

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

Ordering Information

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

Mechanical Characteristics

♦ Package: SOT-23

Lead Finish: Matte Tin

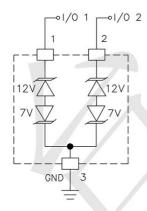
◆ Case Material: "Green" Molding Compound.

- UL Flammability Classification Rating 94V-0
- ♦ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below

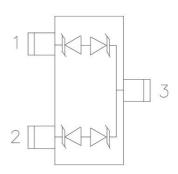
Applications

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

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 | Α |
| 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)

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



PROTECTION PRODUCTS Typical charateristics

Fig1. 8/20 µs Pulse Waveform

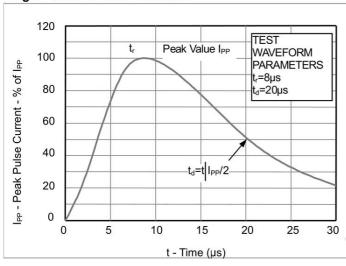
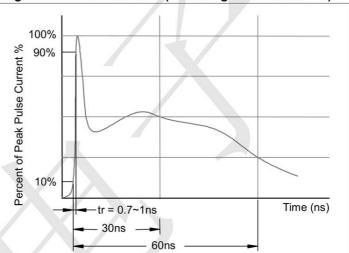
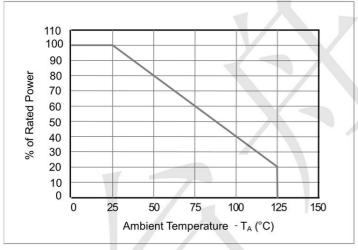


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

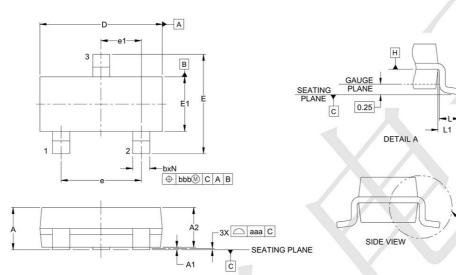








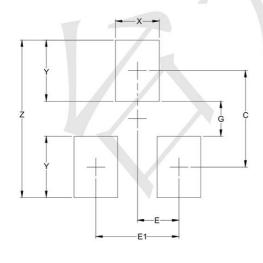
Outline Drawing - SOT23



| | | DIM | IENSI | ONS | | | |
|-------|------|------|-------|-------------|--------|------|--|
| DII.4 | | NCHE | S | MILLIMETERS | | | |
| DIM | MIN | NOM | MAX | MIN | NOM | MAX | |
| Α | .035 | - | .044 | 0.89 | - | 1.12 | |
| A1 | .000 | - | .004 | 0.01 | - 5 | 0.10 | |
| A2 | .035 | .037 | .040 | 0.88 | 0.95 | 1.02 | |
| b | .012 | - | .020 | 0.30 | - | 0.51 | |
| С | .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 | |
| е | .075 | | | 1 | .90 BS | С | |
| e1 | .037 | | | C | .95 BS | С | |
| L | .015 | .020 | .024 | 0.40 | 0.50 | 0.60 | |
| L1 | .022 | | | | (0.55) | | |
| N | 3 | | | | 3 | | |
| -0 | 0° | - | 8° | 0° | - | 8° | |
| aaa | .004 | | | | 0.10 | 5-1 | |
| hhh | 000 | | | | 0.20 | | |



Land Pattern - SOT23



| DIMENSIONS | | | | |
|------------|---------------|-------------|--|--|
| DIM | INCHES | MILLIMETERS | | |
| С | (.087) | (2.20) | | |
| E | .037 | 0.95 | | |
| E1 | .075 | 1.90 | | |
| G | .031 | 0.80 | | |
| X | .039 | 1.00 | | |
| Υ | .055 | 1.40 | | |
| Z | .141 | 3.60 | | |