

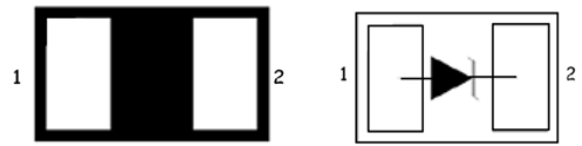
Transient Voltage Suppressor

Version: A4 2024-2-23

Features

- IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact)
- 1800 Watts peak pulse power ($t_p=8/20\mu\text{S}$)
- Low clamping voltage
- Moisture sensitivity level: level 3
- Small package saves board space (1610)

Exterior



DFN1610-2L

Application Information

- Cellular Phones
- I²C Bus Protection

Agency Approvals

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

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
	uA	V	V	mA	V	A	V	A	Ω	V	A	pF
	MAX		MIN		MAX		MAX		TYP	TYP		MAX
BV-FE05ZA	1	5	6	1	9	100	13	150	0.06	8.3	16	2000

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

- ① V_{BR} is measured at I_R=1mA
- ② Surge Waveform: 8/20μS.
- ③ TLP parameter: Z₀ = 50Ω, t_p = 100ns, t_r = 1ns, R_{DYN} is calculated from 4A to16A
- ④ Off-state capacitance is measured in Bias=0V, f=1MHz

Part Numbering System

BV FE 05 Z A
(1) (2) (3) (4) (5)

- (1) Bencent Transient Voltage Suppressor
- (2) Package: DFN1610
- (3) Stand off Voltage:5.0V
- (4) Capacitance level: Normal Capacitance
- (5) Higher IPP (150A), Lower VC(<9V@100A)

Mark



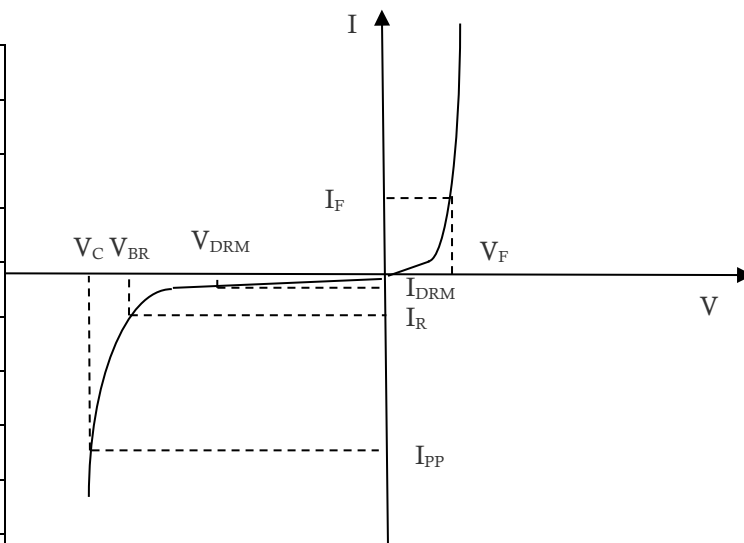
U5Z: Part Number

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V-I Curve

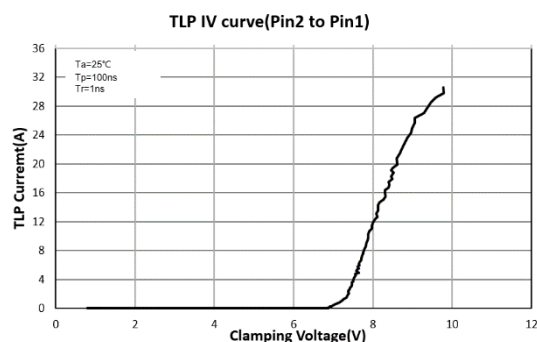
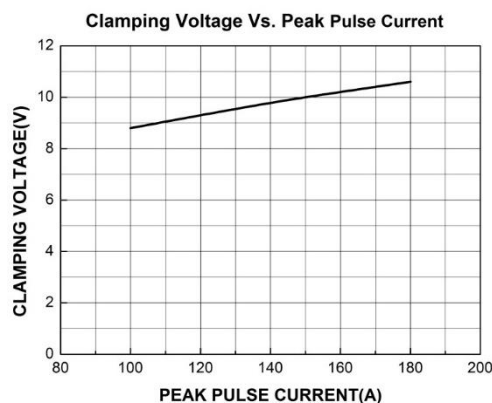
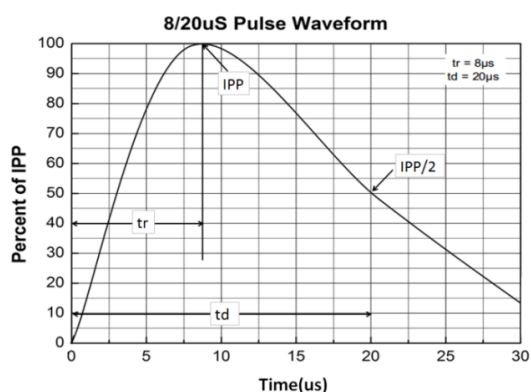
Parameters	Definition
V_C	Clamping Voltage
I_{PP}	Surge Waveform 8/20 μ s
V_{DRM}	Stand-off Voltage
I_{DRM}	Reverse Leakage Current
V_{BR}	Breakdown Voltage
I_R	Test Current
V_F	Forward Voltage
I_F	Test Current
P_{pp}	Peak Pulse Power Dissipation



Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +125	$^{\circ}\text{C}$
T_S	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$

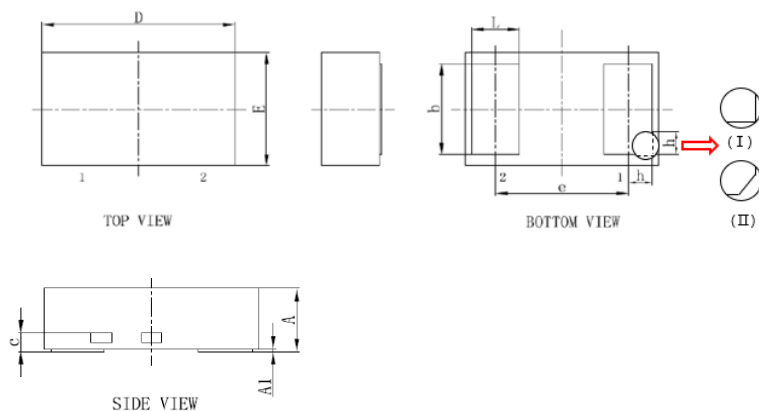
Typical Characteristics



Transient Voltage Suppressor

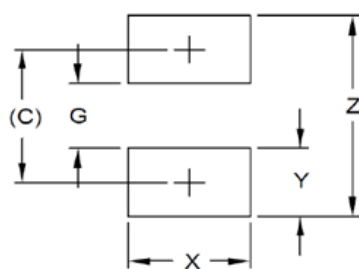
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Product Dimensions



REF	mm	inch
A	0.450-0.550	0.0177-0.0217
A1	0.000-0.050	0.000-0.0020
b	0.750-0.850	0.0295-0.0335
c	0.100-0.200	0.0039-0.0079
D	1.550-1.650	0.0610-0.0650
e	1.10BSC	0.0433BSC
E	0.950-1.050	0.0374-0.0413
L	0.350-0.450	0.0138-0.0177
h	0.150-0.250	0.0059-0.0098

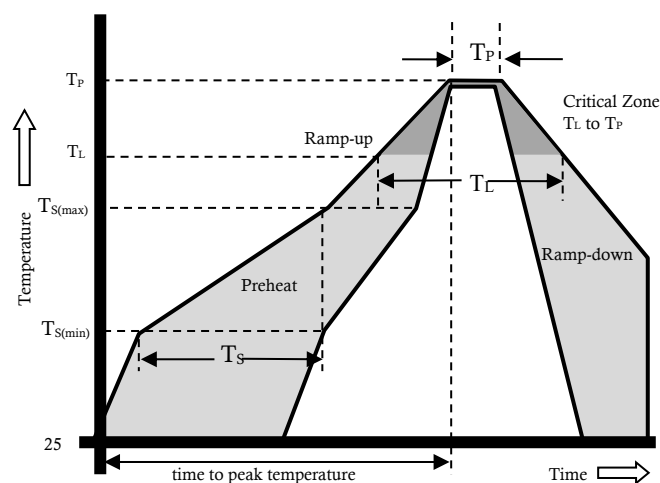
Recommended Soldering Pad



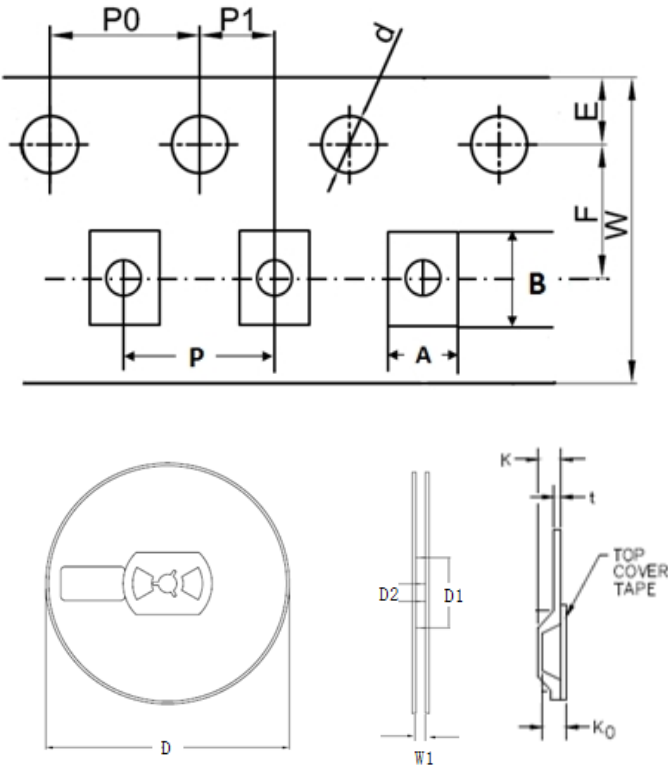
REF	mm	inch
C	1.225	0.048
G	0.600	0.024
X	1.000	0.039
Y	0.625	0.025
Z	1.850	0.073

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(Liquidus Temp(T _L) to peak)		3°C/sec. Max.
Ts(max) to T _L - Ramp-up Rate		3°C/sec. Max.
Reflow	- Temperature (T _L) (Liquidus)	+217°C
	- Temperature (T _L)	60 – 150 secs.
Peak Temp (T _P)		+(260+0/-5) °C
Time within 5°C of actual Peak Temp (T _P)		25
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp (T _P)		8 min. Max.
Do not exceed		+260°C



Package Reel Information



REF	mm	inch
A	1.25+/-0.1	0.049+/-0.004
B	1.80+/-0.1	0.071+/-0.004
d	1.5+0.1/-0	0.061+0.004/-0
W	8.0+/-0.2	0.315+/-0.008
E	1.75+/-0.1	0.069+/-0.004
F	3.5+/-0.1	0.138+/-0.004
P	4.0+/-0.1	0.158+/-0.004
P0	4.0+/-0.1	0.158+/-0.004
P1	2.0+/-0.1	0.079+/-0.004
K	2.4 max	0.094 max
K0	0.8+/-0.2	0.031+/-0.008
t	1.6+/-0.6	0.063+/-0.024
D	178+/-2.0	7.009+/-0.078
D1	55+/-3.0	2.165+/-0.118
D2	13+/-0.5	0.512+/-0.020
W1	8.6+/-0.1	0.339+/-0.04

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3000	90,000	178	380	220	205