

Features

- Ultra Fast Switching for High Efficiency
- Glass Passivated Junction
- 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

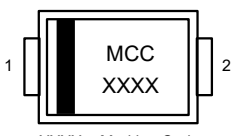

Maximum Ratings @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Value | | | | | | | | Unit |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| | | US 1A | US 1B | US 1C | US 1D | US 1G | US 1J | US 1K | US 1M | |
| Peak Repetitive Reverse Voltage | V_{RRM} | | | | | | | | | V |
| Working Peak Reverse Voltage | V_{RWM} | 50 | 100 | 150 | 200 | 400 | 600 | 800 | 1000 | |
| DC Blocking Voltage | V_R | | | | | | | | | |
| RMS Reverse Voltage | V_{RMS} | 35 | 70 | 105 | 140 | 280 | 420 | 560 | 700 | V |
| Average Rectified Forward Current @ $T_L=110^\circ\text{C}$ | $I_{F(AV)}$ | 1 | | | | | | | | A |
| Non-Repetitive Peak Surge Current @ 8.3ms Half Sine Wave | I_{FSM} | 30 | | | | | | | | A |
| Current Squared Time @ $1\text{ms} \leq t \leq 8.3\text{ms}$ | I^2t | 3.735 | | | | | | | | A ² s |

Marking Code

| Part Number | Marking Code |
|-------------|--------------|
| US1A | US1A |
| US1B | US1B |
| US1C | US1C |
| US1D | US1D |
| US1G | US1G |
| US1J | US1J |
| US1K | US1K |
| US1M | US1M |

Internal Structure

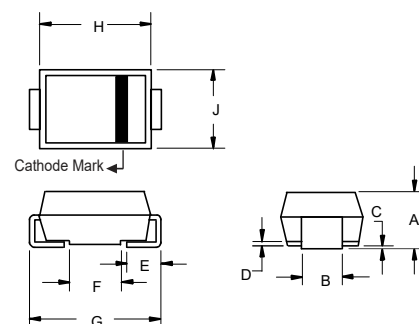
| Simplified Outline | Graphic Symbol |
|--|---|
|  <p>XXXX = Marking Code</p> |  |

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.

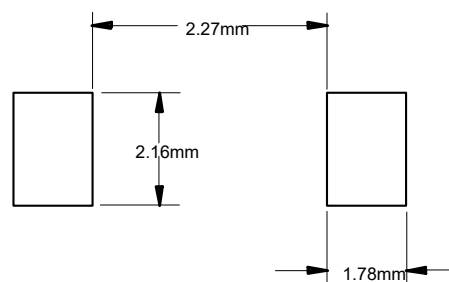
1.0 Amp Ultra Fast Rectifier 50 to 1000 Volts

SMA (DO-214AC)



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.075 | 0.096 | 1.90 | 2.44 | |
| B | 0.050 | 0.064 | 1.27 | 1.63 | |
| C | 0.002 | 0.008 | 0.051 | 0.203 | |
| D | --- | 0.020 | --- | 0.51 | |
| E | 0.030 | 0.060 | 0.76 | 1.52 | |
| F | 0.065 | 0.091 | 1.65 | 2.32 | |
| G | 0.189 | 0.220 | 4.80 | 5.59 | |
| H | 0.157 | 0.187 | 4.00 | 4.75 | |
| J | 0.090 | 0.115 | 2.25 | 2.92 | |

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 | | 25 | | °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 8mm*8mm copper pad areas.

Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|----------|---|-----|-----------------|-------------------|---------|
| Forward Voltage US1A - US1D US1G US1J - US1M | V_F | $I_F=1A; T_J=25^{\circ}C$ | | | 1.0 1.3 1.7 | 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 |
| Reverse Recovery Time US1A - US1G US1J - US1M | t_{rr} | $I_F=0.5A; I_R=1.0A;$ $I_{rr}=0.25A; T_J=25^{\circ}C$ | | | 50 75 | nS |
| Junction Capacitance US1A - US1D US1G US1J - US1M | C_J | $V_R=4V; f=1MHz; T_J=25^{\circ}C$ | | 18 12 7.5 | | pF |

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

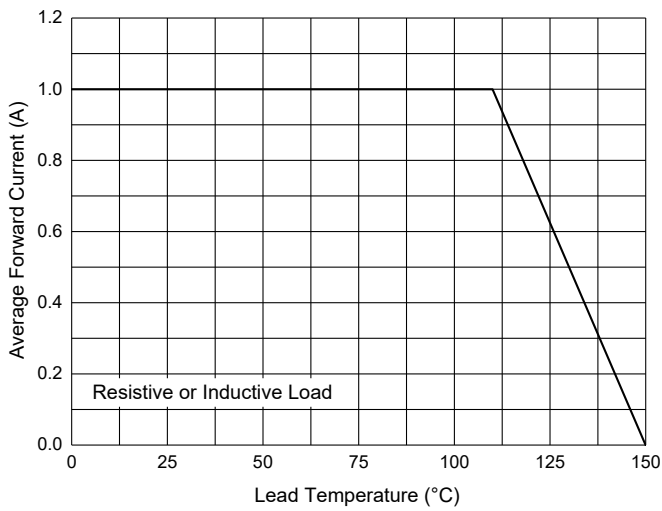


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

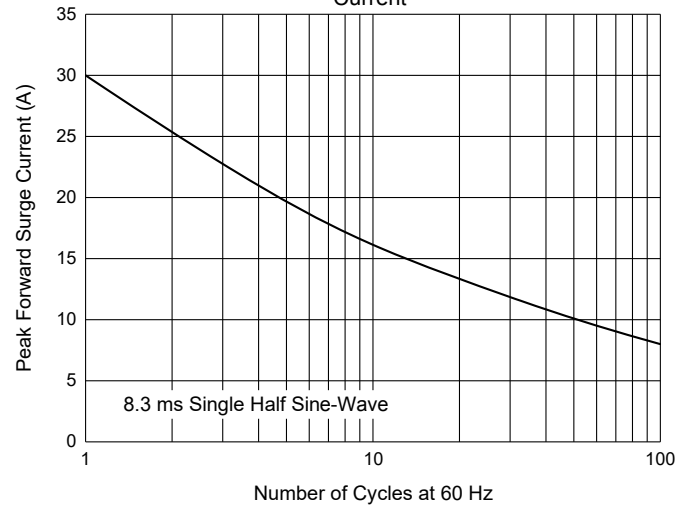


Fig. 3 - Typical Forward Characteristics

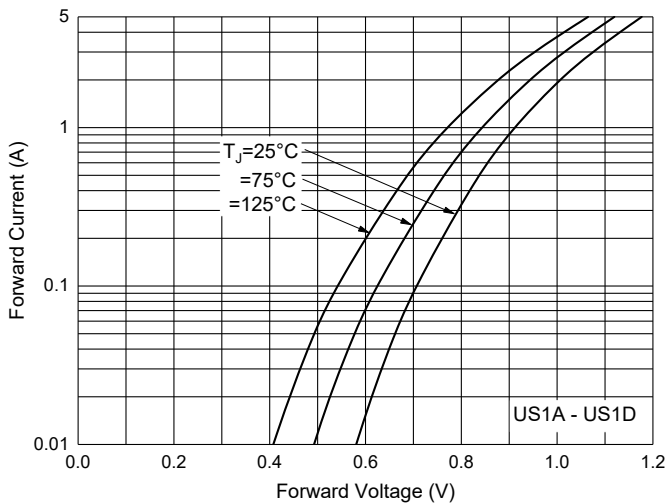


Fig. 4 - Typical Forward Characteristics

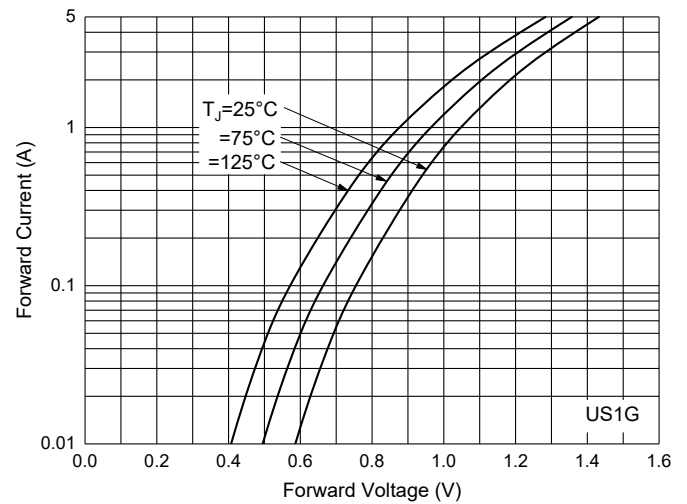


Fig. 5 - Typical Forward Characteristics

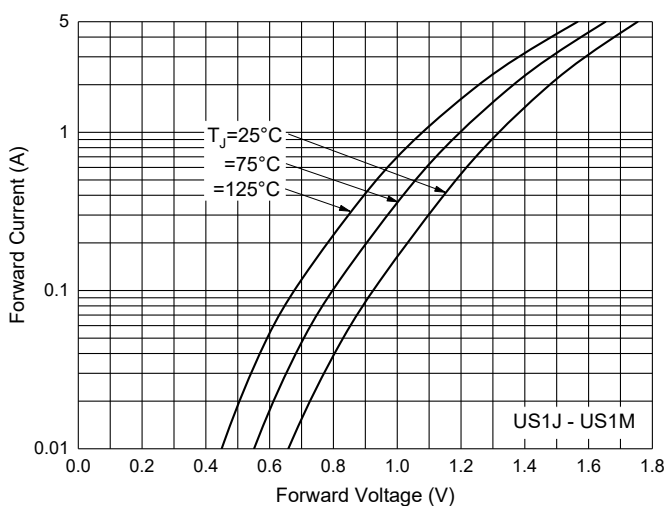
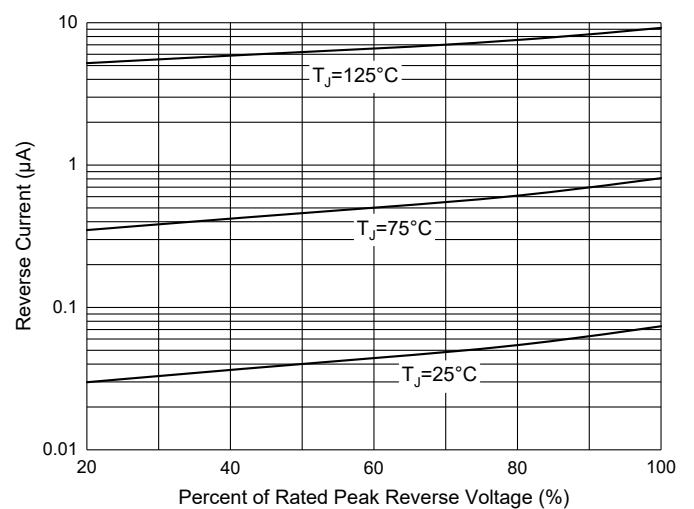
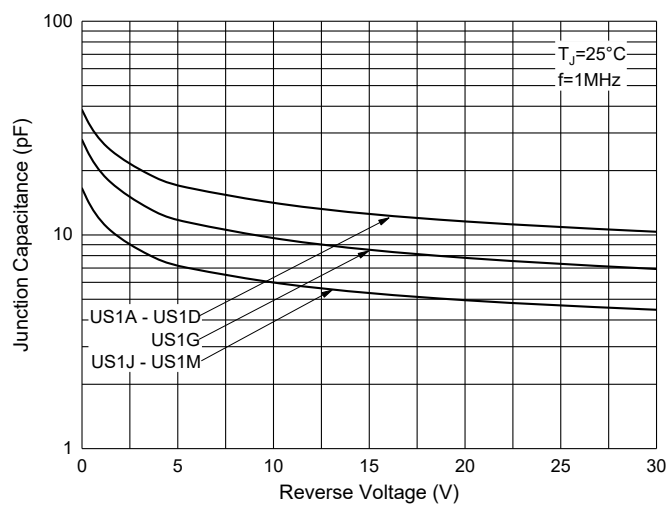


Fig. 6 - Typical Reverse Leakage Characteristics



Curve Characteristics

Fig. 7 - Typical Capacitance Characteristics



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:5Kpcs/Reel |

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