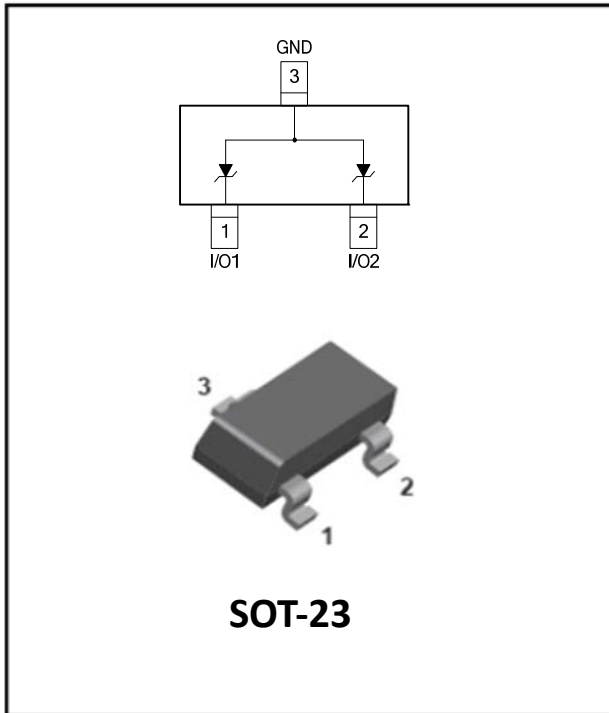


## 2-Line, Uni-directional, Transient Voltage Suppressor



### Features

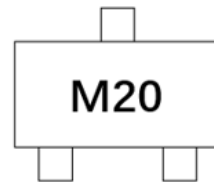
- Stand-off voltage: 17V
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 30\text{kV}$  (contact)  
IEC61000-4-5(surge): 1.4A (10/1000 $\mu\text{s}$ )
- Low leakage current:
- Ultra low clamping voltage
- RoHS Compliant

### Applications

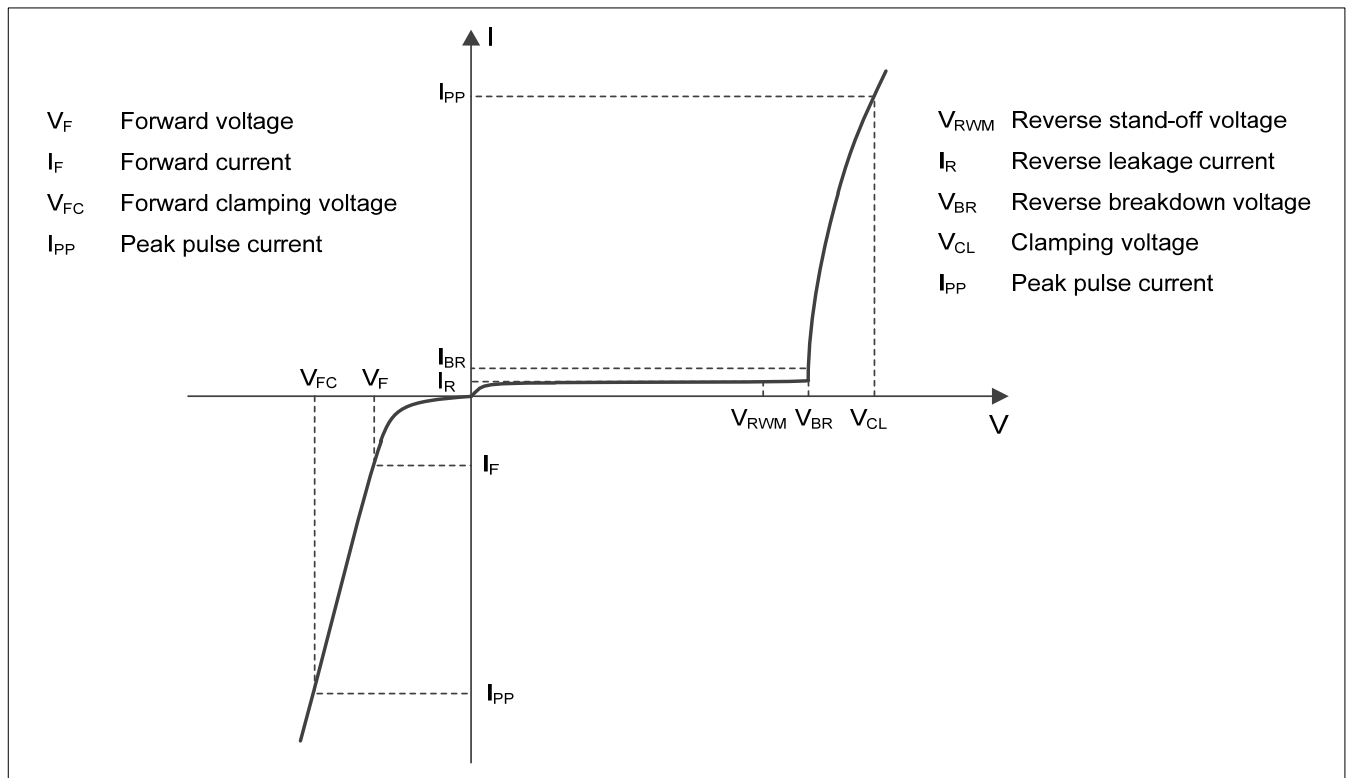
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

### Mechanical Data

- Package: SOT-23
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below



### ■Definitions of electrical characteristics





# MMBZ20VA

## ■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power (tp = 10/1000μs)	P <sub>pk</sub>	39.2	W
Peak pulse current (tp = 10/1000μs)	I <sub>PP</sub>	1.4	A
ESD according to IEC61000-4-2 air discharge	V <sub>ESD</sub>	±30	KV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T <sub>J</sub>	-55~150	°C
Storage temperature	T <sub>STG</sub>	-55~150	°C

## ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V <sub>RWM</sub>	V				17
Reverse leakage current	I <sub>R</sub>	nA	V <sub>RWM</sub> = 17V			50
Reverse breakdown voltage	V <sub>BR</sub>	V	I <sub>BR</sub> = 1mA	19.00		21.00
Clamping voltage <sup>2)</sup>	V <sub>CL</sub>	V	I <sub>PP</sub> = 1.4A, t <sub>p</sub> = 10/1000μs			28
Junction Capacitance	C <sub>J</sub>	pF	V <sub>R</sub> =0V,f=1MHz		77	

Notes:

- (1). TLP parameter: Z<sub>0</sub> = 50Ω, t<sub>p</sub> = 100ns, t<sub>r</sub> = 2ns, averaging window from 60ns to 80ns. R<sub>DYN</sub> is calculated from 4A to 16A.
- (2). Non-repetitive current pulse, according to IEC61000-4-5.

## ■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBZ20VA	F2	Approximate 10	3000	30000	120000	7" reel



## ■ Characteristics (Typical)

Fig1: Pulse Waveform

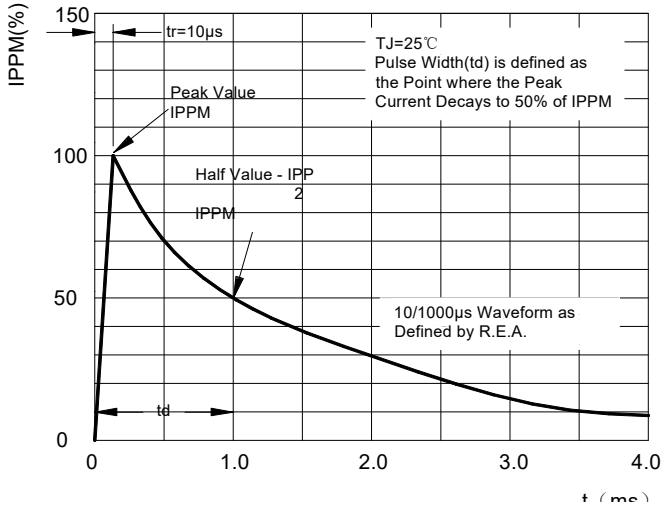


Fig 2: Contact discharge current waveform per IEC61000-4-2

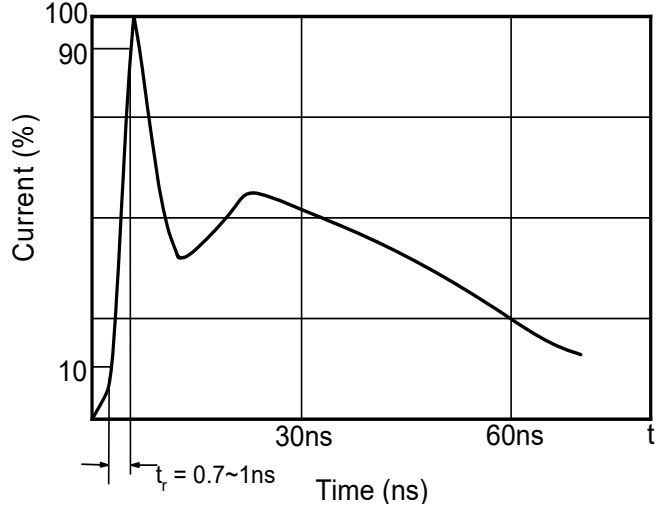


Fig3: Clamping voltage vs. Peak pulse current

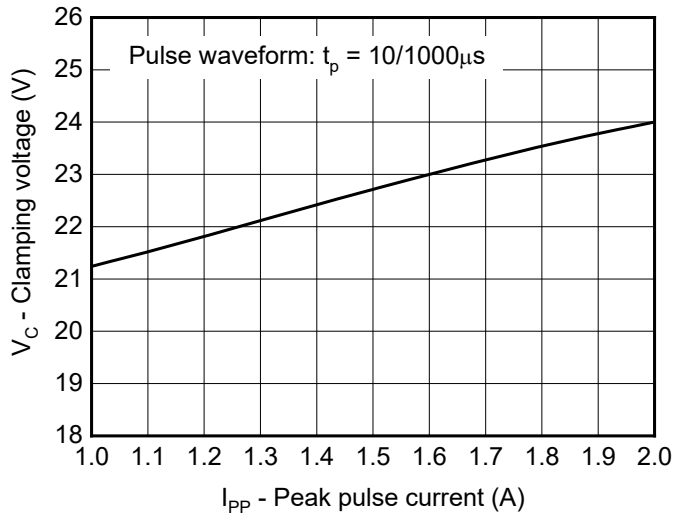


Fig4: Capacitance vs. Reverse voltage

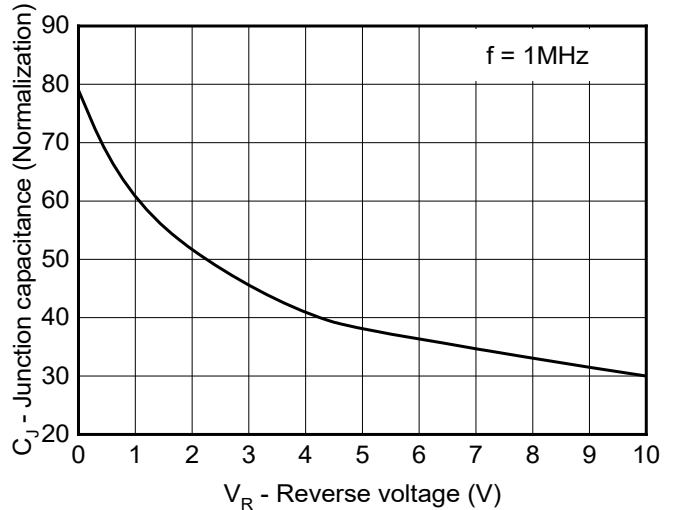


Fig5: Non-repetitive peak pulse power vs. Pulse time

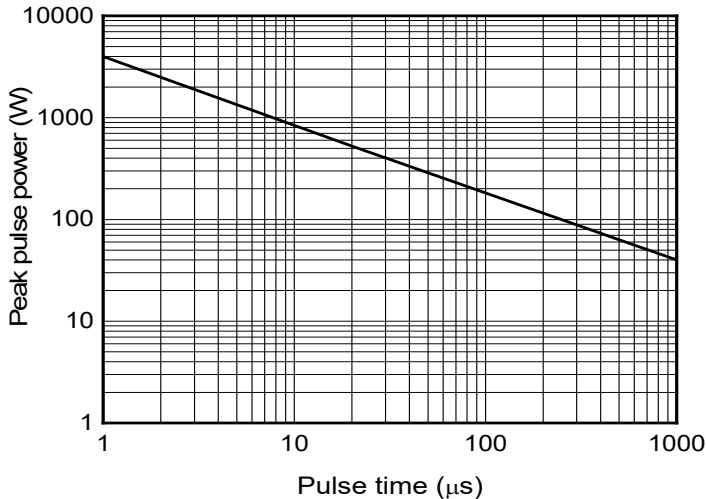
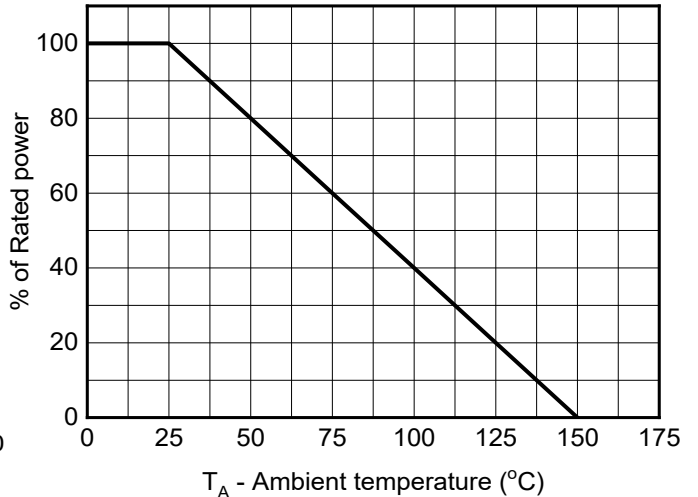


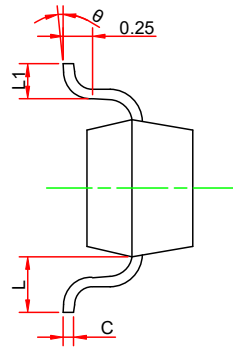
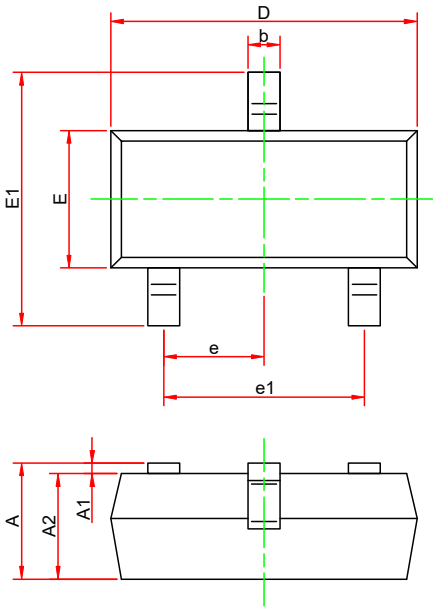
Fig6: Power derating vs. Ambient temperature





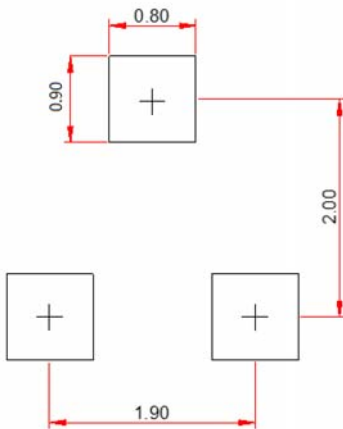
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## ■ Outline Dimensions



Symbol	Dimensions in millimeters		
	Min.	Typ.	Max.
A	0.900	-	1.150
A1	0.000	-	0.100
A2	0.900	-	1.050
b	0.300	-	0.500
c	0.100	-	0.200
D	2.800	-	3.000
E	1.200	-	1.400
E1	2.250	-	2.550
e	0.950TYP		
e1	1.800	-	2.000
L	0.550REF		
L1	0.300	-	0.500
$\theta$	0°	-	8°

## ■ Soldering Footprint



### Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.



## MMBZ20VA

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