

Features

- ◆ 150W peak pulse power(8/20μs)
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 7V or 12V
- ◆ Low clamping voltage
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: ±30kV
Contact discharge: ±30kV
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 7A (8/20μs)
- ◆ RoHS Compliant

Mechanical Characteristics

- ◆ Package: SOT-23
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: “Green” Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below

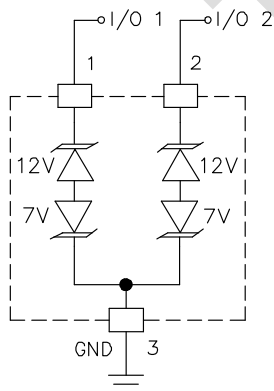
Applications

- ◆ Wireless System
- ◆ Networks
- ◆ Portable Instrumentation
- ◆ RS485 Ports

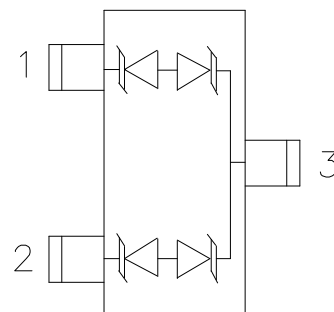
Ordering Information

| Part Number | Qty per Reel | Reel Size |
|-----------------|--------------|-----------|
| TPCDSOT23-SM712 | 3000 | 7" |

Circuit Diagram



Pin Configuration



Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|--------|-------------|------|
| Peak Pulse Power(8/20μs) | Ppk | 150 | W |
| Peak Pulse Current(8/20μs) | IPP | 7 | A |
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | VESD | ±30 ±30 | kV |
| Operating Temperature Range | TJ | -55 to +125 | °C |
| Storage Temperature Range | Tstg | -55 to +150 | °C |

Electrical Characteristics (TA=25°C unless otherwise specified)

| Parameter | Symbol | Pin 1 to 3 and 2 to 3(12V TVS) | | | Pin 3to 1 and 3 to 2(7V TVS) | | | Unit | Test Condition |
|-------------------------|--------|--------------------------------|------|-----|------------------------------|------|-----|------|---------------------------|
| | | Min | Typ | Max | Min | Typ | Max | | |
| Reverse Working Voltage | VRWM | | | 12 | | | 7 | V | |
| Breakdown Voltage | VBR | 13.3 | | | 7.5 | | | V | IT = 1mA |
| Reverse Leakage Current | IR | | 0.01 | 0.5 | | 0.01 | 0.5 | μA | VR = VRWM |
| Clamping Voltage | VC | | | 19 | | | 11 | V | IPP = 1A (8 x 20μs pulse) |
| Clamping Voltage | VC | | | 25 | | | 15 | V | IPP = 7A (8 x 20μs pulse) |
| Junction Capacitance | CJ | | | 75 | | | 75 | pF | VR=0, f=1MHz |
| Junction Capacitance | CJ | | 45 | | | 45 | | pF | VR=VRWM, f=1MHz |

PROTECTION PRODUCTS
Typical characteristics

Fig1. 8/20 μ s Pulse Waveform

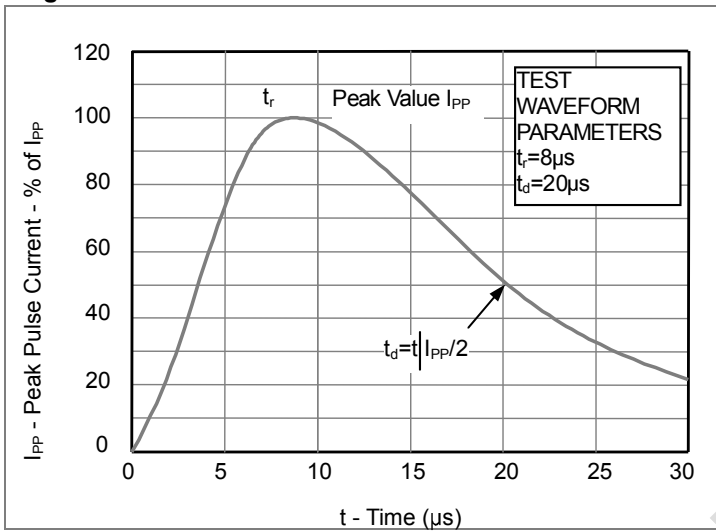


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

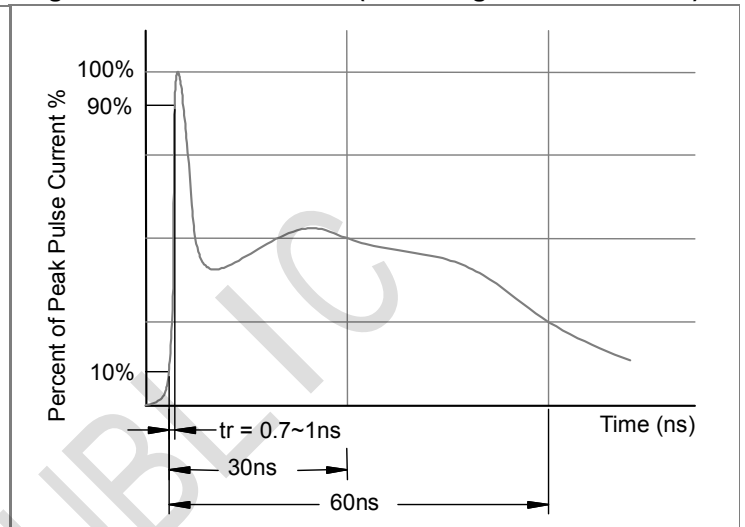
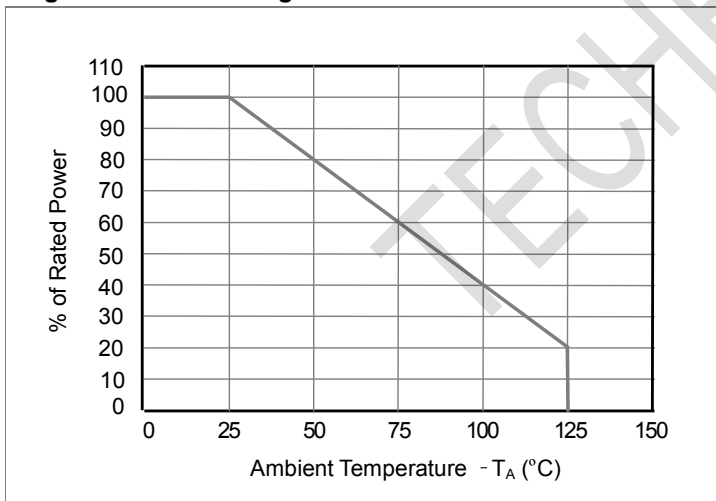
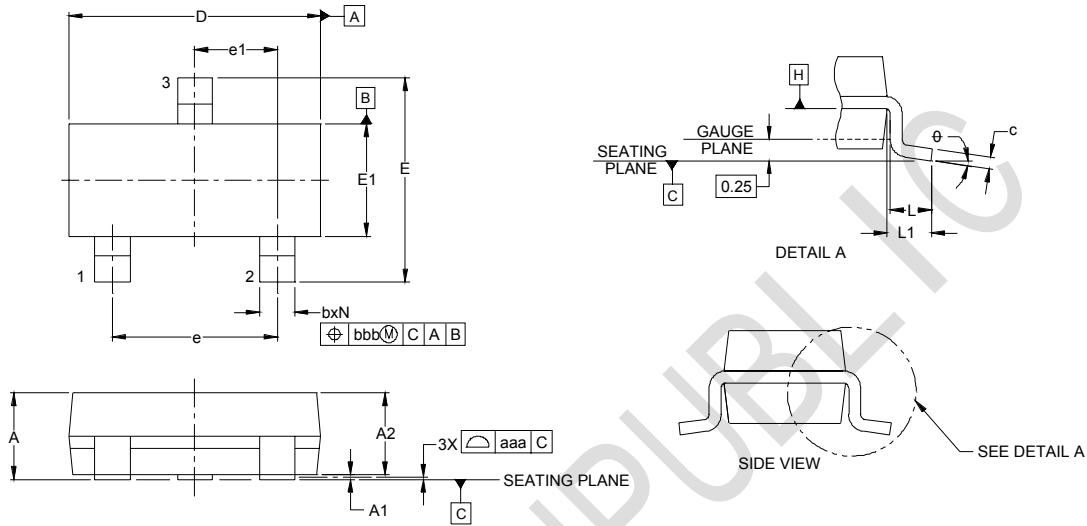


Fig3. Power Derating Curve

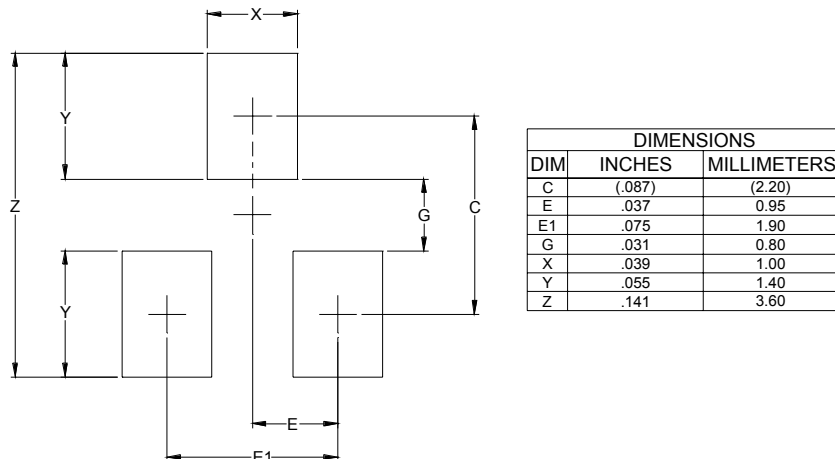


Outline Drawing - SOT23



| 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



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[MMAD1103e3/TR13](#) [DFLT40AQ-7](#)