

SCHOTTKY RECTIFIER

5.5 Amp

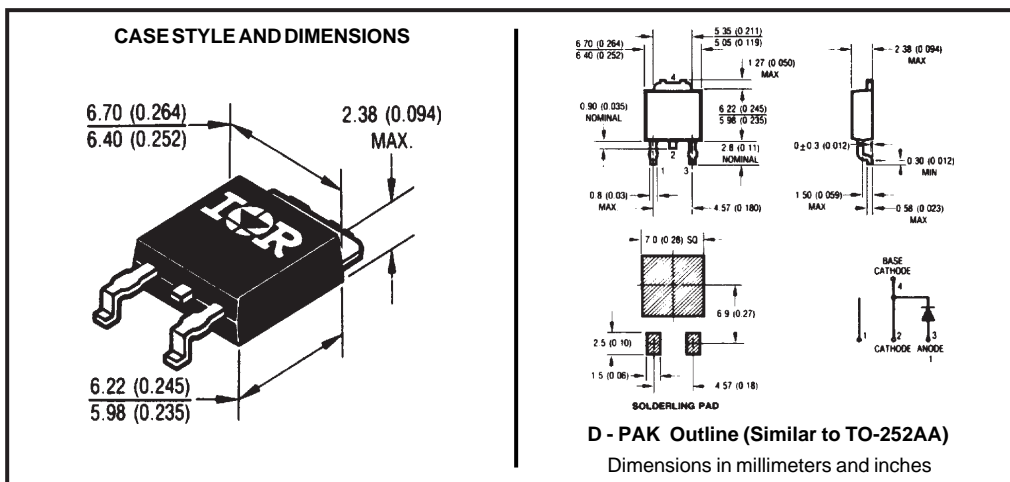
Major Ratings and Characteristics

| Characteristics | 50WQ..F | Units |
|---|------------|------------------|
| $I_{F(AV)}$ Rectangular waveform | 5.5 | A |
| V_{RRM} | 30/40 | V |
| I_{FSM} @ 60Hz | 470 | A |
| V_F @ 5 Apk, $T_J = 25^\circ\text{C}$ | 0.65 | V |
| T_J | -40 to 125 | $^\circ\text{C}$ |

Description/Features

The 50WQ..F surface mount Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC board. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Popular D-PAK outline
- Small foot print, surface moutable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Voltage Ratings

| Part number | 50WQ03F | 50WQ04F |
|---|---------|---------|
| V_R Max. DC Reverse Voltage (V) | 30 | 40 |
| V_{RWM} Max. Working Peak Reverse Voltage (V) | | |

Absolute Maximum Ratings

| Parameters | 50WQ..F | Units | Conditions | |
|---|---------|-------|---|---|
| $I_{F(AV)}$ Max. Average Forward Current * See Fig. 5 | 5.5 | A | 50% duty cycle @ $T_C=92^\circ\text{C}$, rectangular wave form | |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7 | 470 | A | 5 μs Sine or 3 μs Rect. pulse | Following any rated load condition and with rated V_{RWM} applied |
| | 42 | | 10ms Sine or 6ms Rect. pulse | |

Electrical Specifications

| Parameters | 50WQ..F | Units | Conditions | |
|---|---------|-------|---|---------------------------|
| V_{FM} Max. Forward Voltage Drop * See Fig. 1 (1) | 0.65 | V | @ 5A | $T_J = 25^\circ\text{C}$ |
| | 0.90 | V | @ 10A | |
| | 0.60 | V | @ 5A | $T_J = 125^\circ\text{C}$ |
| | 0.78 | V | @ 10A | |
| I_{RM} Max. Reverse Leakage Current * See Fig. 2 (1) | 3 | mA | $T_J = 25^\circ\text{C}$ | $V_R = \text{rated } V_R$ |
| | 20 | mA | $T_J = 125^\circ\text{C}$ | |
| C_T Typical Junction Capacitance | 180 | pF | $V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C | |
| L_S Typical Series Inductance | 5.0 | nH | Measured lead to lead 5mm from package body | |

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

| Parameters | 50WQ..F | Units | Conditions | |
|---|------------|--------------------|---------------------------|--|
| T_J Max. Junction Temperature Range | -40 to 125 | $^\circ\text{C}$ | | |
| T_{stg} Max. Storage Temperature Range | -40 to 125 | $^\circ\text{C}$ | | |
| R_{thJC} Max. Thermal Resistance Junction to Case | 6.0 | $^\circ\text{C/W}$ | DC operation * See Fig. 4 | |
| wt Approximate Weight | 0.3(0.01) | g(oz.) | | |
| Case Style | D - PAK | | Similar to TO-252AA | |

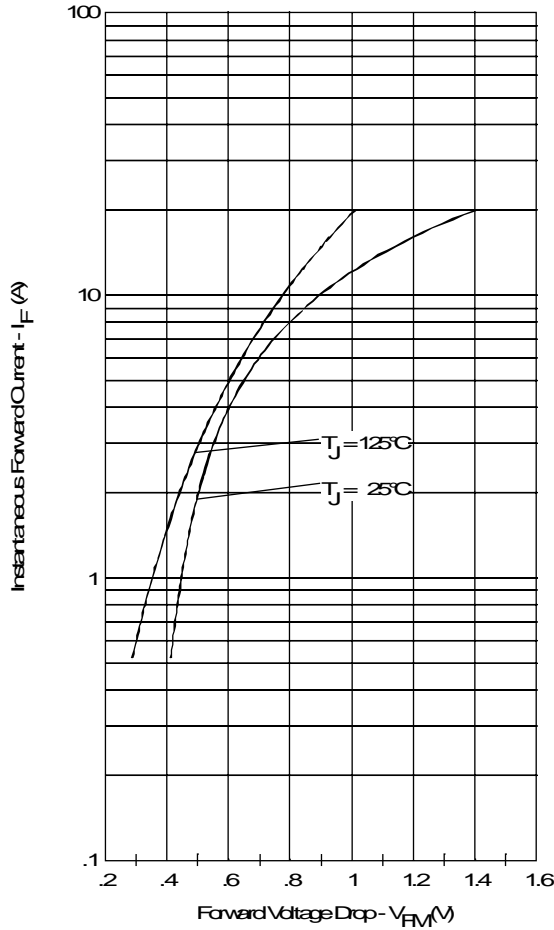


Fig. 1 - Maximum Forward Voltage Drop Characteristics

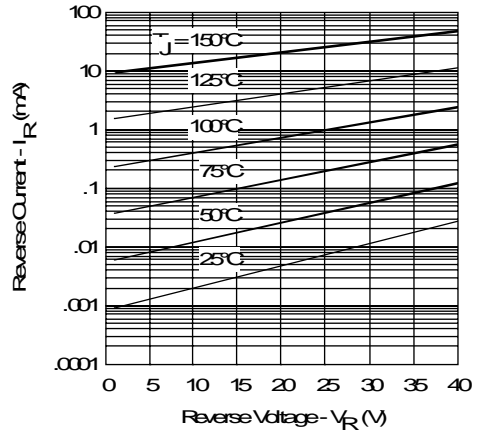


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

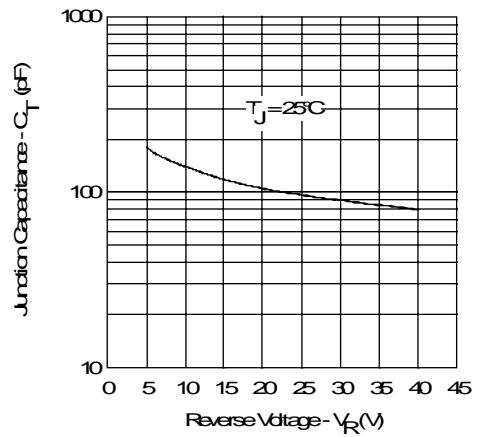


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

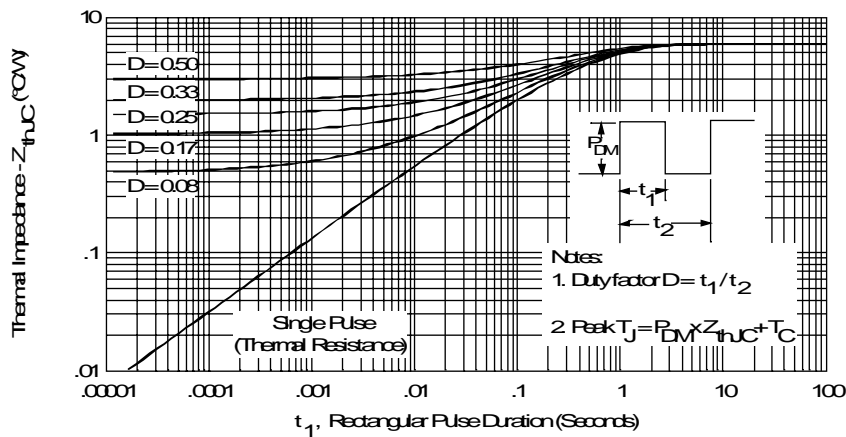


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

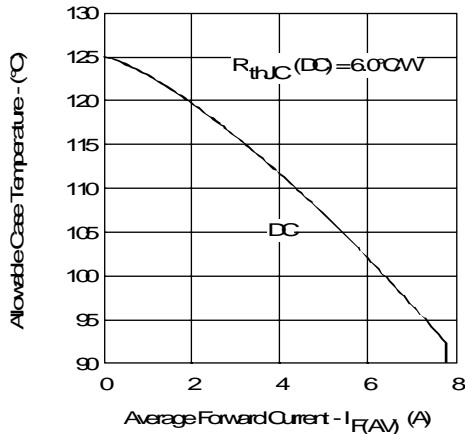


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

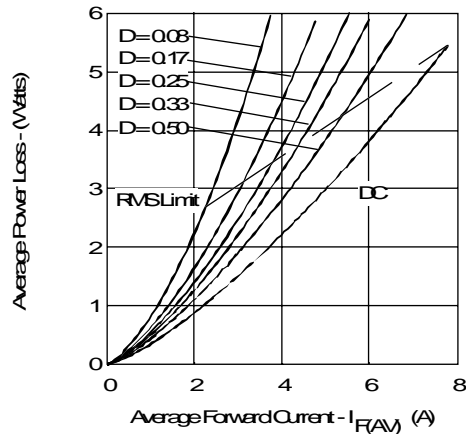


Fig. 6 - Forward Power Loss Characteristics

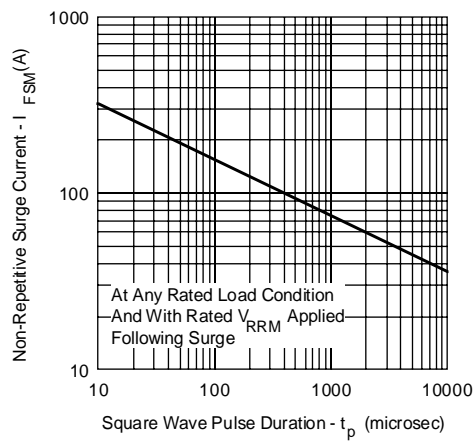


Fig. 7 - Maximum Non-Repetitive Surge Current