

**Major Ratings and Characteristics**

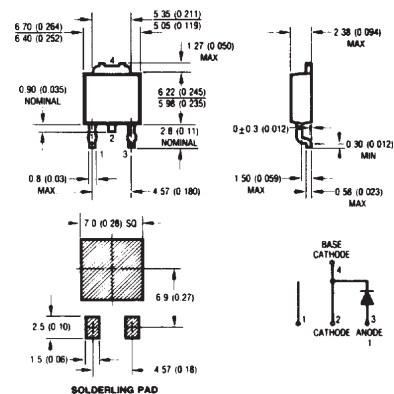
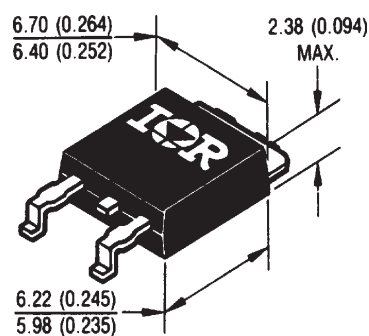
| Characteristics                   | 30WQ..F    | Units      |
|-----------------------------------|------------|------------|
| $I_{F(AV)}$ Rectangular waveform  | 3.3        | A          |
| $V_{RRM}$                         | 30/40      | V          |
| $I_{FSM}$ @ $t_p = 5 \mu s$ sine  | 470        | A          |
| $V_F$ @ 3 Apk, $T_J = 25^\circ C$ | 0.62       | V          |
| $T_J$ range                       | -40 to 125 | $^\circ C$ |

**Description/Features**

The 30WQ..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 mountable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

**CASE STYLE AND DIMENSIONS**



**D - PAK Outline (Similar to TO-252AA)**

Dimensions in millimeters and inches

## Voltage Ratings

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

## Absolute Maximum Ratings

| Parameters                                                              | 30WQ..F | Units | Conditions                                                         |
|-------------------------------------------------------------------------|---------|-------|--------------------------------------------------------------------|
| $I_{F(AV)}$ Max. Average Forward Current<br>* See Fig. 5                | 3.3     | A     | 50% duty cycle @ $T_C = 105^\circ\text{C}$ , rectangular wave form |
| $I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7 | 470     | A     | 5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse                |
|                                                                         | 40      |       | 10ms Sine or 6ms Rect. pulse                                       |

Following any rated load condition and with rated  $V_{RWM}$  applied

## Electrical Specifications

| Parameters                                                | 30WQ..F | Units            | Conditions                                                              |
|-----------------------------------------------------------|---------|------------------|-------------------------------------------------------------------------|
| $V_{FM}$ Max. Forward Voltage Drop<br>* See Fig. 1 (1)    | 0.62    | V                | @ 3A                                                                    |
|                                                           | 0.88    | V                | @ 6A                                                                    |
|                                                           | 0.56    | V                | @ 3A                                                                    |
|                                                           | 0.69    | V                | @ 6A                                                                    |
| $I_{RM}$ Max. Reverse Leakage Current<br>* See Fig. 2 (1) | 2       | mA               | $T_J = 25^\circ\text{C}$                                                |
|                                                           | 12      | mA               | $T_J = 125^\circ\text{C}$                                               |
| $C_T$ Typical Junction Capacitance                        | 110     | pF               | $V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$ |
| $L_S$ Typical Series Inductance                           | 5.0     | nH               | Measured lead to lead 5mm from package body                             |
| $dv/dt$ Max. Voltage Rate of Change (Rated $V_R$ )        | 10,000  | V/ $\mu\text{s}$ |                                                                         |

(1) Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

## Thermal-Mechanical Specifications

| Parameters                                          | 30WQ..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       |

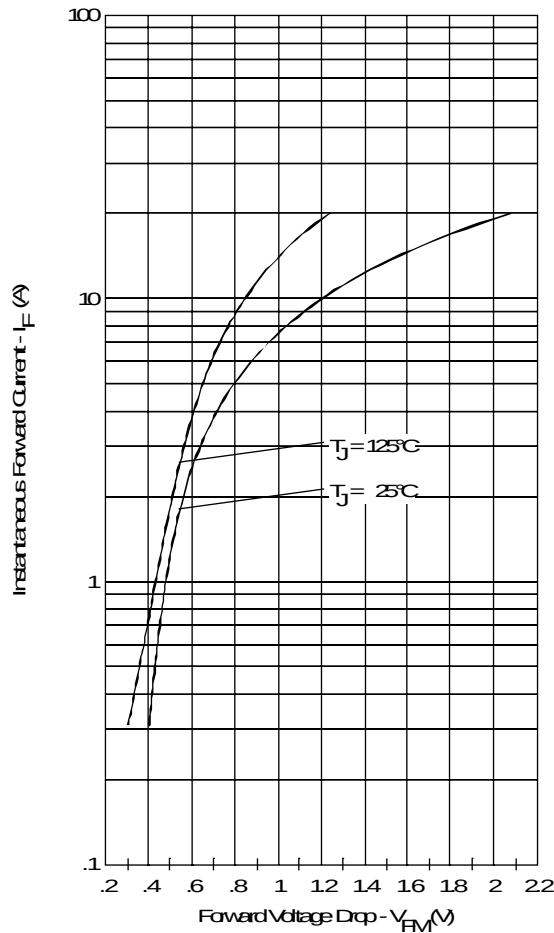


Fig. 1 - Maximum Forward Voltage Drop Characteristics

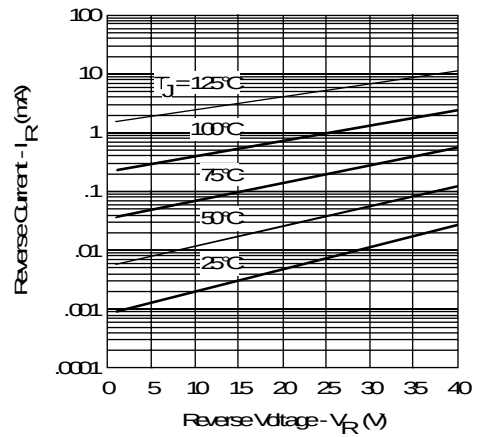


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

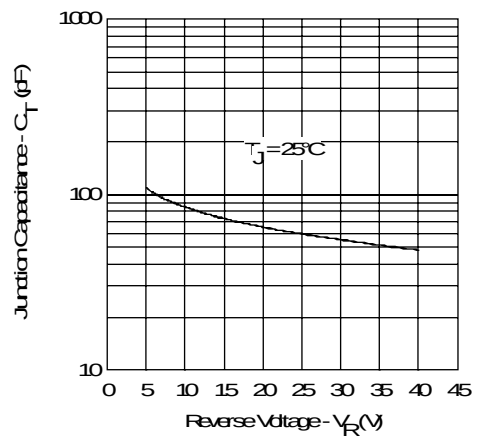


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

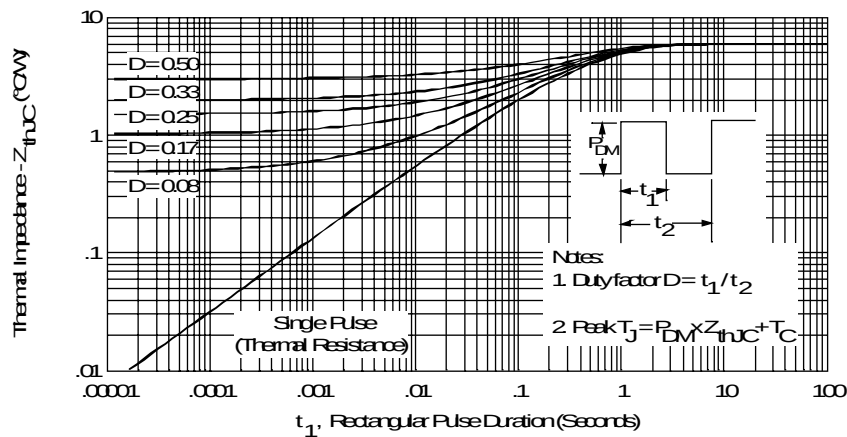


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

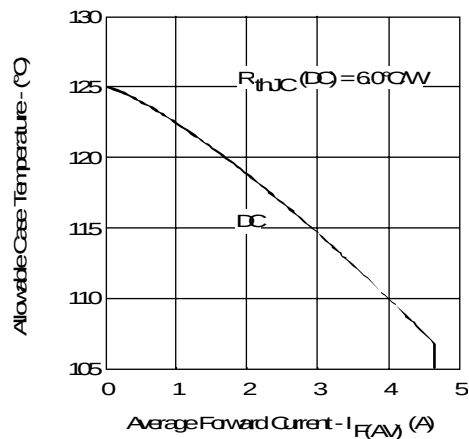


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

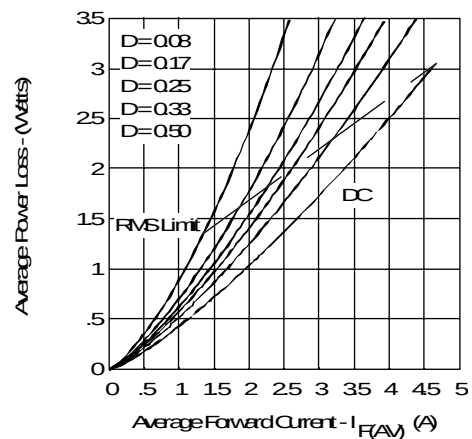


Fig. 6 - Forward Power Loss Characteristics

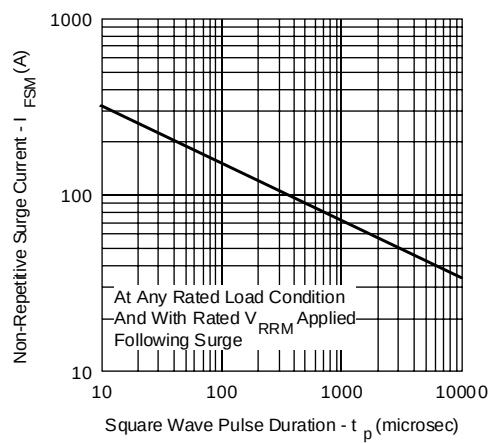


Fig. 7 - Maximum Non-Repetitive Surge Current