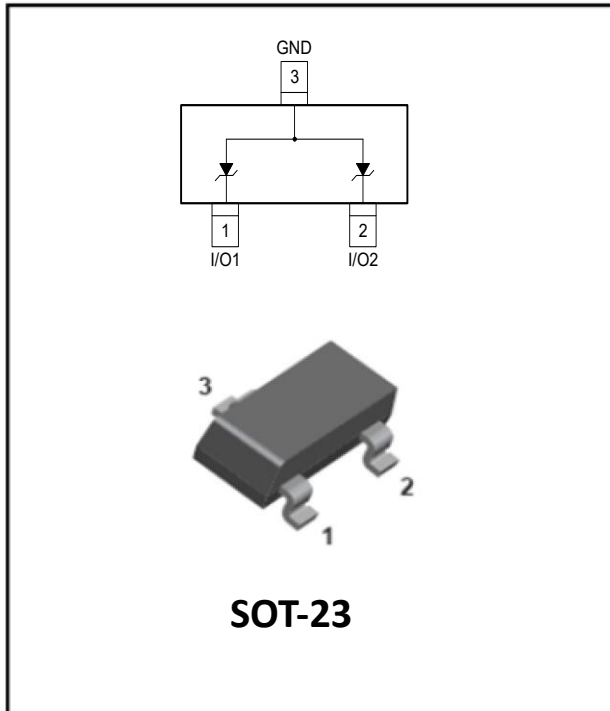


## 2-Line, Uni-directional, Transient Voltage Suppressor



### Features

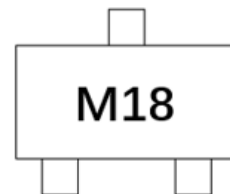
- Stand-off voltage:14.5V
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 30\text{kV}$  (contact)  
IEC61000-4-5(surge): 1.6A (10/1000 $\mu\text{s}$ )
- Low leakage current:
- Ultra low clamping voltage
- RoHS Compliant

### Applications

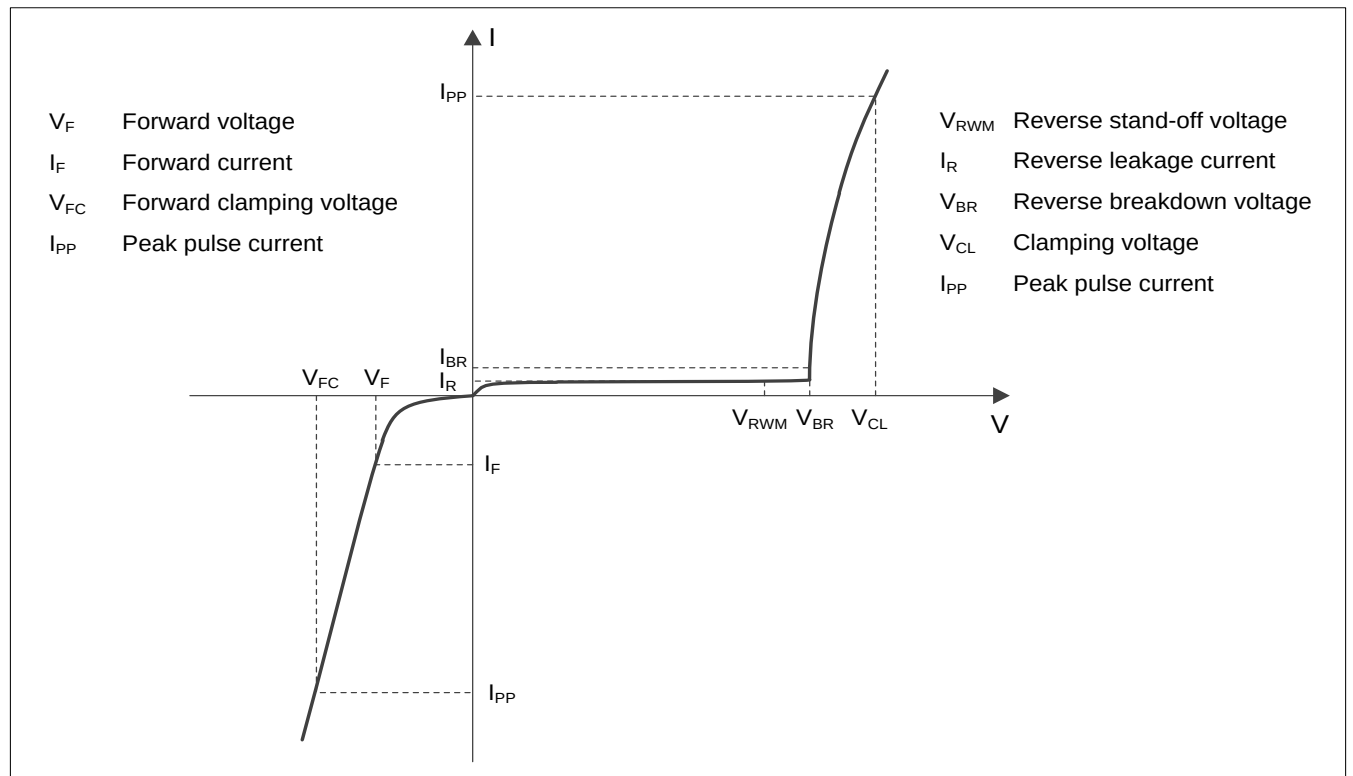
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

### 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





# MMBZ18VA

## ■Maximum Ratings

| PARAMETER                                       | SYMBOL           | LIMITS  | UNIT |
|-------------------------------------------------|------------------|---------|------|
| Peak pulse power (tp = 10/1000μs)               | P <sub>pk</sub>  | 40      | W    |
| Peak pulse current (tp = 10/1000μs)             | I <sub>PP</sub>  | 1.6     | 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    |                                                    |       |     | 14.5  |
| Reverse leakage current         | I <sub>R</sub>   | nA   | V <sub>RWM</sub> = 14.5V                           |       |     | 50    |
| Reverse breakdown voltage       | V <sub>BR</sub>  | V    | I <sub>BR</sub> = 1mA                              | 17.10 |     | 18.90 |
| Clamping voltage <sup>2)</sup>  | V <sub>CL</sub>  | V    | I <sub>PP</sub> = 1.6A, t <sub>p</sub> = 10/1000μs |       |     | 25    |
| Clamping voltage <sup>3)</sup>  | V <sub>CL</sub>  | V    | I <sub>PP</sub> = 15A, t <sub>p</sub> = 8/20μs     |       |     | 35    |
| Junction Capacitance            | C <sub>J</sub>   | pF   | V <sub>R</sub> =0V,f=1MHz                          |       | 80  |       |

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 |
|---------------|--------------|-----------------|----------------------|-------------------------|----------------------------|---------------|
| MMBZ18VA      | F2           | Approximate 10  | 3000                 | 30000                   | 120000                     | 7" reel       |



## ■ Characteristics (Typical)

Fig1: Pulse Waveform

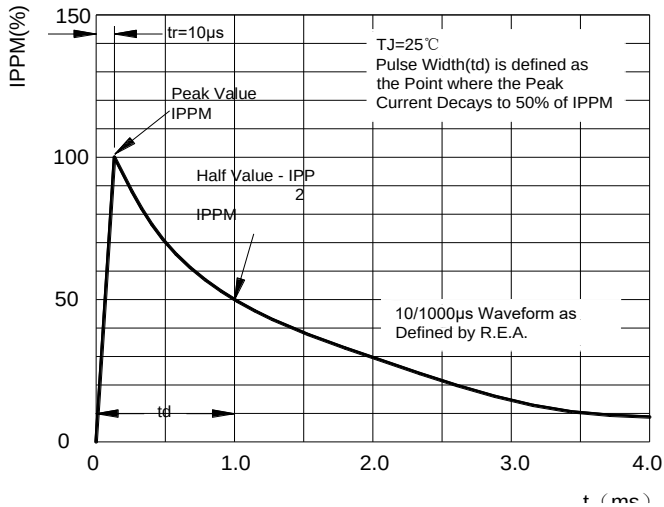


Fig 2: Contact discharge current waveform per IEC61000-4-2

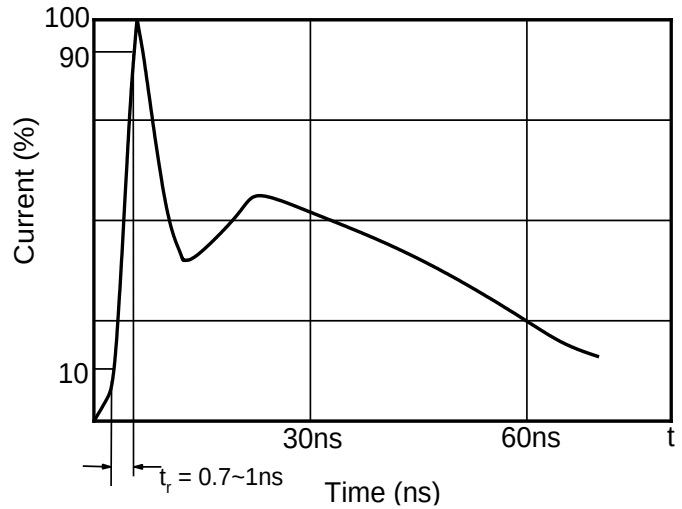


Fig3: Clamping voltage vs. Peak pulse current

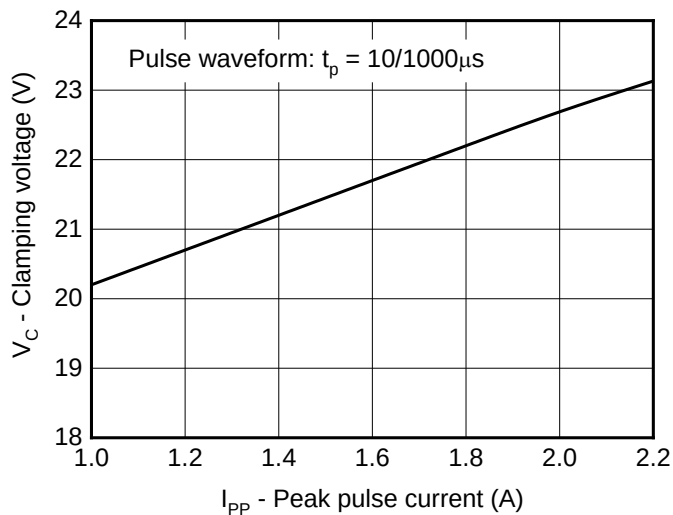


Fig4: Capacitance vs. Reverse voltage

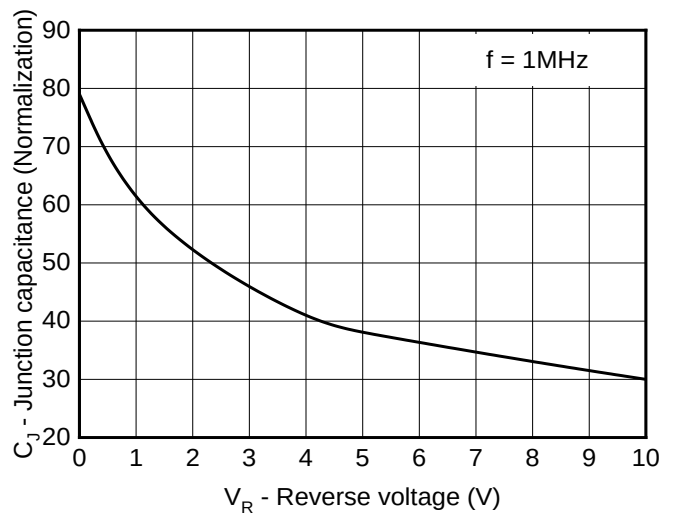


Fig5: Non-repetitive peak pulse power vs. Pulse time

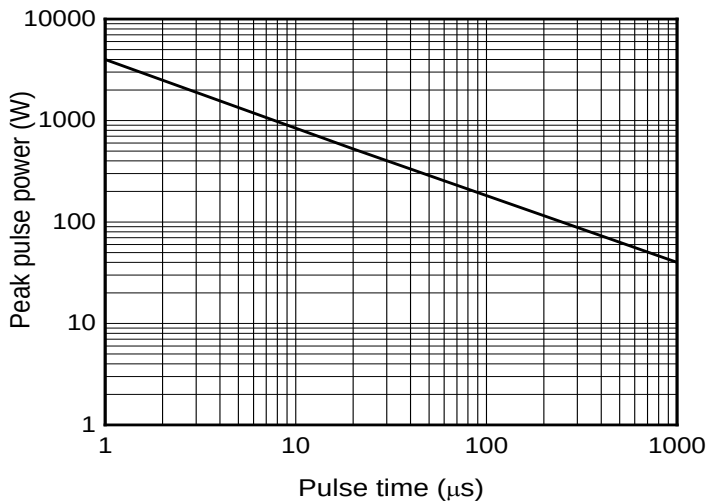


Fig6: Power derating vs. Ambient temperature

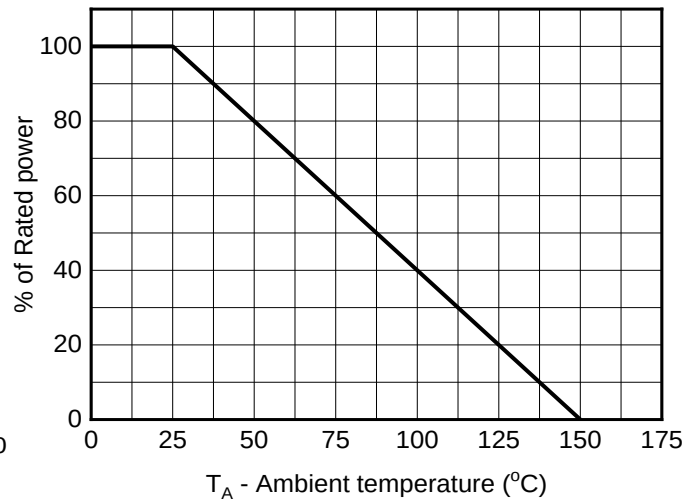
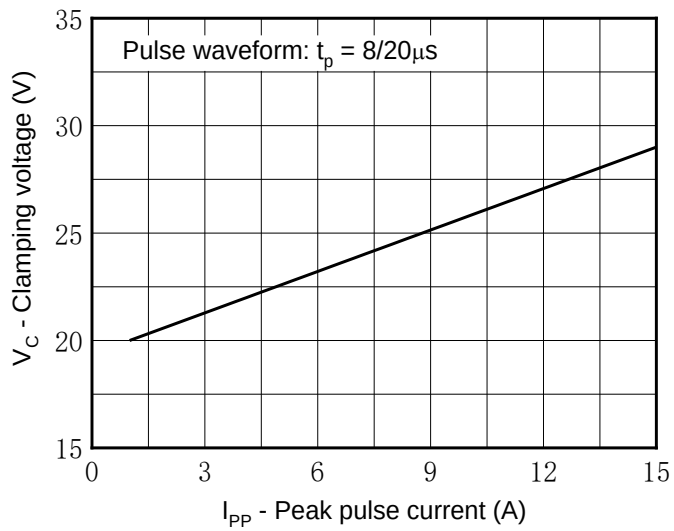
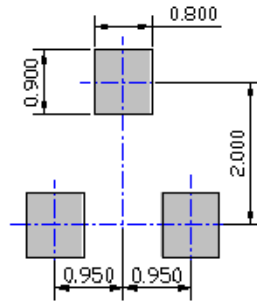
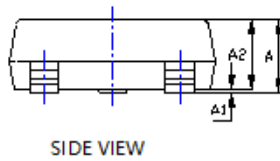
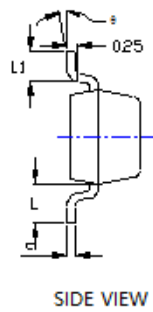
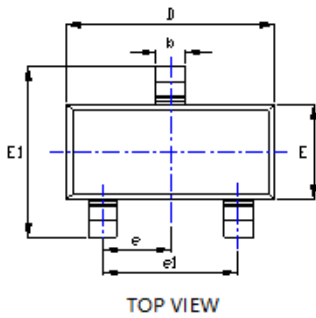


Fig7: Clamping voltage vs. Peak pulse current



## ■ Outline Dimensions



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.035      | 0.045 | 0.900      | 1.150 |
| A1     | 0.000      | 0.004 | 0.000      | 0.100 |
| A2     | 0.035      | 0.041 | 0.900      | 1.050 |
| b      | 0.012      | 0.020 | 0.300      | 0.500 |
| c      | 0.004      | 0.008 | 0.100      | 0.200 |
| D      | 0.110      | 0.118 | 2.800      | 3.000 |
| E      | 0.047      | 0.055 | 1.200      | 1.400 |
| E1     | 0.089      | 0.100 | 2.250      | 2.550 |
| e      | 0.037TYP   |       | 0.950TYP   |       |
| e1     | 0.071      | 0.079 | 1.800      | 2.000 |
| L      | 0.022REF   |       | 0.550REF   |       |
| L1     | 0.012      | 0.020 | 0.300      | 0.500 |
| s      | 0°         | 8°    | 0°         | 8°    |

NOTE:  
 1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.  
 2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.  
 3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



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