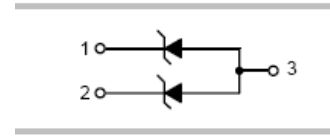


## Features

- ESD / transient protection of high speed data lines
  - IEC 61000-4-2 (ESD):  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- Protects one bidirectional line or two unidirectional lines
- 300 watts peak pulse power ( $t_p = 8/20\mu\text{s}$ )
- Working voltage:  $V_{RWM} = 15\text{V}$
- Low reverse clamping voltage
- RoHS compliant with Halogen-free

HF

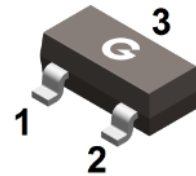


## Typical Applications

- Computers and peripherals
- Portable electronics
- Industrial controls
- Set-Top Box
- Servers, Notebook, and Desktop PC

## Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-23

## Ordering Information

| Part Number | Package | Shipping Quantity      | Marking Code |
|-------------|---------|------------------------|--------------|
| SM15        | SOT-23  | 3000 pcs / Tape & Reel | M15          |

## Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                                      | Symbol      | Value    | Unit |
|------------------------------------------------|-------------|----------|------|
| IEC 61000-4-2; ESD (Air)                       | $V_{ESD-A}$ | $\pm 30$ | kV   |
| IEC 61000-4-2; ESD (Contact)                   | $V_{ESD-C}$ | $\pm 30$ | kV   |
| Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )   | $P_{PP}$    | 300      | W    |
| Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ ) | $I_{PP}$    | 10       | A    |

## Thermal Characteristics

| Parameter                                     | Symbol          | Value           | Unit               |
|-----------------------------------------------|-----------------|-----------------|--------------------|
| Lead Solder Temperature (10 Seconds Duration) | $T_L$           | 260             | $^\circ\text{C}$   |
| Thermal Resistance Junction-to-Air            | $R_{\theta JA}$ | 556             | $^\circ\text{C/W}$ |
| Junction Temperature                          | $T_J$           | $-55 \sim +125$ | $^\circ\text{C}$   |
| Storage Temperature Range                     | $T_{STG}$       | $-55 \sim +150$ | $^\circ\text{C}$   |

**Electrical Characteristics** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

| Parameter                 | Symbol     | Test Condition                                                      | Min. | Typ. | Max. | Unit          |
|---------------------------|------------|---------------------------------------------------------------------|------|------|------|---------------|
| Reverse Stand-off Voltage | $V_{RWM}$  |                                                                     | -    | -    | 15   | V             |
| Reverse Breakdown Voltage | $V_{(BR)}$ | $I_T = 1\text{mA}$                                                  | 16.7 | -    | 19   | V             |
| Forward Voltage           | $V_F$      | $I_F = 10\text{mA}$                                                 | -    | 0.78 | 1    | V             |
| Reverse Leakage Current   | $I_R$      | $V_{RWM} = 15\text{V}$                                              | -    | -    | 1    | $\mu\text{A}$ |
| Clamping Voltage          | $V_C$      | $I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$                      | -    | 19   | 24   | V             |
|                           |            | $I_{PP} = 10\text{A}$ , $t_p = 8/20\mu\text{s}$                     | -    | 24   | 30   | V             |
| Junction Capacitance      | $C_J$      | $V_R = 0\text{V}$ , $f = 1\text{MHz}$ (Pin 1 to 2)                  | -    | 15   | 75   | pF            |
|                           |            | $V_R = 0\text{V}$ , $f = 1\text{MHz}$<br>(Pin 1 to 3 or Pin 2 to 3) | -    | 64   | 100  | pF            |

**Ratings and Characteristic Curves** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

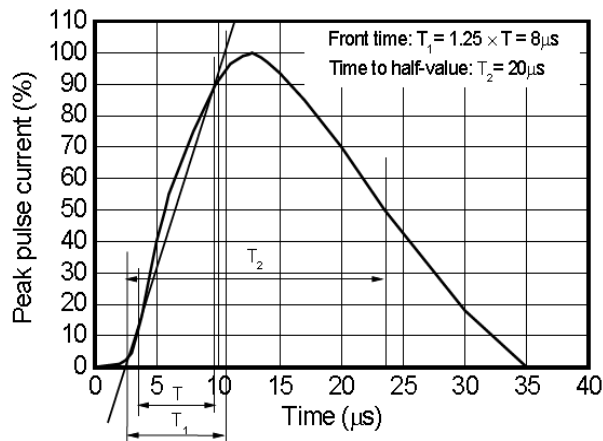


Fig 1 8/20  $\mu\text{s}$  waveform per IEC61000-4-5

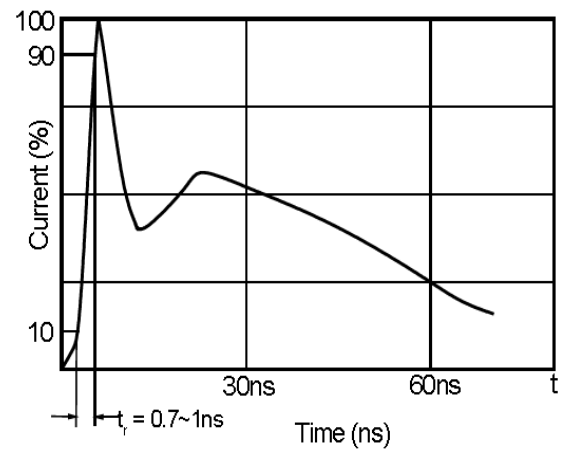


Fig 2 ESD pulse waveform according to IEC61000-4-2

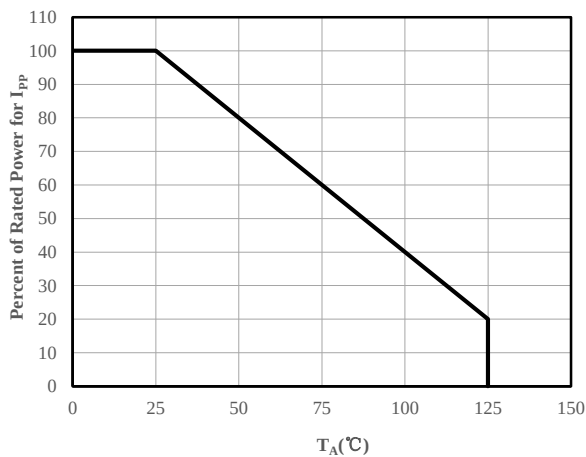


Fig 3 Power Derating Curve

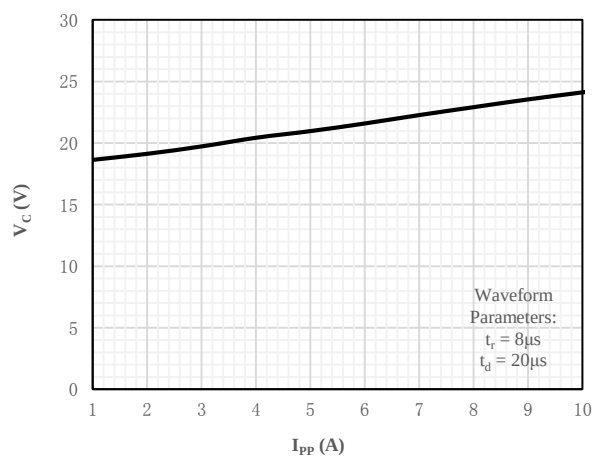


Fig 4 Clamping Voltage vs. Peak Pulse Current

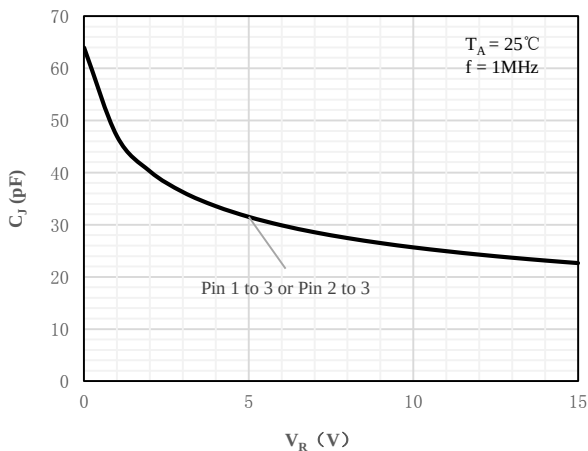
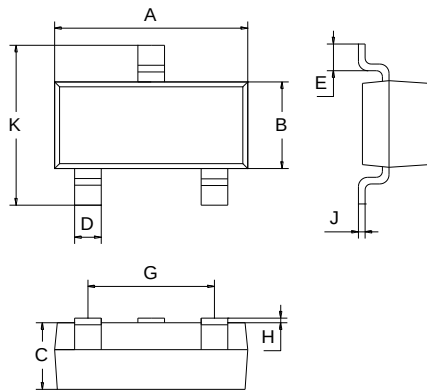


Fig 5 Junction Capacitance vs. Reverse Voltage

## Package Outline Dimensions (Unit: mm)



| SOT-23    |      |      |
|-----------|------|------|
| Dimension | Min. | Max. |
| A         | 2.70 | 3.10 |
| B         | 1.10 | 1.50 |
| C         | 0.90 | 1.10 |
| D         | 0.30 | 0.50 |
| E         | 0.35 | 0.48 |
| G         | 1.80 | 2.00 |
| H         | 0.02 | 0.10 |
| J         | 0.05 | 0.15 |
| K         | 2.20 | 2.60 |

## Package Outline Dimensions (Unit: mm)

### SOT-23

