

Features

- Super Fast Reverse Recovery Time
- Glass Passivated Chip Junction
- Low Profile Package
- High Forward Surge Capability
- Low Thermal Resistance
- Lead Free Finish/RoHS Compliant (Note 1)("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 2)
- Moisture Sensitivity Level 1

2 Amp Super Fast Recovery Rectifier 600 Volts

Maximum Ratings @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Value | Unit |
|----------------------------------------------------------|-------------|--------|------------------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 600 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | | |
| RMS Reverse Voltage | V_{RMS} | 420 | V |
| Average Rectified Forward Current @ See Fig.1 | $I_{F(AV)}$ | 2 | A |
| Non-Repetitive Peak Surge Current @ 8.3ms Half Sine Wave | I_{FSM} | 50 | A |
| Current Squared Time @ $1ms \leq t \leq 8.3ms$ | I^2t | 10.375 | A ² s |

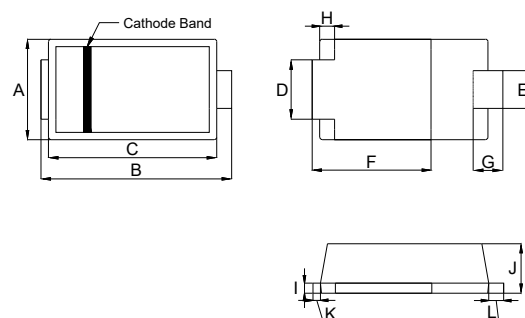
Internal Structure

| Pin | Description | Simplified outline | Graphic symbol |
|-----|-------------|--------------------|----------------|
| 1 | Cathode | | |
| 2 | Anode | | |

Note:

1. High temperature solder exemption applied, see EU directive annex 7a.
2. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

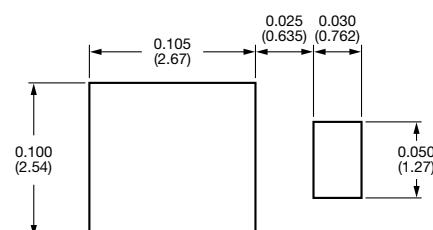
SOD-123HL



DIMENSIONS

| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.074 | 0.086 | 1.88 | 2.18 | |
| B | 0.146 | 0.157 | 3.70 | 4.00 | |
| C | 0.041 | 0.053 | 3.19 | 3.61 | |
| D | 0.024 | 0.036 | 1.05 | 1.35 | |
| E | 0.087 | 0.102 | 0.61 | 0.91 | |
| F | 0.016 | 0.031 | 2.20 | 2.60 | |
| G | 0.012 | 0.000 | 0.40 | 0.80 | |
| H | 0.012 | | 0.30 | | REF |
| I | 0.004 | 0.012 | 0.10 | 0.30 | |
| J | 0.033 | 0.045 | 0.85 | 1.15 | |
| K | 0.000 | 0.012 | 0.00 | 0.30 | |
| L | 0.006 | 0.018 | 0.15 | 0.45 | |

Suggested Solder Pad Layout



Thermal characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---------------|---------------------------------------------|------------|-----|-----|-----|------|
| T_J | Operating Junction Temperature Range | | -55 | | 150 | °C |
| T_{stg} | Storage Temperature Range | | -55 | | 150 | °C |
| $R_{th(J-L)}$ | Thermal Resistance from Junction to Lead | Note 1 | | 20 | | °C/W |
| $R_{th(J-A)}$ | Thermal Resistance from Junction to Ambient | Note 1 | | 80 | | °C/W |

Note:

1. Mounted on P.C.B. with 5mm*5mm copper pad areas, $R_{th(J-L)}$ is measured at the terminal of cathode band.

Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|----------------------|--------|-------------------------------------------------------------------|-----|-----|----------|---------|
| Forward Voltage | V_F | $I_F=2A; T_J=25^\circ C$ | | | 1.25 | V |
| Reverse Current | I_R | at Rated $V_R; T_J=25^\circ C$ at Rated $V_R; T_J=125^\circ C$ | | | 5 100 | μA |
| Junction Capacitance | C_J | $V_R=4V; f=1MHz; T_J=25^\circ C$ | | 25 | | pF |

Dynamic Recovery Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-------------------------|-----------|-----------------------------------------------------|-------------------|-----|-----|------|
| Reverse Recovery Time | t_{rr} | $I_F=0.5A; I_R=1.0A; I_{RR}=0.25A; T_J=25^\circ C$ | | | 50 | ns |
| | | $I_F=1A, di/dt=-50A/\mu s, V_R=30V; T_J=25^\circ C$ | | 50 | | |
| | | $T_J=25^\circ C$ | | 43 | | |
| | | $T_J=125^\circ C$ | | 66 | | |
| Peak Recovery Current | I_{RRM} | $I_F=2A$ $di/dt=-200A/\mu s$ $V_R=400V$ | $T_J=25^\circ C$ | | 5.0 | A |
| | | | $T_J=125^\circ C$ | | 7.4 | |
| Reverse Recovery Charge | Q_{rr} | | $T_J=25^\circ C$ | | 105 | nC |
| | | | $T_J=125^\circ C$ | | 243 | |

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

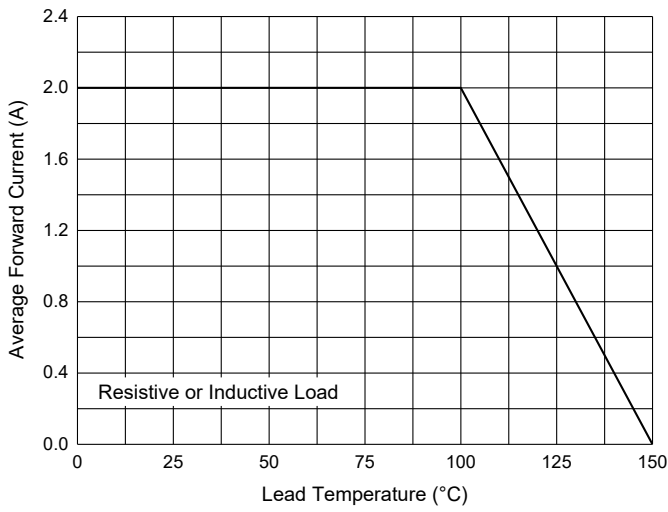


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

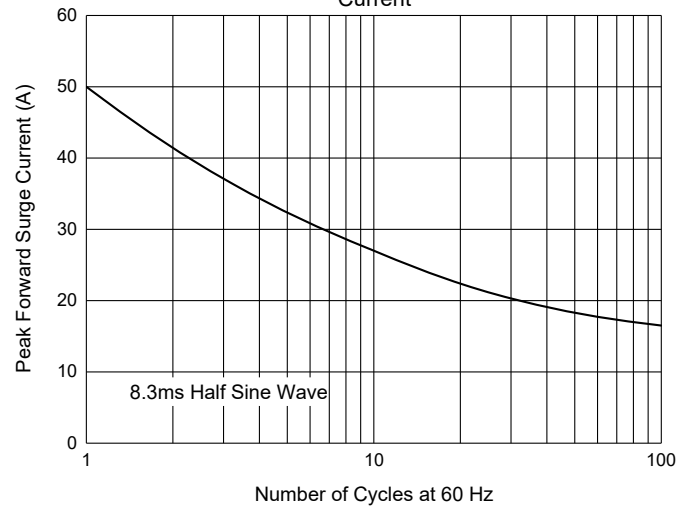


Fig. 3 - Typical Instantaneous Forward Characteristics

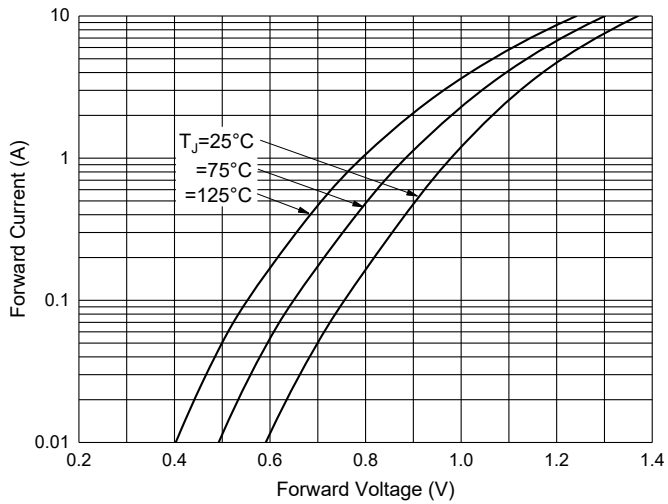


Fig. 4 - Typical Reverse Leakage Characteristics

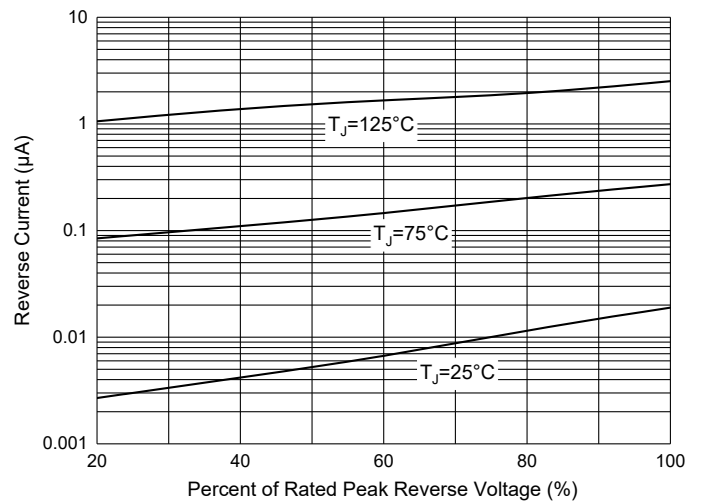
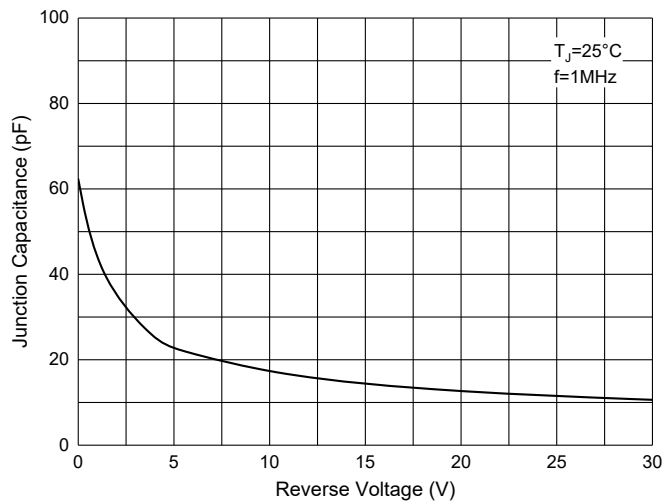


Fig. 5 - Typical Capacitance Characteristics



Ordering Information

| Device | Packing |
|----------------|------------------------|
| Part Number-TP | Tape&Reel:2.5Kpcs/Reel |

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