## Features

- Fully Automotive Qualified to AEC-Q101
- SOT−23 Package Allows Either Two Separate Unidirectional Configurations or a Single Bidirectional Configuration
- Peak Power-40W@1.0ms(Unidirectional)
- Low Leakage
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. “Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

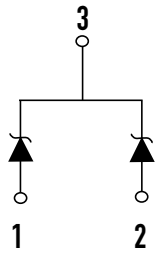
# ESD Protection Device

## Maximum Ratings

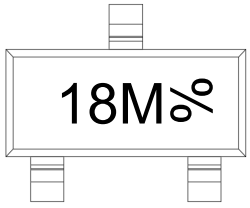
| | | |
|---|---|---|
| IEC61000-4-2(ESD) | Air | ±30KV |
| | Contact | ±30KV |
| Peak Pulse Power (10/1000μs) | $P_{PK}$ | 40W |
| Power Dissipation | $P_D$ | 225mW |
| Thermal Resistance Junction to Ambient | $R_{thJA}$ | 556°C/W |
| Operating Junction Temperature Range | $T_J$ | -55°C to +150°C |
| Storage Temperature Range | $T_{STG}$ | -55°C to +150°C |

Note:
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

### Internal Structure

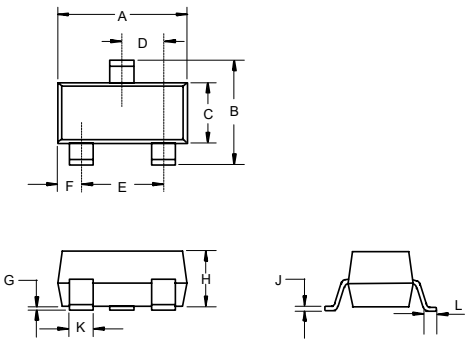



### Marking Code



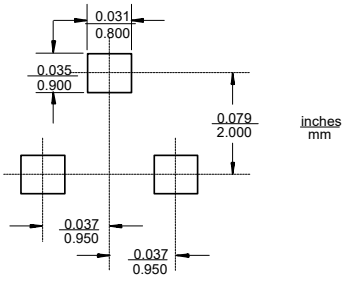

%=placeholder for date code

## SOT-23

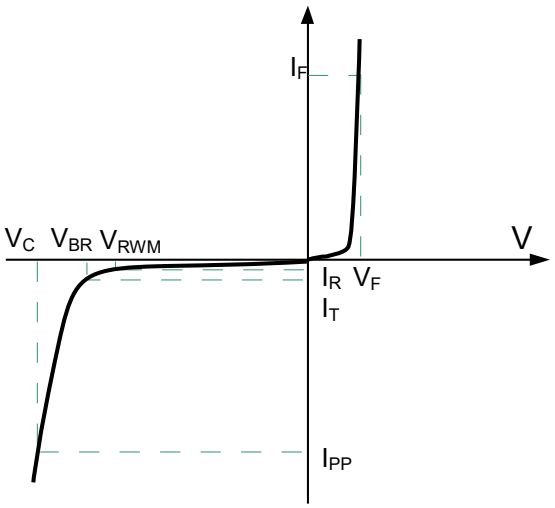



| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| DIM | INCHES | | MM | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | 0.110 | 0.120 | 2.80 | 3.04 | |
| B | 0.083 | 0.104 | 2.10 | 2.64 | |
| C | 0.047 | 0.055 | 1.20 | 1.40 | |
| D | 0.034 | 0.041 | 0.85 | 1.05 | |
| E | 0.067 | 0.083 | 1.70 | 2.10 | |
| F | 0.018 | 0.024 | 0.45 | 0.60 | |
| G | 0.0004 | 0.006 | 0.01 | 0.15 | |
| H | 0.035 | 0.043 | 0.90 | 1.10 | |
| J | 0.003 | 0.007 | 0.08 | 0.18 | |
| K | 0.012 | 0.020 | 0.30 | 0.51 | |
| L | 0.007 | 0.020 | 0.20 | 0.50 | |

### Suggested Solder Pad Layout



| Symbol | Parameter |
|---|---|
| $V_{RWM}$ | Peak Reverse Working Voltage |
| $I_R$ | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |
| $I_T$ | Test Current |
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $P_{PP}$ | Peak Pulse Power |
| $C_J$ | Junction Capacitance |
| $I_F$ | Forward Current |
| $V_F$ | Forward Voltage @ $I_F$ |




**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Reverse Working Voltage | $V_{RWM}$ | | | | 14.5 | V |
| Reverse Breakdown Voltage | $V_{BR}$ | $I_T$ =1mA | 17.1 | 18 | 18.9 | V |
| Reverse Leakage Current | $I_R$ | $V_{RWM}$=14.5V | | | 50 | nA |
| Forward Voltage | $V_F$ | $I_F$=10mA | | | 0.9 | V |
| Clamping Voltage | $V_C$ | $I_{PP}$=1.6A, $t_P$=10/1000μs | | | 25 | V |
| Junction Capacitance | $C_J$ | $V_R$=0V, f=1MHz | | 79 | | pF |

## Curve Characteristics

Fig.1: $P_D$-$T_A$

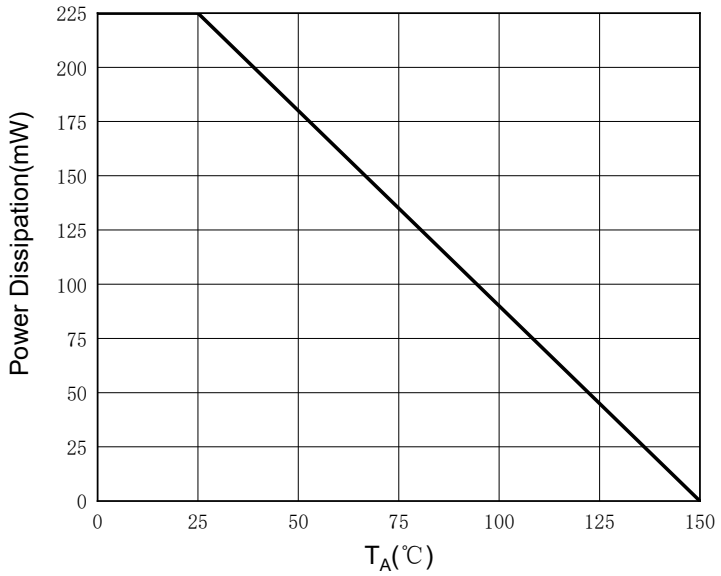



Fig.2:Typical Breakdown Voltage VS Temperature

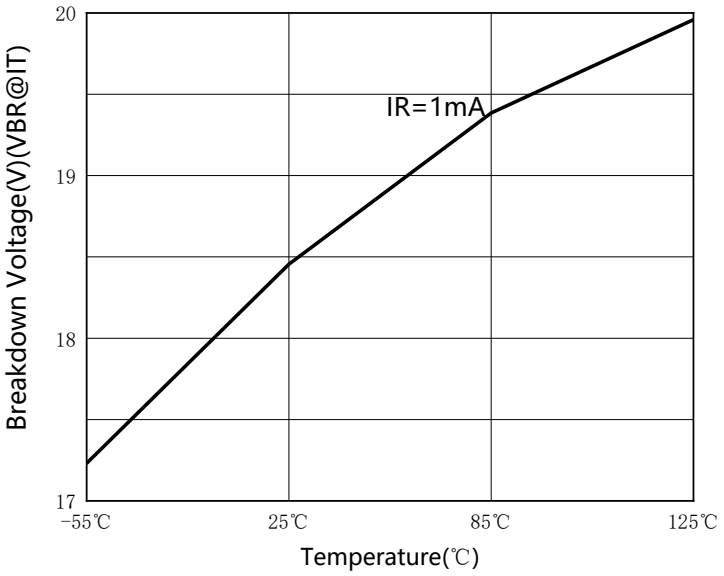



Fig.3: Reverse Characteristics

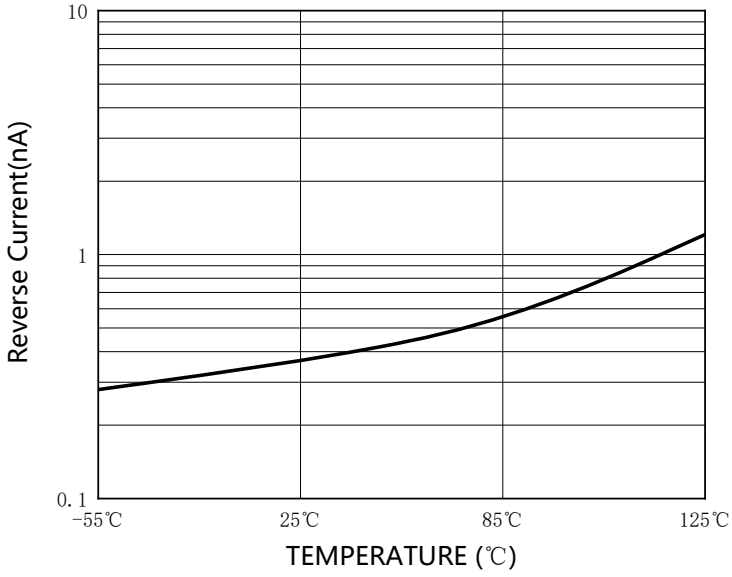



Fig.4 Pulse Waveform

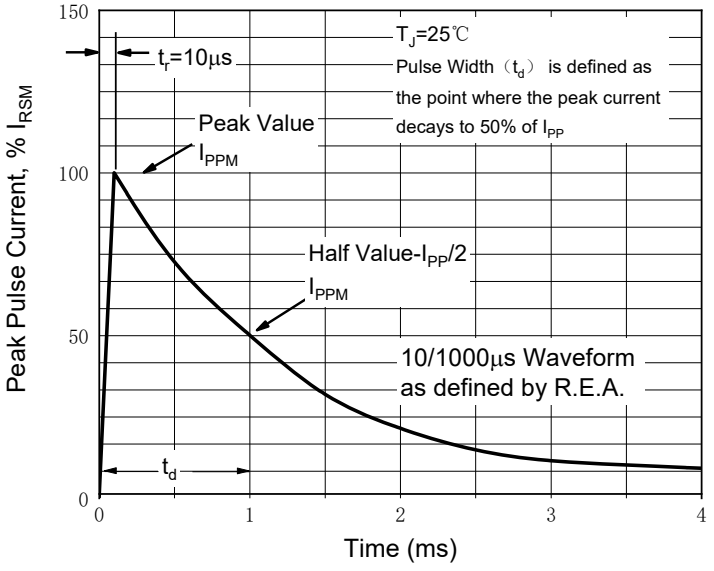



Fig.5: Power Derating Curve

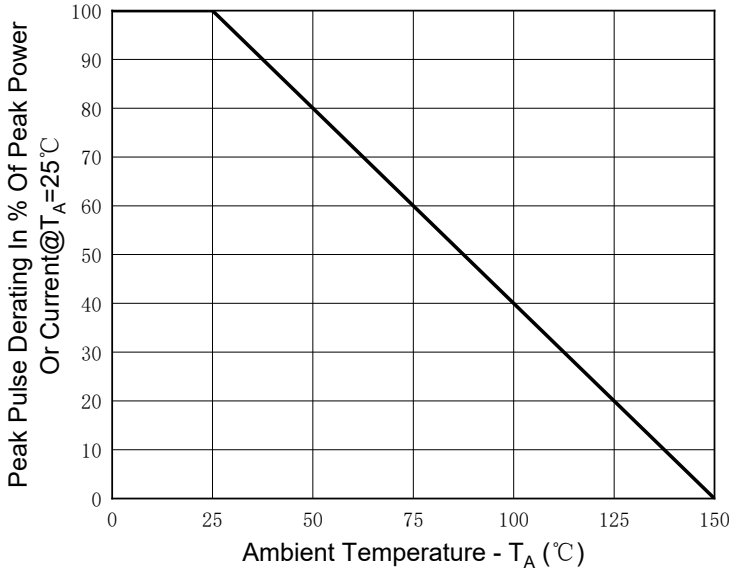
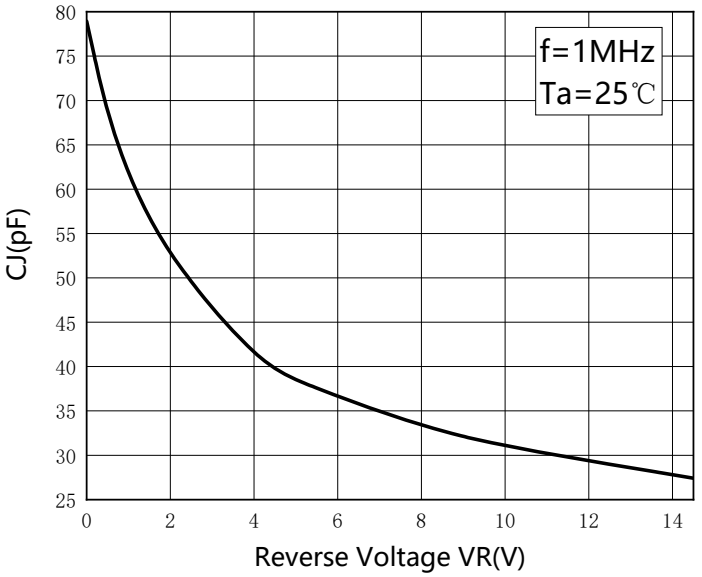



Fig.6: Capacitance Characteristics



## Ordering Information

| Device | Packing |
|---|---|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |