

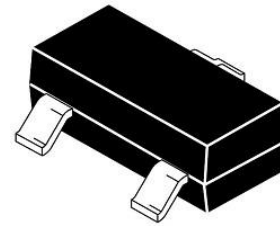
Transient Voltage Suppressor

Version: A2 2023-11-30

Features

- IEC61000-4-2(ESD)±15KV(air),±8KV(contact)
- IEC61000-4-5(Lightning) 3A (8/20uS)
- IEC61000-4-4(EFT) 40A (5/50ns)
- 45 Watts peak pulse power per Line (tp=8/20μS)
- Low clamping voltage
- Weight 8 mg (Approximate)

Exterior

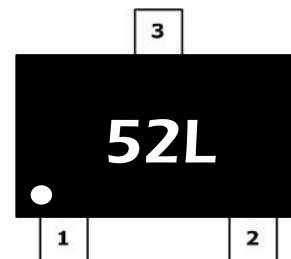


SOT-323

Application Information

- Serial SATA
- Desktops, Servers and Notebooks
- PCI Express
- MDDI Ports
- USB Data Line Protection
- Display Ports
- DVI

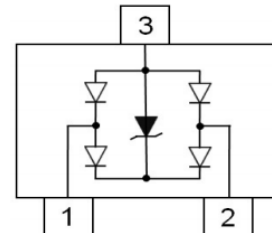
Package (top view)



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		V _c @I _{pp} ^②		R _{DYN} @ TLP ^③	V _c @I _{pp} TLP ^③		CO ^④	
	μA	V	V	mA	V	A	V	A	Ω	V	A	pF	
	MAX		MIN		MAX		MAX		TYP	TYP		TYP	MAX
BV-E305U2A	1	5	6	1	10	1	15	3	0.75	20	16	0.6	0.8

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

① V_{BR} is measured at I_R=1mA, Pin 1, 2 to 3

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

③ TLP parameter: Z₀ = 50Ω, t_p = 100ns, t_r = 1ns, R_{DYN} is calculated from 4A to 16A, IO to GND

④ Off-state capacitance is measured in V_{DC}=0V, V_{RMS}=0.3V, f=1MHz, Pin 1, 2 to 3

Transient Voltage Suppressor

Part Numbering System

BV E3 05 U 2 A
(1) (2) (3) (4) (5) (6)

(1) Bencent Transient Voltage Suppressor

(2) Package: SOT-323

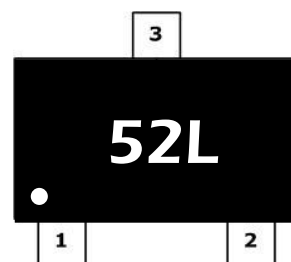
(3) Stand-off Voltage: 5V

(4) Low Capacitance

(5) 2 Lines protection (Polarity omitted)

(6) Bencent internal code

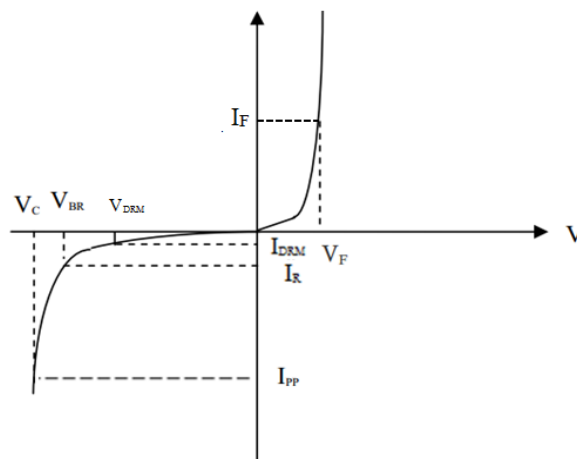
Mark



52L: Part Number

V-I Curve

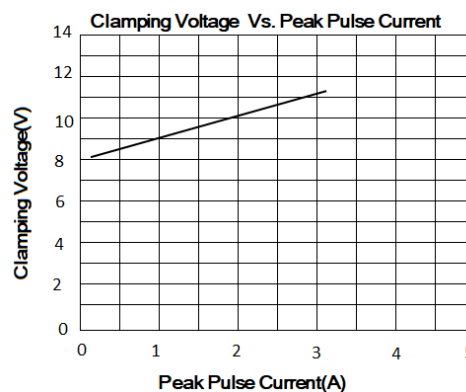
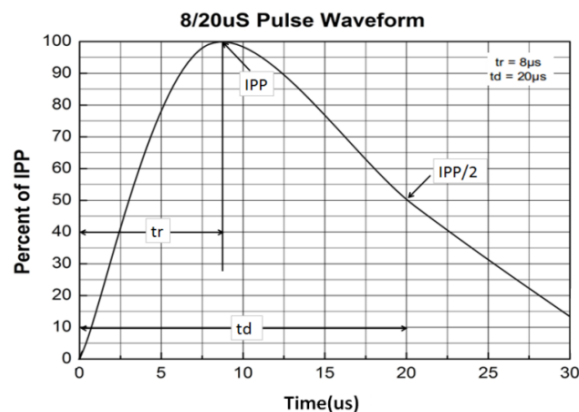
Parameters	Definition
V_C	Clamping Voltage
I_{PP}	Surge Waveform 8/20 μ s
V_{DRM}	Stand-off Voltage
I_{DRM}	Reverse Leakage Current
V_{BR}	Breakdown Voltage
I_R	Test Current
V_F	Forward Voltage
I_F	Test Current
P_{pp}	Peak Pulse Power Dissipation

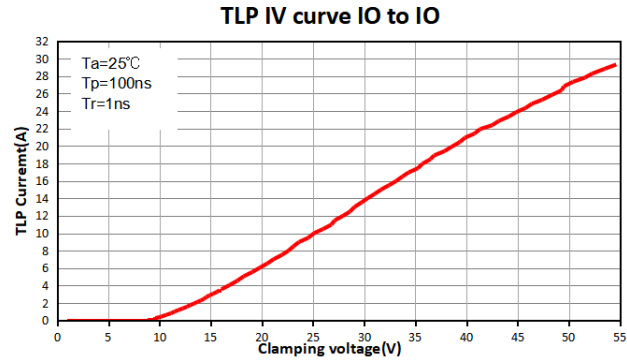
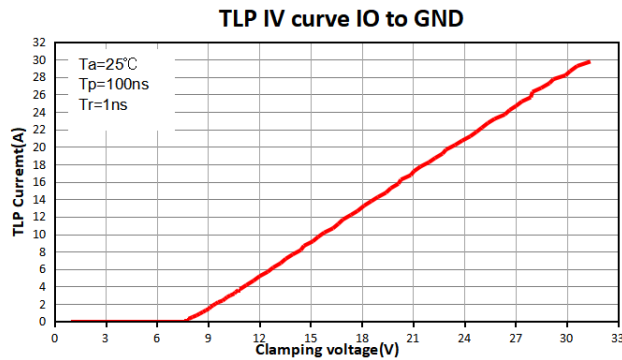


Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +125	°C
T_S	Storage Temperature Range	-55 to +150	°C

Typical Characteristics



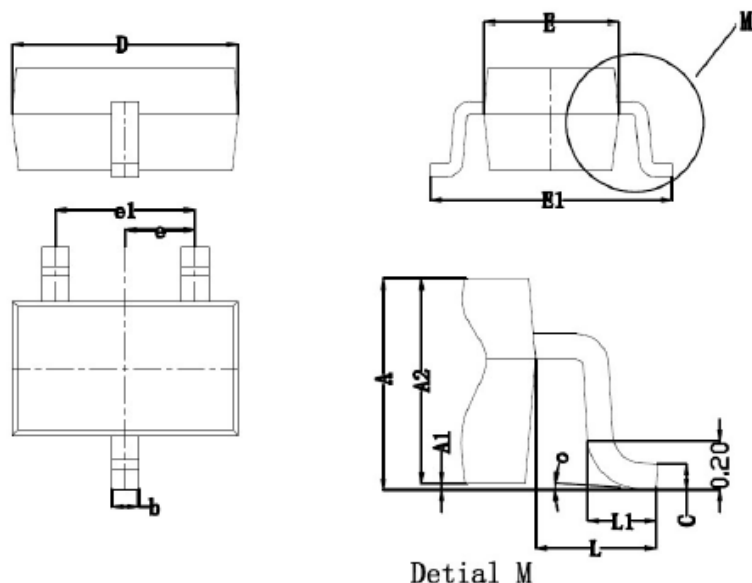


Environmental Characteristics

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 -55℃ 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

Product Dimensions

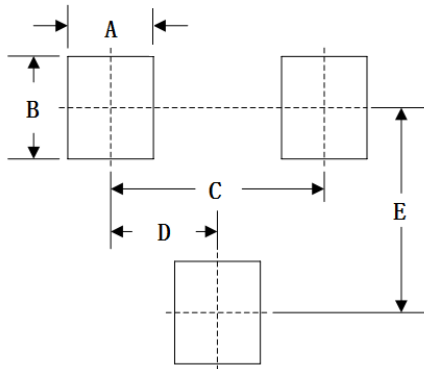


REF	mm	inch
A	0.8~1.10	0.031-0.043
A1	0.1 max	0.004max
A2	0.90~1.00	0.035-0.040
b	0.2~0.4	0.008-0.016
c	0.08~0.15	0.003-0.006
D	1.80~2.20	0.071-0.087
E	1.15-1.35	0.0453-0.051
E1	2.15-2.40	0.084-0.094
e	0.650TYP	0.025
e 1	1.20-1.40	0.047-0.055
L	0.525REF	0.020REF
L1	0.26-0.46	0.010-0.018
o	0° - 8°	

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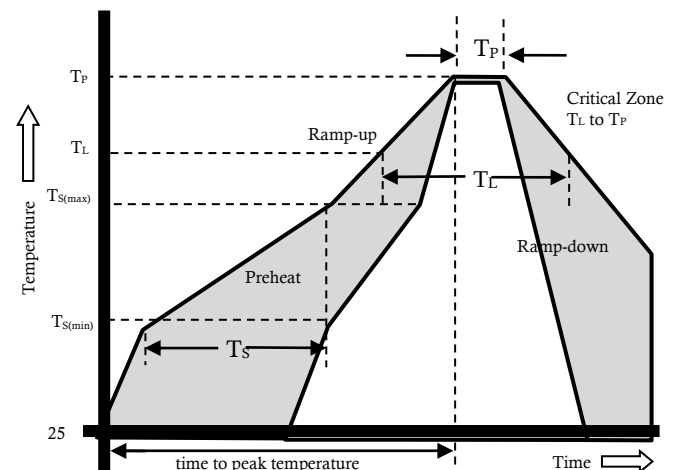
Recommended Soldering Pad



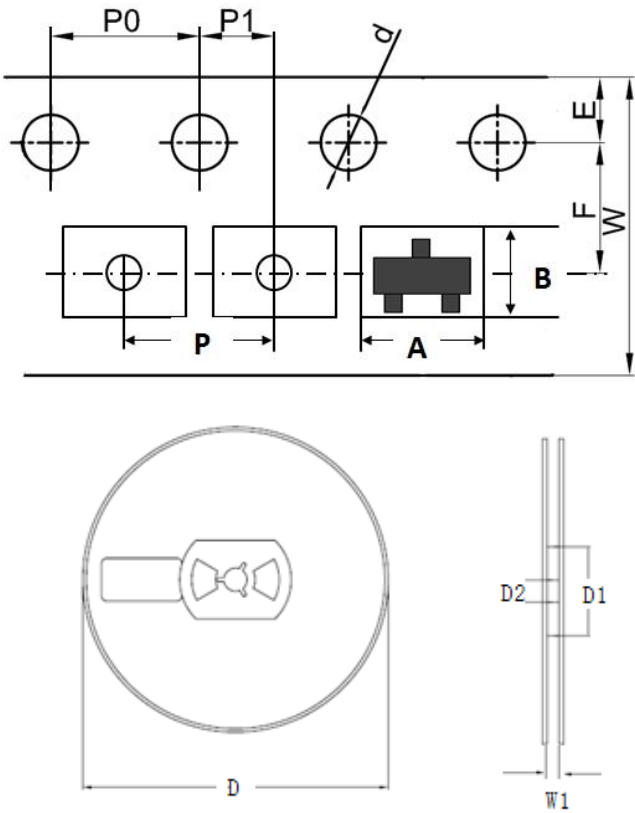
REF	mm	inch
A	0.7	0.026
B	0.9	0.035
C	1.3	0.051
D	0.65	0.025
E	1.9	0.075

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) 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	3.10+/-0.2	0.122+/-0.008
B	2.9+/-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	390	370	220