

Transient Voltage Suppressor

Version: A2 2023-11-30

Features

- IEC 61000-4-2(ESD)±30KV(air), ±30KV(contact)
- IEC61000-4-5(Lightning) 100A (8/20Us)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 2000 Watts peak pulse power per line (tp=8/20μS)
- Low clamping voltage
- Weight approx. 80 mg
- Moisture sensitivity level: Level 1

Exterior

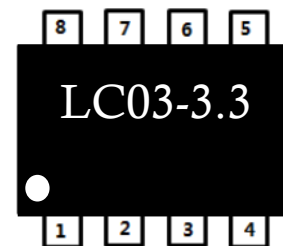


SOP8

Application information

- Set Top Box
- Wireless Systems
- Switching Systems
- ISDN Interfaces

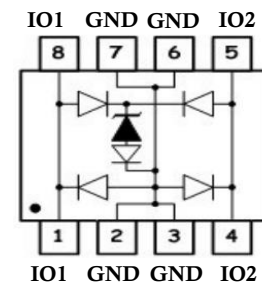
Package (top view)



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	$I_{DRM}@V_{DRM}$		$V_{SB}^{①}@I_{SB}$		$V_{PT}^{①}@I_{PT}$		$V_C@I_{PP}^{②}$		$CO^{③}$	$CO^{④}$
	μA	V	V	mA	V	mA	V	A	pF	pF
	MAX		MIN		MIN		MAX		MAX	MAX
BV-P803Z2A	1	3.3	2.8	50	3.5	0.002	20	100	12	25

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

① V_{SB} is measured at $I_{SB}=50mA$ IO to GND; V_{PT} is measured at $I_{PT}=0.002mA$, IO to GND

② Surge Waveform: 8/20uS, IO to GND

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

④ Off-state capacitance is measured in $V_{DC}=0V, V_{RMS}=0.3V, f=1MHz, IO$ to GND

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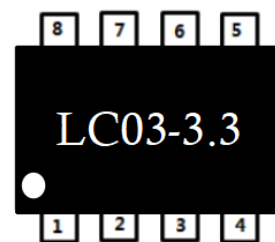
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Part Numbering System

BV P8 03 Z 2 A
(1) (2) (3) (4) (5) (6)

- (1) Bencent Transient Voltage Suppressor
- (2) Package:SOP8
- (3) Off-state Voltage: 3.3V
- (4) Normal Capacitance (Unidirectional Polarity omitted)
- (5) 2 Lines protection
- (6) Bencent intenal code

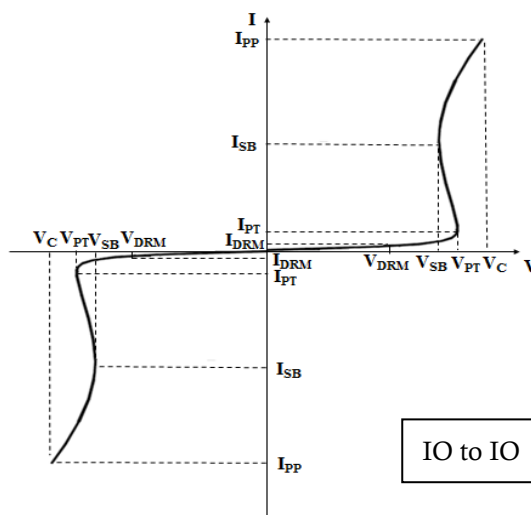
Mark



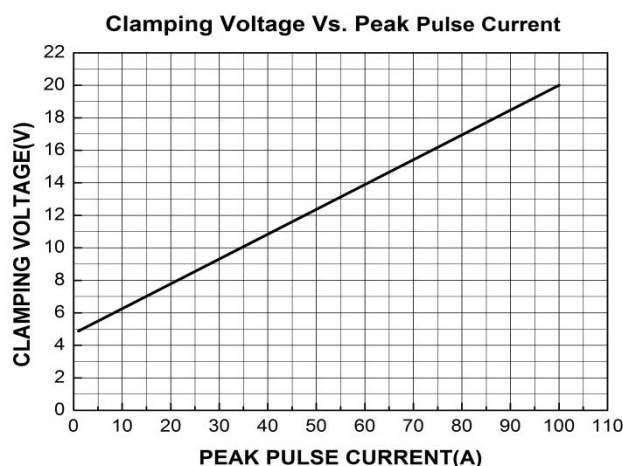
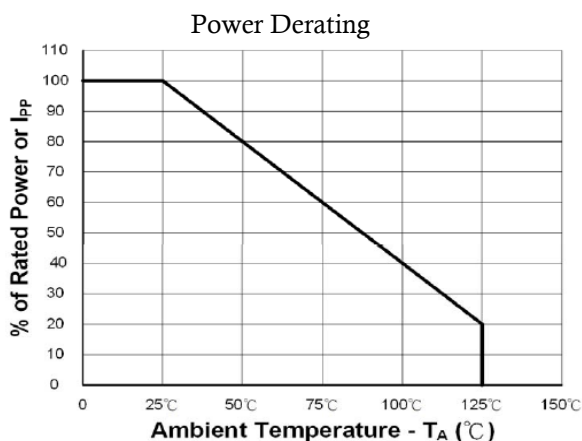
LC03-3.3: Part Number

V-I Curve

Parameters	Definition
V_C	Clamping voltage
V_{DRM}	Stand-off Voltage
V_{PT}	Punch-Through Voltage
V_{SB}	Snap Back Voltage
I_{DRM}	Reverse Leakage Current
I_{PT}	Test current
I_{SB}	Test current
I_{PP}	Surge waveform 8/20 μ s
P_{PP}	Peak Pulse Power Dissipation



Typical Characteristics



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

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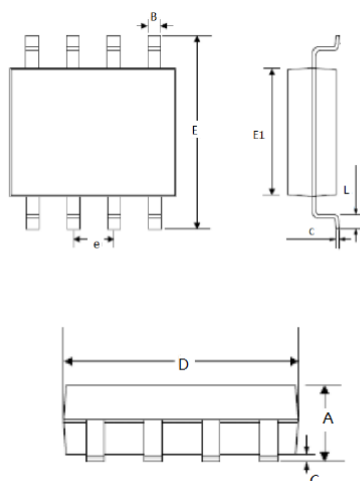
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Environmental Characteristics

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,10~100cycles
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: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

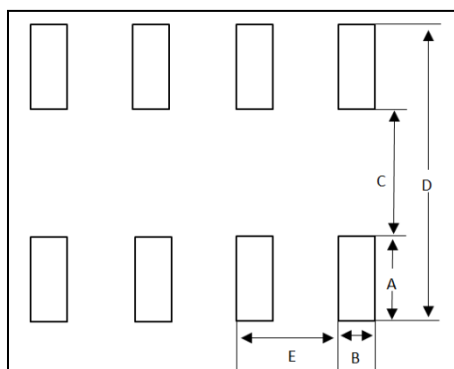
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	1.35~1.75	0.053~0.069
B	0.33~0.53	0.013~0.021
C	0.05~0.25	0.002~0.010
D	4.80~5.00	0.189~0.197
E	5.70~6.30	0.224~0.248
E1	3.80~4.00	0.150~0.157
e	1.27BSC	0.050BSC
c	0.15~0.25	0.006~0.010
L	0.30~1.10	0.012~0.043

Recommended Soldering Pad

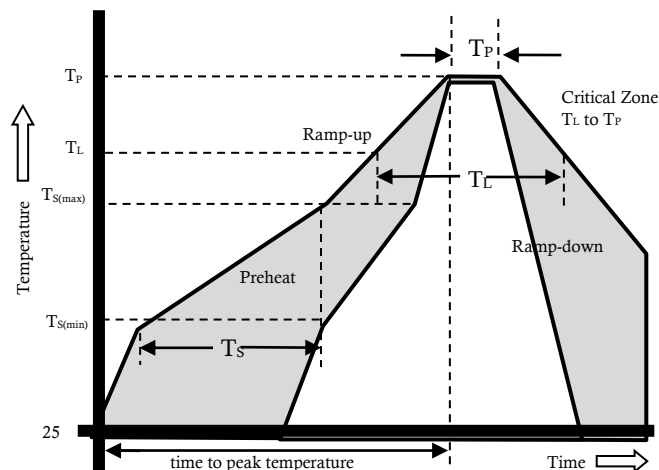


REF	mm	inch
A	1.52	0.060
B	0.6	0.024
C	4	0.157
D	7	0.276
E	1.27	0.050

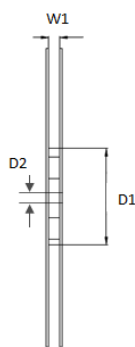
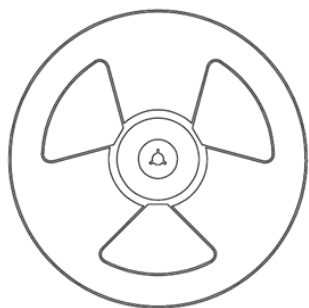
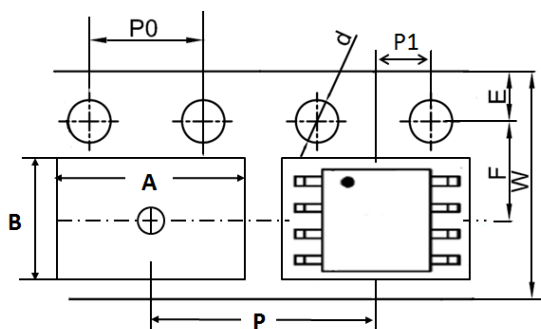
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Reflow Profile

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)		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)		30secs
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	6.40+/-0.20	0.252+/-0.008
B	5.40+/-0.20	0.213+/-0.008
d	1.50+0.1/-0	0.059+0.004/-0
C	1.80+/-0.1	0.71+/-0.004
D	330.00+/-2.00	12.992+/-0.079
D1	100.00+/-3.00	3.937+/-0.118
D2	13.00+/-0.50	0.512+/-0.020
E	1.75+/-0.10	0.069+/-0.004
F	5.50+/-0.20	0.217+/-0.008
P	8.00+/-0.20	0.315+/-0.008
P0	4.00+/-0.20	0.157+/-0.008
P1	2.00+/-0.20	0.079+/-0.008
W	12.00+/-0.20	0.472+/-0.008
W1	12.50+/-1.00	0.492+/-0.039

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	2,500	20,000	330	360	360	380