

Features

- ◆ 150 Watts peak pulse power ($t_p = 8/20\mu s$)
- ◆ Transient protection for high speed data lines to IEC 61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact) IEC 61000-4-4 (EFT) 40A (5/50ns)
- ◆ Working voltages : 5V
- ◆ Protects one bidirectional line or two unidirectional lines
- ◆ Low operating and clamping voltages
- ◆ Solid-state silicon avalanche technology

Ordering Information

| Part Number | Qty per Reel | Reel Size |
|-------------|--------------|-----------|
| SM05 | 3000 | 7" |

Mechanical Characteristics

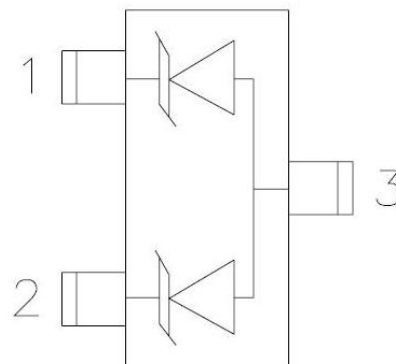
- ◆ Package: SOT23
- ◆ Lead Finish: Matte Tin
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Pb-Free, Halogen Free, RoHS/WEEE Compliant



Applications

- ◆ USB Power & Data Line Protection
- ◆ Monitors and Flat Panel Displays
- ◆ I²C Bus Protection
- ◆ Portable Instrumentation
- ◆ Set Top Box

Dimensions and Pin Configuration



Circuit and Pin Schematic

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

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| Parameter | Symbol | Value | Unit |
|---------------------------------------|--------|-------------|------------------|
| Peak Pulse Power(8/20 μs) | Ppk | 150 | W |
| ESD per IEC 61000-4-2 (Air) | VESD | ± 15 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ± 8 | |
| Operating Temperature Range | TJ | -55 to +125 | $^\circ\text{C}$ |
| Storage Temperature Range | Tstg | -55 to +150 | $^\circ\text{C}$ |

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

| Part Number | V_{RWM} | IDRM | VBR | IR | VC | IPP | VC | IPP | CO |
|-------------|-----------|---------------|-----|----|-----|-----|-----|-----|-----|
| | V | μA | V | mA | V | A | V | A | pF |
| | | MAX | MIN | | MAX | | MAX | | MAX |
| SM05 | 5 | 1 | 6 | 1 | 9.8 | 1 | 15 | 10 | 100 |

PROTECTION PRODUCTS
Typical characteristics

Fig1. 8/20 μ s Pulse Waveform

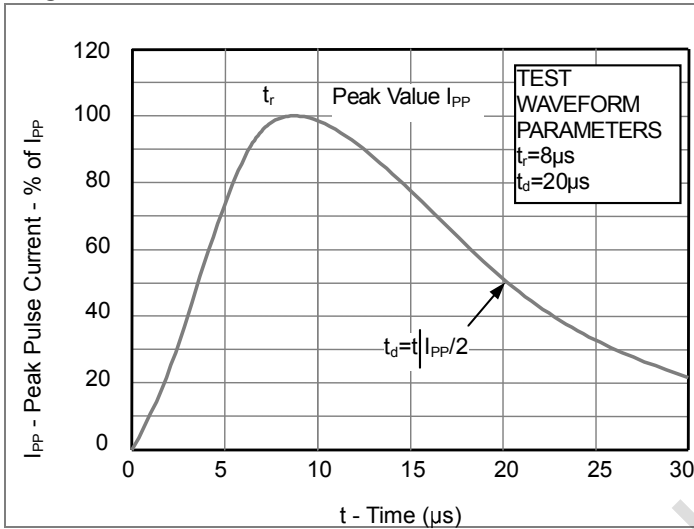


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

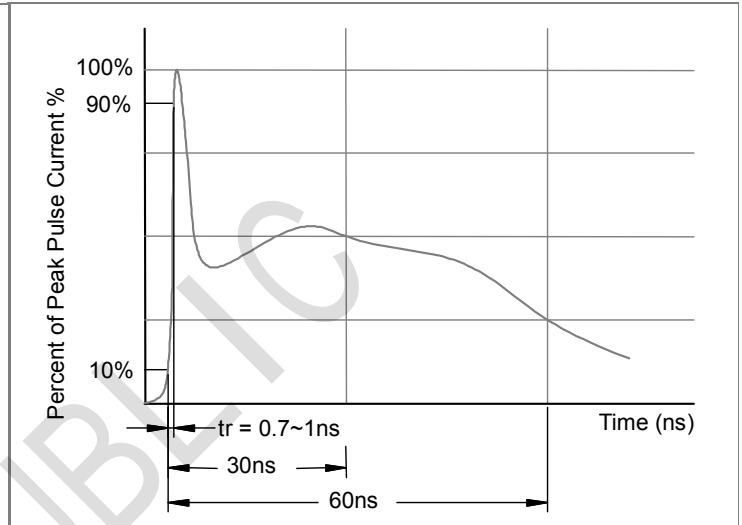
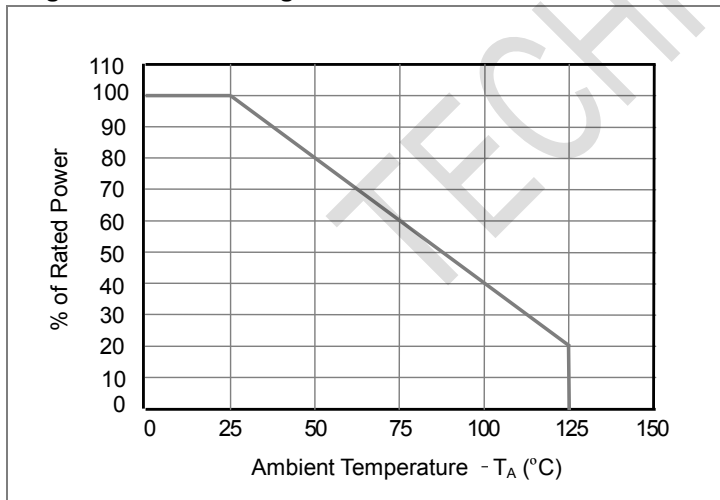
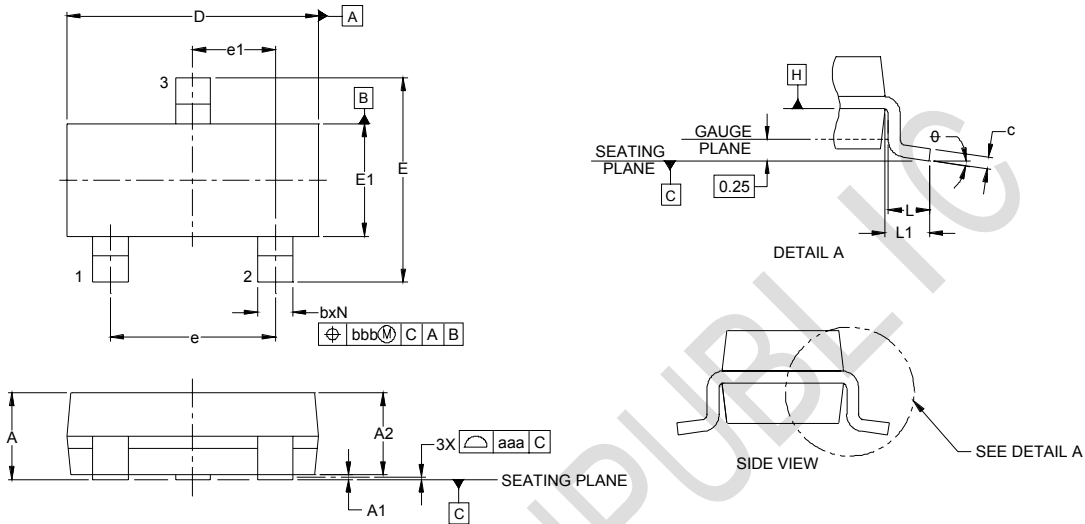


Fig3. Power Derating Curve



Outline Drawing - SOT23



| DIM | INCHES | | | MILLIMETERS | | |
|----------|--------|------|------|-------------|------|------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | .035 | - | .044 | 0.89 | - | 1.12 |
| A1 | .000 | - | .004 | 0.01 | - | 0.10 |
| A2 | .035 | .037 | .040 | 0.88 | 0.95 | 1.02 |
| b | .012 | - | .020 | 0.30 | - | 0.51 |
| c | .003 | - | .007 | 0.08 | - | 0.18 |
| D | .110 | .114 | .120 | 2.80 | 2.90 | 3.04 |
| E | .082 | .093 | .104 | 2.10 | 2.37 | 2.64 |
| E1 | .047 | .051 | .055 | 1.20 | 1.30 | 1.40 |
| e | .075 | | | 1.90 BSC | | |
| e1 | .037 | | | 0.95 BSC | | |
| L | .015 | .020 | .024 | 0.40 | 0.50 | 0.60 |
| L1 | .022 | | | (0.55) | | |
| N | 3 | | | 3 | | |
| θ | 0° | - | 8° | 0° | - | 8° |
| aaa | .004 | | | 0.10 | | |
| bbb | .008 | | | 0.20 | | |

Land Pattern - SOT23

