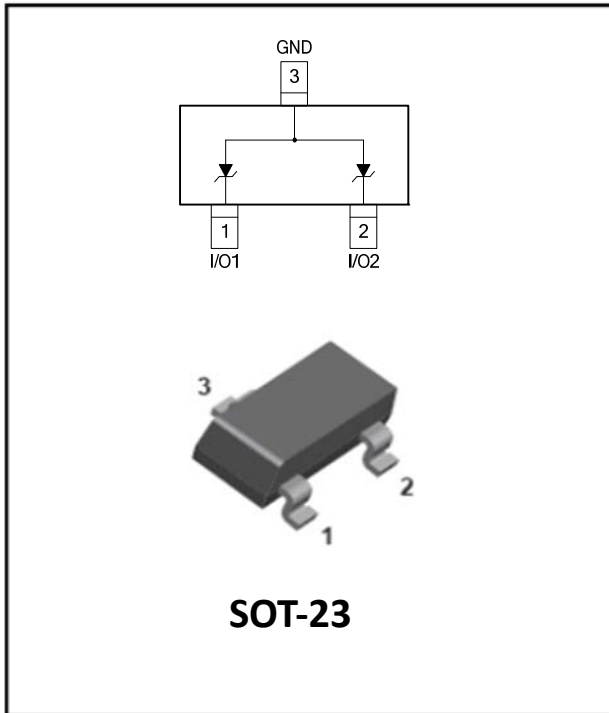


## 2-Line, Uni-directional, Transient Voltage Suppressor



### Features

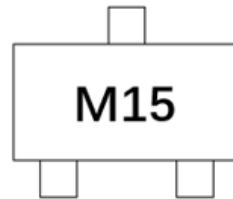
- Stand-off voltage: 8.5V
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 30\text{kV}$  (contact)  
IEC61000-4-5(surge): 1.8A (10/1000 $\mu\text{s}$ )
- Low leakage current:
- Ultra low clamping voltage
- RoHS Compliant

### Applications

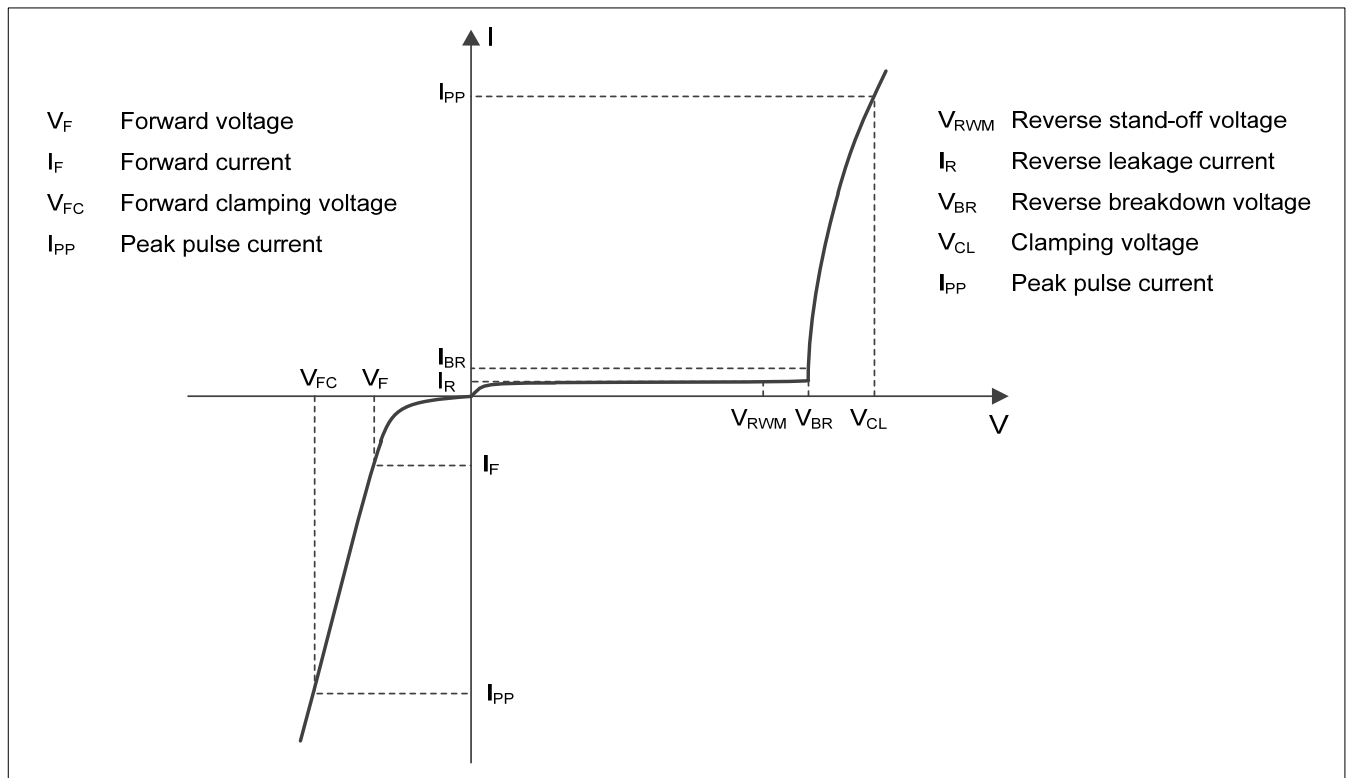
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

### 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





# MMBZ12VA

## ■ Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ( $t_p = 10/1000\mu s$ )	$P_{pk}$	32.2	W
Peak pulse current ( $t_p = 10/1000\mu s$ )	$I_{PP}$	2.4	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	KV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Junction temperature	$T_J$	-55~150	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

## ■ Electrical Characteristics ( $T_a=25^{\circ}C$ Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	$V_{RWM}$	V				8.5
Reverse leakage current	$I_R$	nA	$V_{RWM} = 8.5V$			50
Reverse breakdown voltage	$V_{BR}$	V	$I_{BR} = 1mA$	11.3		13
Clamping voltage <sup>2)</sup>	$V_{CL}$	V	$I_{PP} = 1.8A, t_p = 10/1000\mu s$			18
Junction Capacitance	$C_J$	pF	$V_R=0V, f=1MHz$		114	

Notes:

- (1). TLP parameter:  $Z_0 = 50\Omega$ ,  $t_p = 100ns$ ,  $t_r = 2ns$ , averaging window from 60ns to 80ns.  $R_{DYN}$  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
MMBZ12VA	F2	Approximate 10	3000	30000	120000	7" reel



## ■ Characteristics (Typical)

Fig1: Pulse Waveform

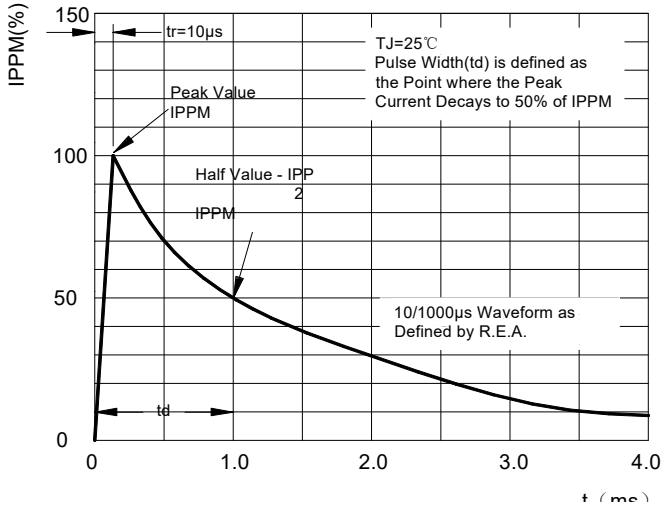


Fig 2: Contact discharge current waveform per IEC61000-4-2

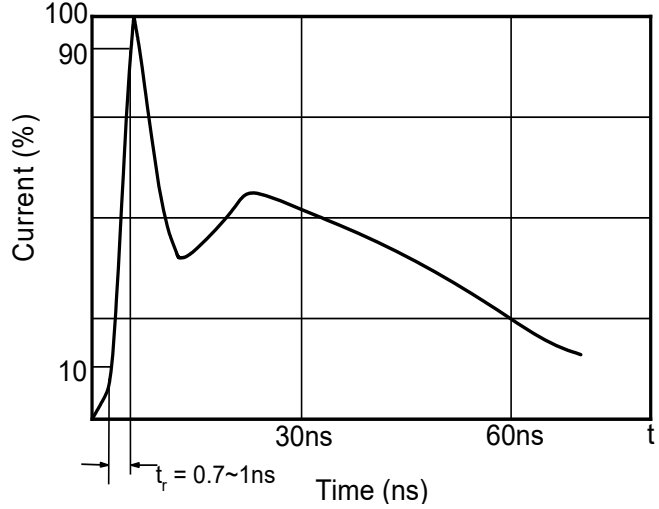


Fig3: Clamping voltage vs. Peak pulse current

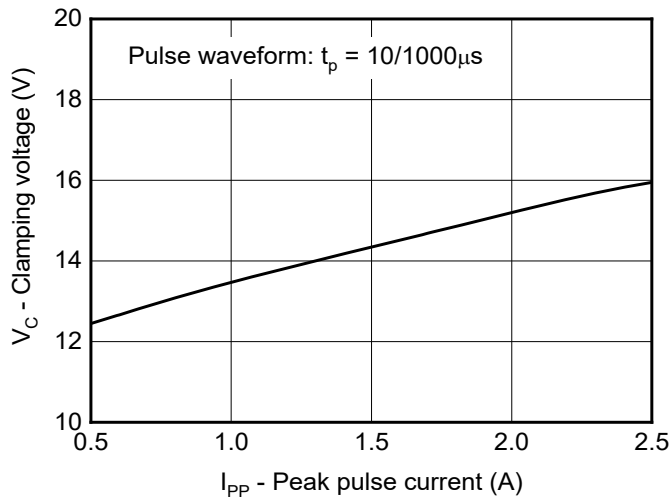


Fig4: Capacitance vs. Reverse voltage

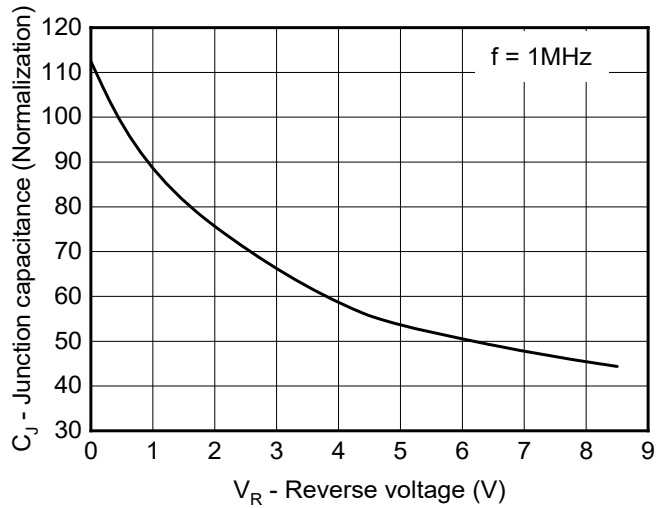


Fig5: Non-repetitive peak pulse power vs. Pulse time

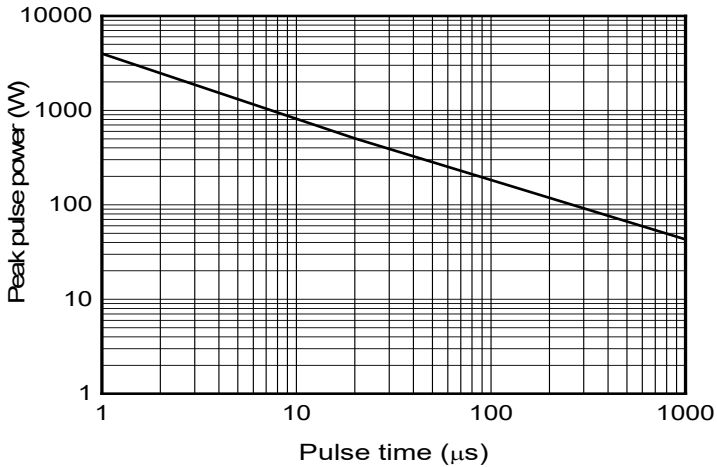
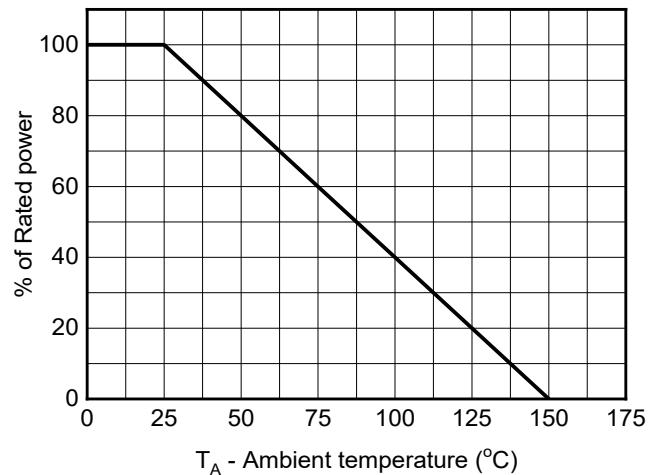


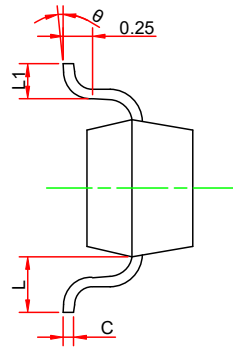
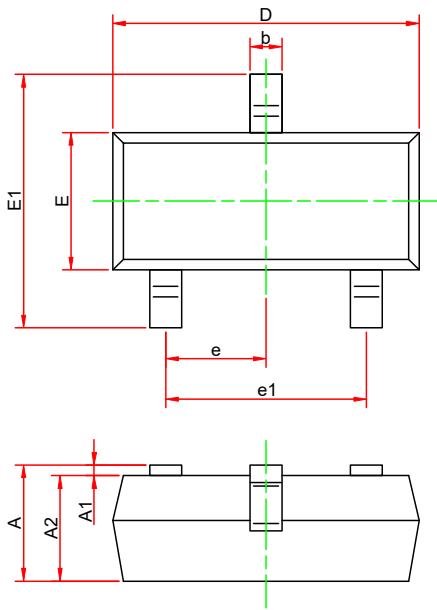
Fig6: Power derating vs. Ambient temperature





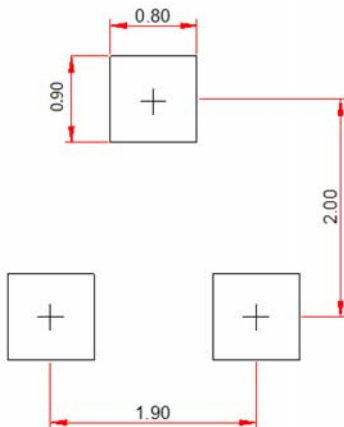
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## ■ Outline Dimensions



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.



## MMBZ12VA

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