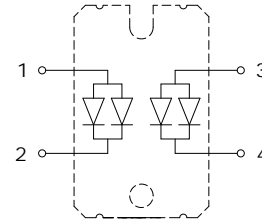


## Parallel Fast Recovery, 4x60A, 600V Epitaxial Diodes In Isolated SOT227 Package

### APPLICATIONS

- Switch mode power supplies (SMPS) rectifiers
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders
- Inductive heating and melting
- Ultrasonic cleaners and welders
- Power factor correction (PFC) circuits
- Inversion welder
- Converter and chopper



### FEATURES

- Ultrafast recovery time
- Soft recovery characteristics
- Low recovery loss
- Low forward voltage
- High surge current capability
- Pb-free finished; **RoHS compliant**



### MAXIMUM RATINGS (per Leg)

| Parameter  | Symbol         | Value       | Units            |
|--|----------------|-------------|------------------|
| Repetitive peak reverse voltage  | $V_{RRM}$      | 600         | V                |
| Average forward current<br>$T_C = 85^\circ\text{C}$  | $I_{F(AV)}$    | 120         | A                |
| Maximum repetitive forward current<br>$T_C = 25^\circ\text{C}$ , $t_p$ limited by $T_{jmax}$ , $D=0.5$ | $I_{FSM}$      | 1200        |                  |
| Operating junction and storage temperature   | $T_j, T_{stg}$ | -40... +150 | $^\circ\text{C}$ |

### Thermal and Isolation Characteristics

| Parameter  | Symbol     | Max. Value | Units                     |
|--|------------|------------|---------------------------|
| <b>Characteristics</b>   |            |            |                           |
| Thermal resistance, junction to case, per Leg  | $R_{thJC}$ | 0.325      | $^\circ\text{C}/\text{W}$ |
| Isolation voltage, RMS (measured between terminals and mounting base, 50-60 Hz, for 1-3 seconds) | $V_{iso}$  | 3000       | V                         |

**Electrical Characteristics (per Leg), at  $T_j = 25^\circ\text{C}$ , unless otherwise specified**

| Parameter  | Symbol | Value |      |      | Unit          |
|--|--------|-------|------|------|---------------|
|  |        | Min.  | Typ. | Max. |               |
| <b>Static Characteristics</b>  |        |       |      |      |               |
| Reverse leakage current<br>$V_R = 600\text{V}, T_j = 25^\circ\text{C}$ | $I_R$  | -     | -    | 500  | $\mu\text{A}$ |
| Forward voltage drop<br>$I_F = 120\text{A}, T_j = 25^\circ\text{C}$    | $V_F$  | -     | 1.3  | 1.8  | V             |

**Electrical Characteristics (per Leg), at  $T_j = 25^\circ\text{C}$ , unless otherwise specified**

| Parameter   | Symbol    | Value |                  |      | Unit |
|---|-----------|-------|------------------|------|------|
|   |           | Min.  | Typ.             | Max. |      |
| <b>Dynamic Characteristics</b>  |           |       |                  |      |      |
| Reverse recovery time<br>$V_R = 30\text{V}, I_F = 1\text{A}, di_F/dt = -200\text{A}/\mu\text{s}, T_j = 25^\circ\text{C}$<br>$V_R = 300\text{V}, I_F = 120\text{A}, di_F/dt = -200\text{A}/\mu\text{s}, T_j = 25^\circ\text{C}$<br>$V_R = 300\text{V}, I_F = 120\text{A}, di_F/dt = -200\text{A}/\mu\text{s}, T_j = 125^\circ\text{C}$ | $t_{rr}$  | -     | 48<br>103<br>218 | -    | ns   |
| Reverse recovery charge<br>$V_R = 300\text{V}, I_F = 120\text{A}, di_F/dt = -200\text{A}/\mu\text{s}, T_j = 25^\circ\text{C}$<br>$V_R = 300\text{V}, I_F = 120\text{A}, di_F/dt = -200\text{A}/\mu\text{s}, T_j = 125^\circ\text{C}$  | $Q_{rr}$  | -     | 467<br>3184      | -    | nC   |
| Maximum reverse recovery current<br>$V_R = 300\text{V}, I_F = 120\text{A}, di_F/dt = -200\text{A}/\mu\text{s}, T_j = 25^\circ\text{C}$<br>$V_R = 300\text{V}, I_F = 120\text{A}, di_F/dt = -200\text{A}/\mu\text{s}, T_j = 125^\circ\text{C}$   | $I_{rrm}$ | -     | 8.0<br>24.4      | -    | A    |

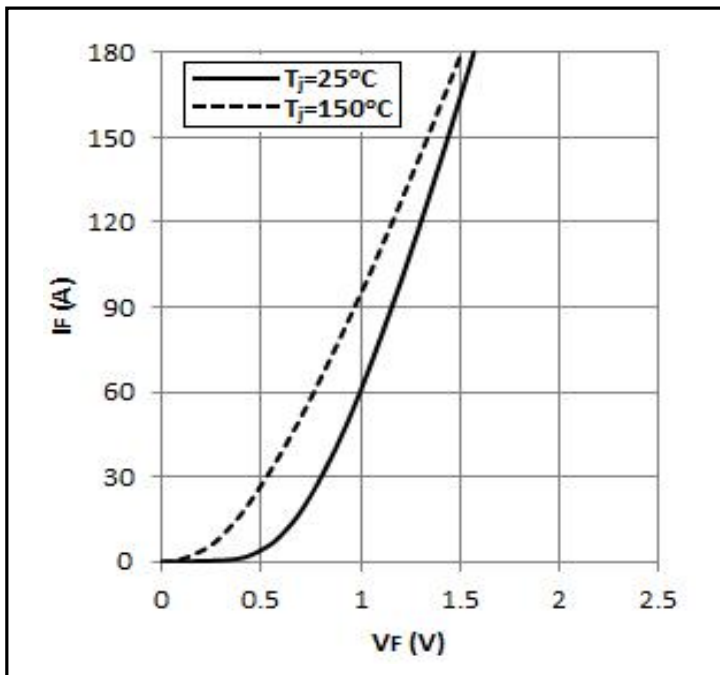
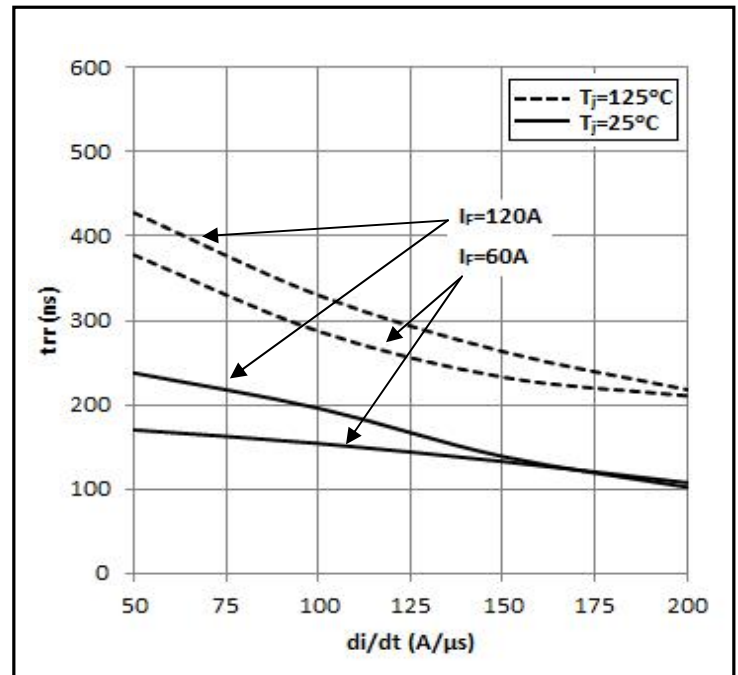
**Figure 1 – Typical Forward Voltage Drop vs Forward Current**

**Figure 2 – Reverse recovery time vs.  $di_F/dt$** 


Figure 2 – Reverse recovery charge vs.  $di_F/dt$

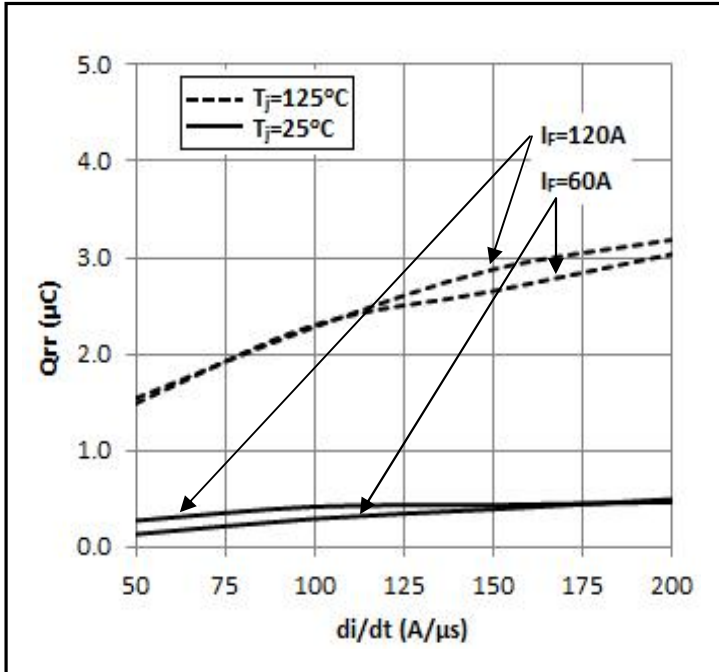


Figure 3 – Maximum reverse recovery current vs.  $di_F/dt$

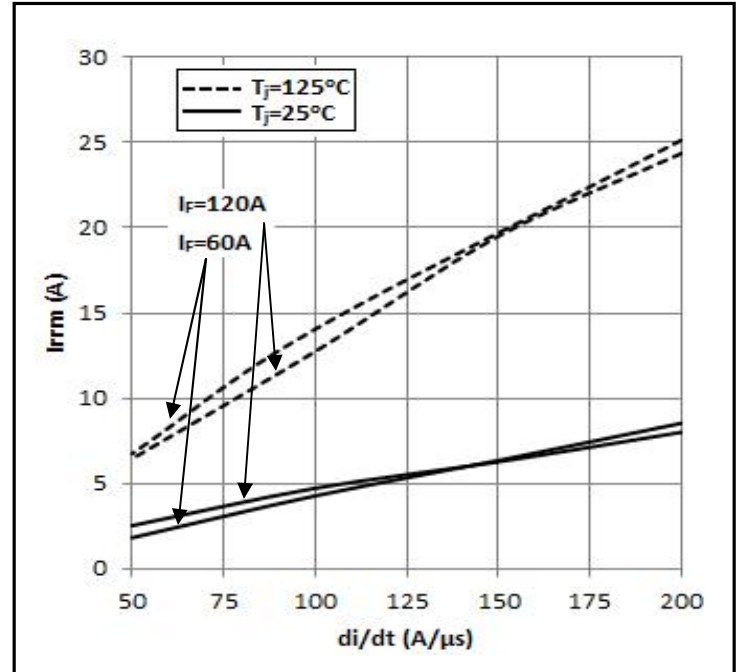
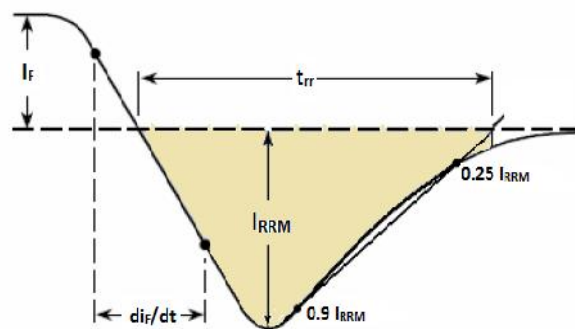
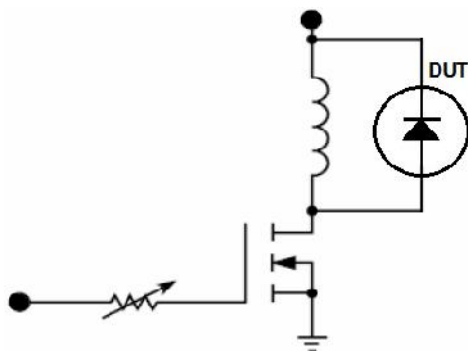
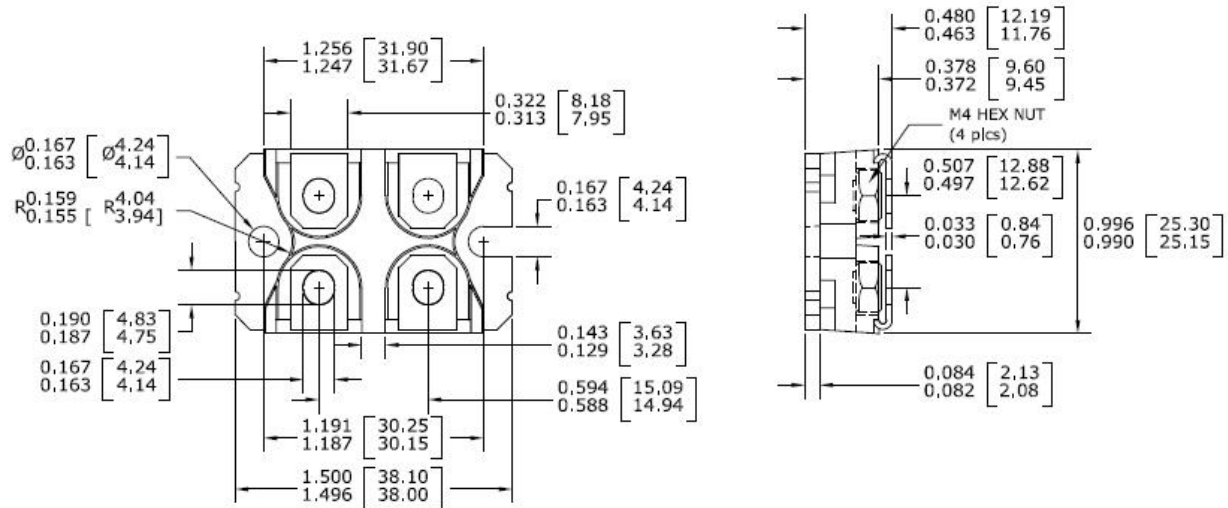


Figure 4 – Diode Reverse Recovery Test Circuit and Waveform



**Package Outline Drawing**



**Disclaimer**

These specifications may not be considered as a guarantee of components characteristics. Components have to be tested depending on intended application as adjustments may be necessary. The use of **iQXPRZ Power Inc.** components in life support appliances and systems are subject to written approval of **iQXPRZ Power Inc.**