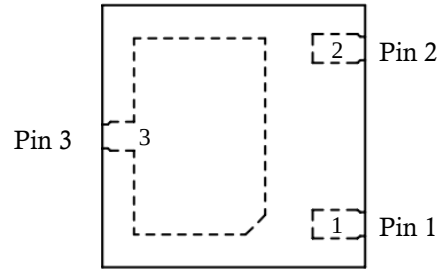


Transient Voltage Suppressor

Features

- IEC 61000-4-2(ESD)±30KV(air), ±30KV(contact)
- IEC61000-4-5(Lightning) 80A (8/20μS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 2960 Watts peak pulse power (tp=8/20μS)
- Low clamping voltage
- Package: DFN2020
- Weight 8.0 mg (Approximate)
- Moisture sensitivity level: Level 1

Exterior (top view)



DFN2020

Application Information

- Cellular Phones
- Parallel & Serial Port Protection
- Personal Digital Assistant (PDA)
- Microcontroller Input Protection
- Charger Protection

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			Co ^③
	μA	V	V	mA	V	V	A	pF
	MAX		MIN		TYP	MAX		MAX
BV-FM20ZA	1	20	21	1	34	37	80	1500

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

- ① V_{BR} is measured at I_R=1Ma, pin3 to pin1 and pin2.
- ② Surge Waveform: 8/20μS, pin3 to pin1 and pin2.
- ③ Off-state capacitance is measured in V_{DC}=0V, V_{RMS}=0.3V, f=1MHz

Transient Voltage Suppressor

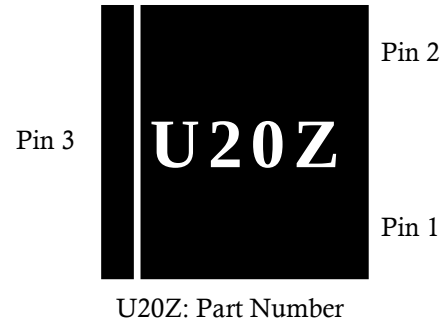
Version: A1 2024-02-01

Part Numbering System

BV FM 20 Z A
(1) (2) (3) (4) (5)

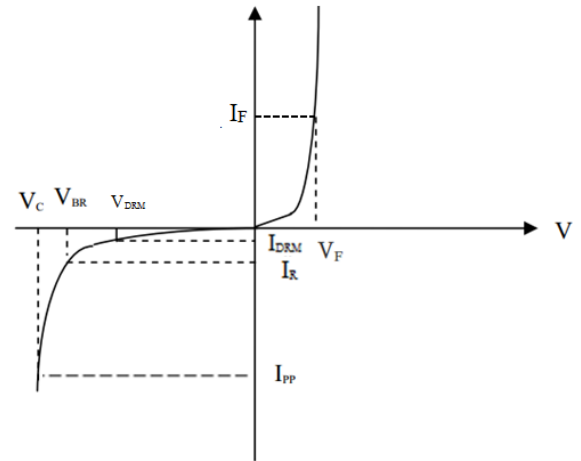
- (1) Bencent Transient Voltage Suppressor
- (2) Package:DFN2020
- (3) Off-state Voltage: 20V
- (4) Normal Capacitance (Unidirectional Polarity omitted)
- (5) Bencent internal code

Mark (top view)



V-I Curve

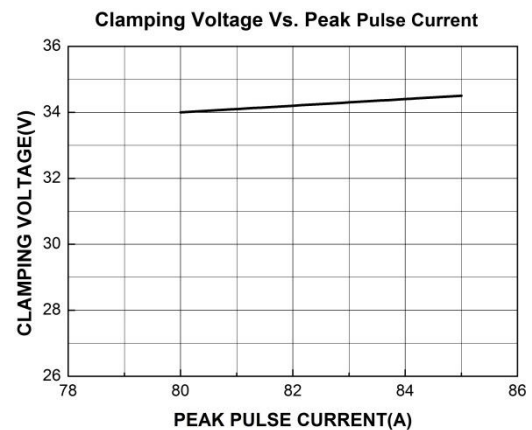
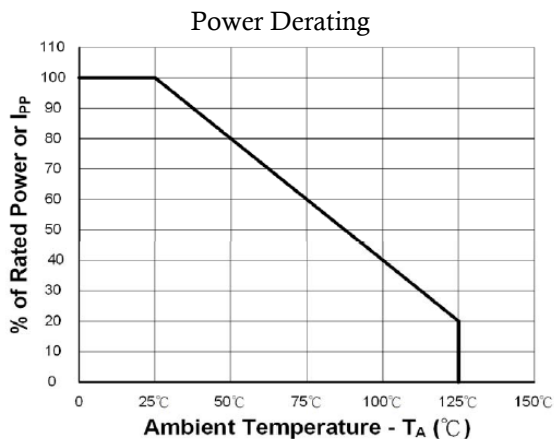
Parameters	Definition
VC	Clamping Voltage
Ipp	Surge Waveform 8/20μs
VDRM	Stand-off Voltage
VBR	Breakdown Voltage
IDRM	Reverse Leakage Current
IR	Test Current
PPP	Peak Pulse Power Dissipation
VF	Forward On-state Voltage
IF	Forward Current



Thermal Considerations

symbol	Parameter	Value	Unit
T _J	Operating Junction Temperature Range	-40 to +125	°C
T _S	Storage Temperature Range	-55 to +150	°C

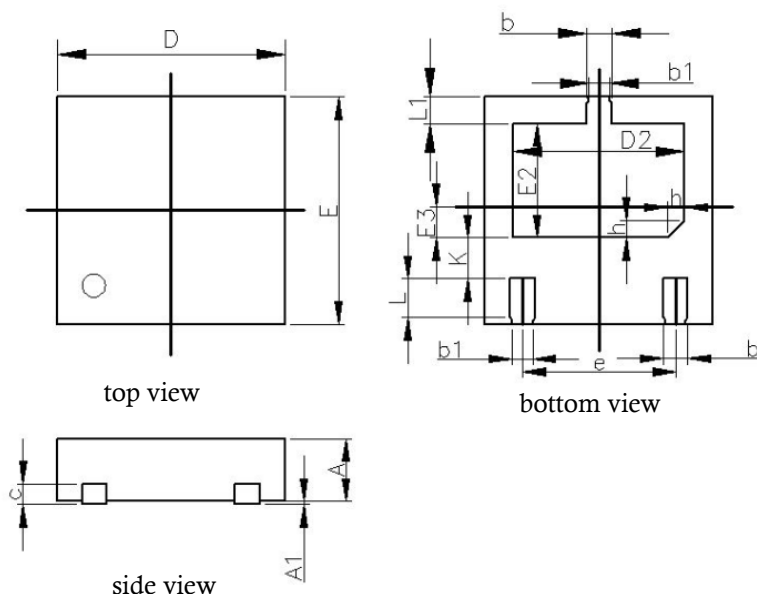
Typical Characteristics



Transient Voltage Suppressor

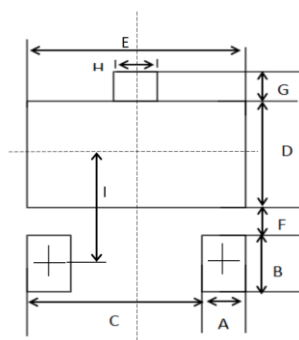
Version: A1 2024-02-01

Product Dimensions



REF	mm	inch
A	0.50~0.60	0.020~0.024
A1	0.00~0.05	0.000~0.002
b	0.25~0.35	0.010~0.014
b1	0.20REF	0.008REF
c	0.152REF	0.006REF
D	1.90~2.10	0.075~0.083
D2	1.40~1.60	0.055~0.063
e	1.3BSC	0.051BSC
E	1.90~2.10	0.075~0.083
E2	0.95~1.15	0.037~0.045
E3	0.20~0.40	0.008~0.016
L	0.35~0.45	0.014~0.018
L1	0.20~0.30	0.008~0.012
h	0.20REF	0.008REF
K	0.20~0.40	0.008~0.016

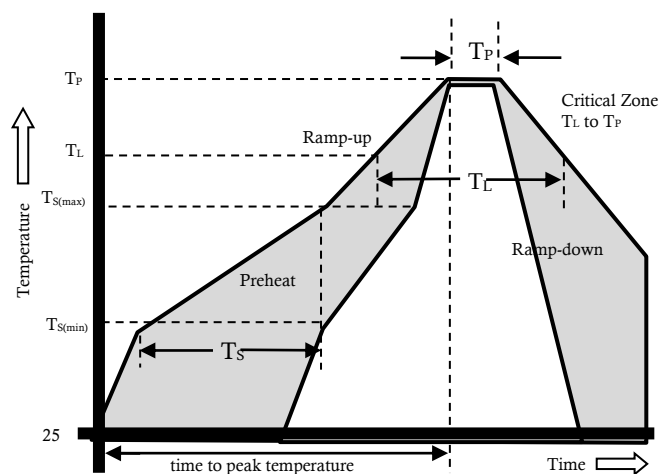
Recommended Soldering Pad



REF	mm	inch
A	0.4	0.016
B	0.6	0.024
C	1.3	0.051
D	1.1	0.043
E	1.7	0.067
F	0.15	0.006
G	0.25	0.010
H	0.4	0.016
I	1.0	0.039

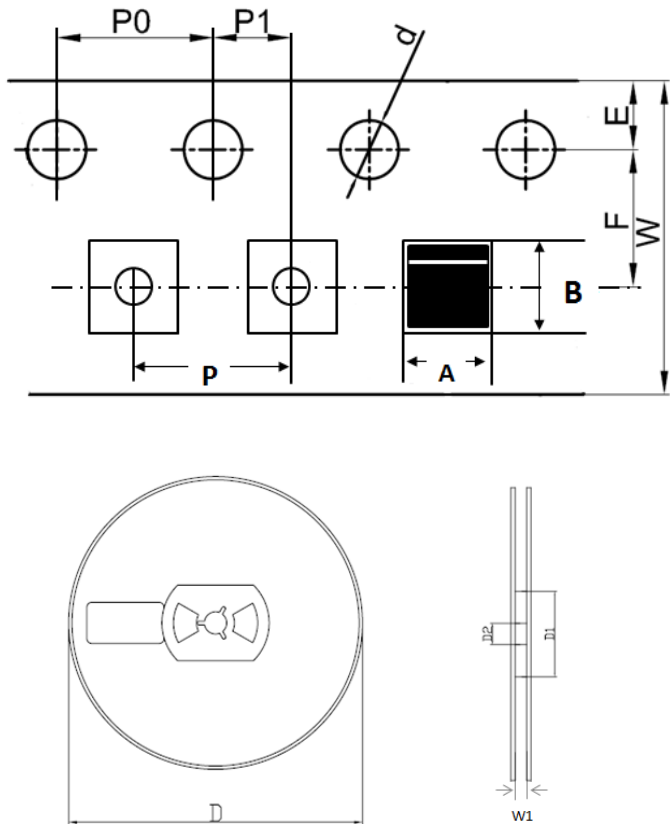
Reflow Profile

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)		30secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T _P)		8 mins max.
Do not exceed		260°C



Transient Voltage Suppressor
Package Reel Information

Version: A1 2024-02-01



REF	mm	inch
A	2.25+/-0.10	0.089+/-0.004
B	2.25+/-0.10	0.089+/-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