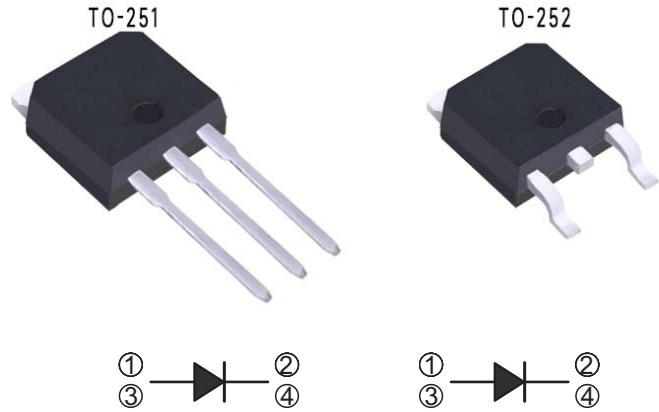


US1001 THRU US1010

Surface Mount Ultra fast Recovery Rectifier
Reverse Voltage – 100 to 1000 V
Forward Current – 10 A

FEATURES

- High current capability
- Low forward voltage drop
- Low power loss, high efficiency
- High surge capability
- High temperature soldering guaranteed
- Mounting position: any



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified

| CHARACTERISTICS | TO-251 | US1001VS | US1002VS | US1004VS | US1006VS | US1008VS | US1010VS | Units |
|---|-----------------|------------|----------|----------|----------|----------|----------|--------------------|
| | TO-252 | US1001DS | US1002DS | US1004DS | US1006DS | US1008DS | US1010DS | |
| Maximum Recurrent Peak Reverse Voltage | V_{RRM} | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | V_{RMS} | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC Blocking Voltage | V_{DC} | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum Average Forward Rectified Current | $I_{F(AV)}$ | 10 | | | | | | A |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) | I_{FSM} | 180 | | | | | | A |
| Max Instantaneous Forward Voltage@ 10 A DC | V_F | 1.0 | 1.30 | 1.70 | | | V | |
| Maximum DC Reverse Current $T_a = 25^\circ\text{C}$ at Rated DC Reverse Voltage $T_a = 125^\circ\text{C}$ | I_R | 1 300 | | | | | | μA |
| Typical Junction Capacitance $f=1\text{MHz}, 4\text{V DC}$ | C_j | 70 | | | | | | pF |
| Typical Thermal Resistance ⁽¹⁾ | $R_{\theta JC}$ | 25 | | | | | | $^\circ\text{C/W}$ |
| Maximum Reverse Recovery Time ⁽²⁾ | t_{rr} | 50 | | | 75 | | | ns |
| Operating Junction Temperature Range | T_j | -55 ~ +150 | | | | | | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 ~ +150 | | | | | | $^\circ\text{C}$ |

(1) P.C.B. mounted with 10cm x 10cm x 1mm copper pad areas.

(2) Measured with $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{rr} = 0.25\text{ A}$.

Fig.1 Maximum Average Forward Current Rating

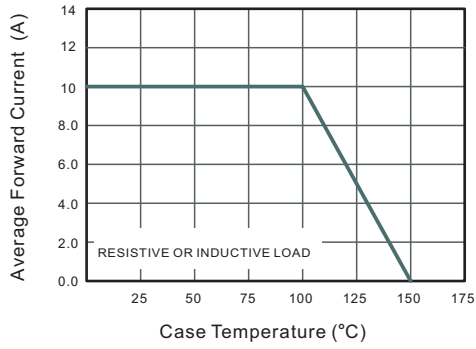


Fig.2 Typical Reverse Characteristics

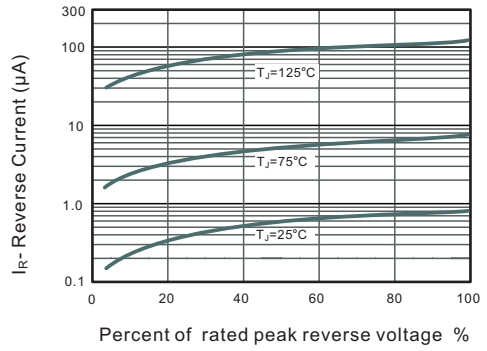


Fig.4 Typical Forward Characteristics

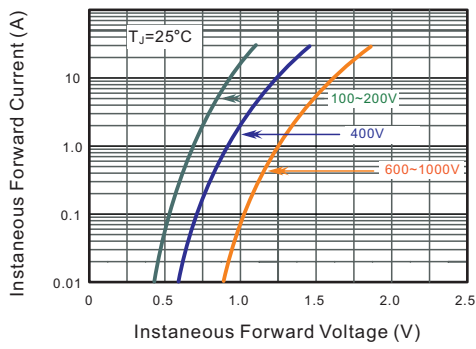


Fig.4 Typical Junction Capacitance

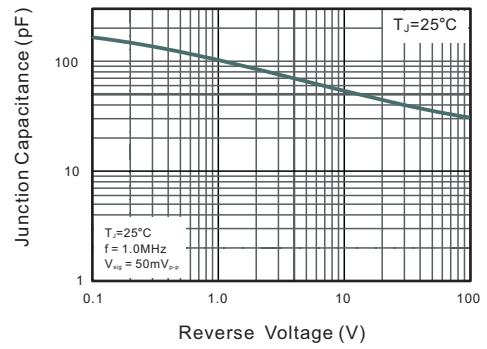
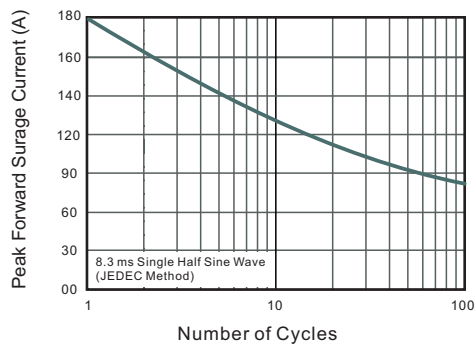
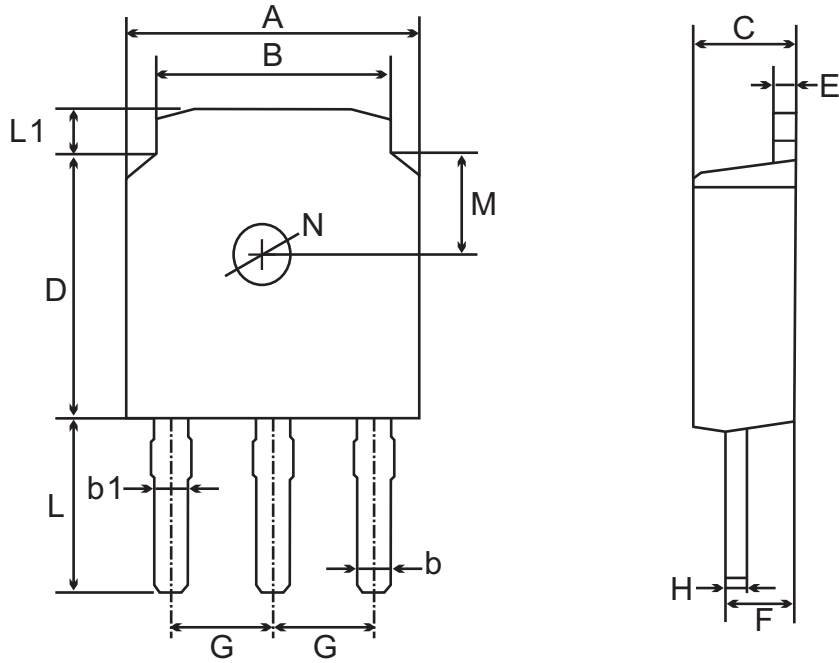


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current



US1001 THRU US1010

TO-251(D-PAK) Package Outline Dimensions

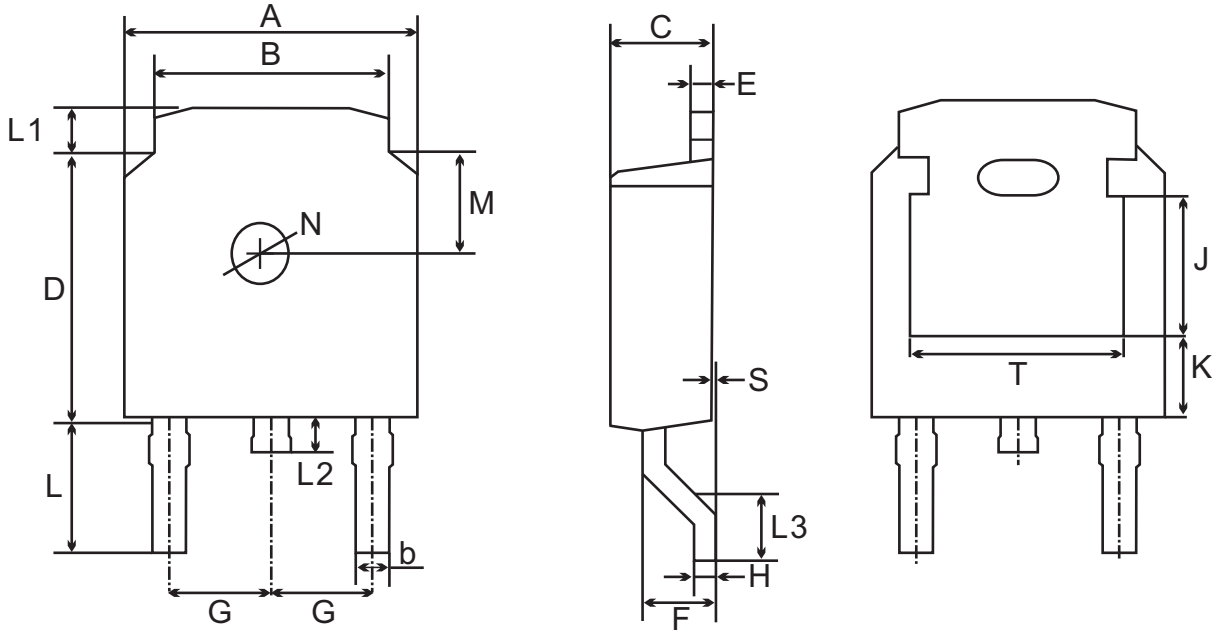


TO-251(I-PAK) mechanical data

| UNIT | | A | B | b | b1 | C | D | E | F | G | H | L | L1 | M | N |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----------------|------|-----|-----|----------------|----------------|
| mm | max | 6.7 | 5.5 | 0.8 | 0.9 | 2.5 | 6.3 | 0.6 | 1.8 | 2.29 TYPICAL | 0.55 | 4.3 | 1.2 | 1.8 TYPICAL | 1.3 TYPICAL |
| | min | 6.3 | 5.1 | 0.3 | 0.76 | 2.1 | 5.9 | 0.4 | 1.3 | | 0.45 | 3.9 | 0.8 | | |
| mil | max | 264 | 217 | 31 | 35 | 98 | 248 | 24 | 71 | 90 TYPICAL | 22 | 169 | 47 | 71 TYPICAL | 51 TYPICAL |
| | min | 248 | 201 | 12 | 30 | 83 | 232 | 16 | 51 | | 18 | 154 | 31 | | |

US1001 THRU US1010

TO-252(D-PAK) Package Outline Dimensions



TO-252(D-PAK) mechanical data

| UNIT | | A | B | b | C | D | E | F | G | H | L | L1 | L2 | L3 | S | M | N | J | K | T |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|------|-----|-----|-----|------|-----|----------------|----------------|------|------|------|
| mm | max | 6.7 | 5.5 | 0.8 | 2.5 | 6.3 | 0.6 | 1.8 | 2.29 TYPICAL | 0.55 | 3.1 | 1.2 | 1.0 | 1.75 | 0.1 | 1.8 TYPICAL | 1.3 TYPICAL | 3.16 | 1.80 | 4.83 |
| | min | 6.3 | 5.1 | 0.3 | 2.1 | 5.9 | 0.4 | 1.3 | | 0.45 | 2.7 | 0.8 | 0.6 | 1.40 | 0.0 | | | ref. | ref. | ref. |
| mil | max | 264 | 217 | 31 | 98 | 248 | 24 | 71 | 90 TYPICAL | 22 | 122 | 47 | 39 | 69 | 4 | 71 TYPICAL | 51 TYPICAL | 124 | 71 | 190 |
| | min | 248 | 201 | 12 | 83 | 232 | 16 | 51 | | 18 | 106 | 31 | 24 | 55 | 0 | | | ref. | ref. | ref. |