-1	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	380	220	205