



## 1. Protection Solution To Meet

- IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 200A (8/20 $\mu\text{s}$ )

## 2. Features

- Protects one Power line
- Low clamping voltage
- Working voltage: 12V, 15V, 18V, 20V, 22V, 24V, 28V
- Low leakage current
- High Peak Pulse Power 5600W(8/20 $\mu\text{s}$ )

## 3. Main Application

- Fast-charge battery chargers
- Power management system
- DC Power

- SOD-123FL package
- Molding compound flammability rating: UL 94V-0

## 5. Absolute Maximum Ratings( $T_A=25^\circ\text{C}$ unless otherwise noted)

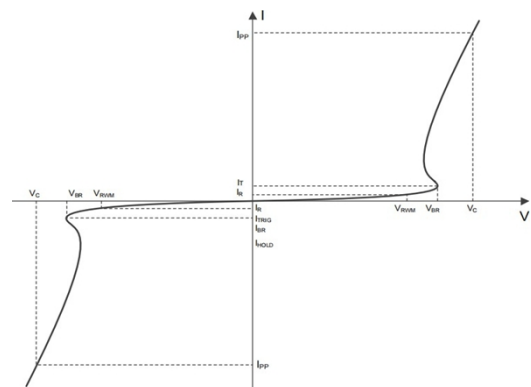
| Parameter                       | Symbol                   | Value    | Unit             |
|---------------------------------|--------------------------|----------|------------------|
| ESD per IEC 61000-4-2 (Contact) | $V_{\text{ESD-Contact}}$ | $\pm 30$ | KV               |
| ESD per IEC 61000-4-2 (Air)     | $V_{\text{ESD-Air}}$     | $\pm 30$ | KV               |
| Peak Pulse Power(8/20us)        | $P_{\text{pp}}$          | 5600     | W                |
| Operating Temperature           | $T_{\text{OPT}}$         | -55~+150 | $^\circ\text{C}$ |
| Storage Temperature Range       | $T_{\text{stg}}$         | -55~+150 | $^\circ\text{C}$ |

## 6. Electrical Characteristics( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Part Number | Marking | Direction | V <sub>R</sub> | V <sub>BR</sub> @ I <sub>T</sub> |        | I <sub>T</sub> | V <sub>C</sub> | I <sub>PP</sub> | I <sub>R</sub> @V <sub>R</sub> |
|-------------|---------|-----------|----------------|----------------------------------|--------|----------------|----------------|-----------------|--------------------------------|
|             |         |           | (V)            | (V)min                           | (V)max | (mA)           | (V) max        | (A)             | (μA) max                       |
| SMF12AH     | 12AH    | Uni       | 12             | 13.0                             | 15.0   | 1              | 28             | 200             | 1                              |
| SMF12CAH    | 12CH    | Bi        | 12             | 13.0                             | 15.0   | 1              | 28             | 200             | 1                              |
| SMF15AH     | 15AH    | Uni       | 15             | 16.0                             | 19.8   | 1              | 30             | 200             | 1                              |
| SMF15CAH    | 15CH    | Bi        | 15             | 16.0                             | 19.8   | 1              | 30             | 200             | 1                              |
| SMF18AH     | 18AH    | Uni       | 18             | 19.0                             | 22.8   | 1              | 32             | 200             | 1                              |
| SMF18CAH    | 18CH    | Bi        | 18             | 19.0                             | 22.8   | 1              | 32             | 200             | 1                              |
| SMF20AH     | 20AH    | Uni       | 20             | 21.8                             | 24.7   | 1              | 32             | 200             | 1                              |
| SMF20CAH    | 20CH    | Bi        | 20             | 21.8                             | 24.7   | 1              | 32             | 200             | 1                              |
| SMF22AH     | 22AH    | Uni       | 22             | 23.8                             | 27.5   | 1              | 32             | 200             | 1                              |
| SMF22CAH    | 22CH    | Bi        | 22             | 23.8                             | 27.5   | 1              | 32             | 200             | 1                              |
| SMF24AH     | 24AH    | Uni       | 24             | 24.8                             | 30.0   | 1              | 32             | 180             | 1                              |
| SMF24CAH    | 24CH    | Bi        | 24             | 24.8                             | 30.0   | 1              | 32             | 180             | 1                              |
| SMF28AH     | 28AH    | Uni       | 28             | 28.8                             | 34.5   | 1              | 35             | 170             | 1                              |
| SMF28CAH    | 28CH    | Bi        | 28             | 28.8                             | 34.5   | 1              | 35             | 170             | 1                              |

## 7. Electrical Parameters

| Symbol           | Parameter                                        |
|------------------|--------------------------------------------------|
| I <sub>PP</sub>  | Maximum Reverse Peak Pulse Current               |
| V <sub>C</sub>   | Clamping Voltage @I <sub>PP</sub>                |
| V <sub>RWM</sub> | Working Peak Reverse Voltage                     |
| I <sub>R</sub>   | Maximum Reverse Leakage Current@V <sub>RWM</sub> |
| I <sub>T</sub>   | Test Current                                     |
| V <sub>BR</sub>  | Breakdown Voltage @I <sub>T</sub>                |
| P <sub>PK</sub>  | Peak Power Dissipation                           |



## 8. Typical Characteristics

Fig.1 8/20us Waveform Per IEC6100-4-5

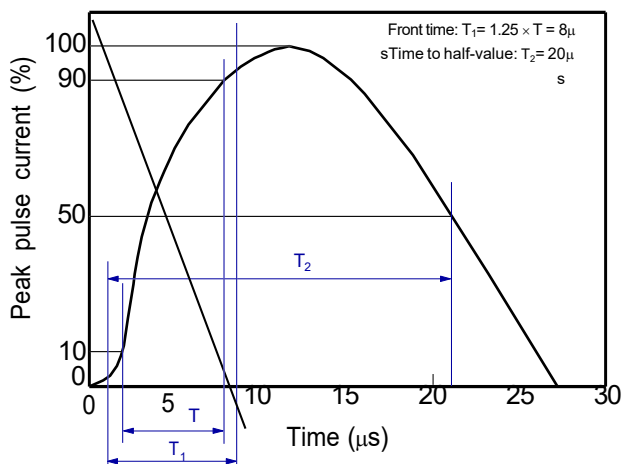


Fig.2 Contact Discharge Current Waveform per IEC61000-4-2

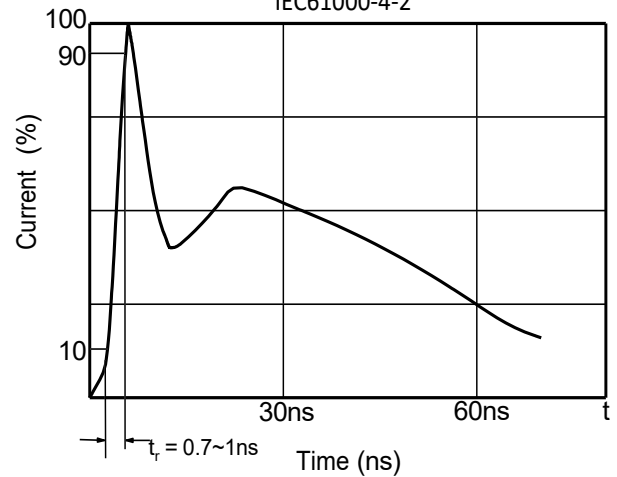
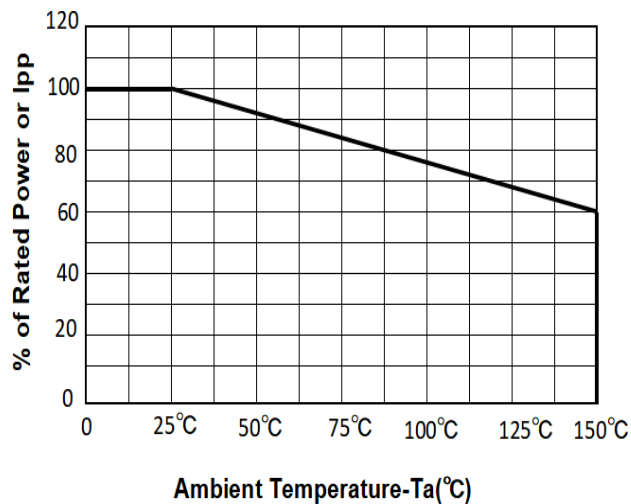


Fig.3 Power Derating



The curve above is for reference only.