

SCHOTTKY RECTIFIER

3.3 Amp

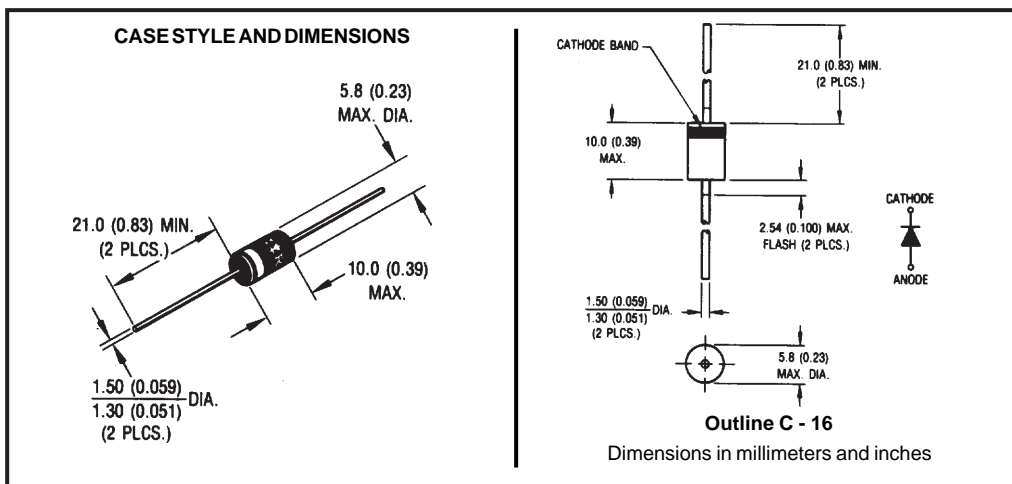
Major Ratings and Characteristics

| Characteristics | 31DQ.. | Units |
|-----------------------------------|------------|------------|
| $I_{F(AV)}$ Rectangular waveform | 3.3 | A |
| V_{RRM} | 50/60 | V |
| I_{FSM} @ $t_p = 5 \mu s$ sine | 360 | A |
| V_F @ 3 Apk, $T_J = 25^\circ C$ | 0.58 | V |
| T_J | -40 to 125 | $^\circ C$ |

Description/Features

The 31DQ.. axial leaded Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- Low profile, axial leaded outline
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Voltage Ratings

| Part number | 31DQ05 | 31DQ06 |
|---|--------|--------|
| V_R Max. DC Reverse Voltage (V) | 50 | 60 |
| V_{RWM} Max. Working Peak Reverse Voltage (V) | | |

Absolute Maximum Ratings

| Parameters | 31DQ.. | Units | Conditions |
|---|--------|-------|---|
| $I_{F(AV)}$ Max. Average Forward Current * See Fig. 4 | 3.3 | A | 50% duty cycle @ $T_A = 19^\circ\text{C}$, rectangular waveform With cooling fins |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6 | 360 | A | Following any rated load condition and with rated V_{RWM} applied |
| | 60 | | |

Electrical Specifications

| Parameters | 31DQ.. | Units | Conditions |
|---|--------|-------|---|
| V_{FM} Max. Forward Voltage Drop * See Fig. 1 (1) | 0.58 | V | @ 3A |
| | 0.75 | V | @ 6A |
| | 0.53 | V | @ 3A |
| | 0.64 | V | @ 6A |
| I_{RM} Max. Reverse Leakage Current * See Fig. 2 (1) | 3 | mA | $T_J = 25^\circ\text{C}$ |
| | 30 | mA | $T_J = 125^\circ\text{C}$ |
| C_T Typical Junction Capacitance | 160 | pF | $V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C |
| L_S Typical Series Inductance | 9.0 | nH | Measured lead to lead 5mm from package body |

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

Thermal-Mechanical Specifications

| Parameters | 31DQ.. | 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_{thJA} Max. Thermal Resistance Junction to Ambient | 80 | $^\circ\text{C/W}$ | DC operation Without cooling fins |
| R_{thJA} Typical Thermal Resistance Junction to Ambient | 34 | $^\circ\text{C/W}$ | With fin 20 x 20 (0.79 x 0.79) 1.0 (0.04) thick. Dimensions in millimeters (inches) |
| wt Approximate Weight | 1.2 (0.042) | g (oz.) | |
| Case Style | C-16 | | |

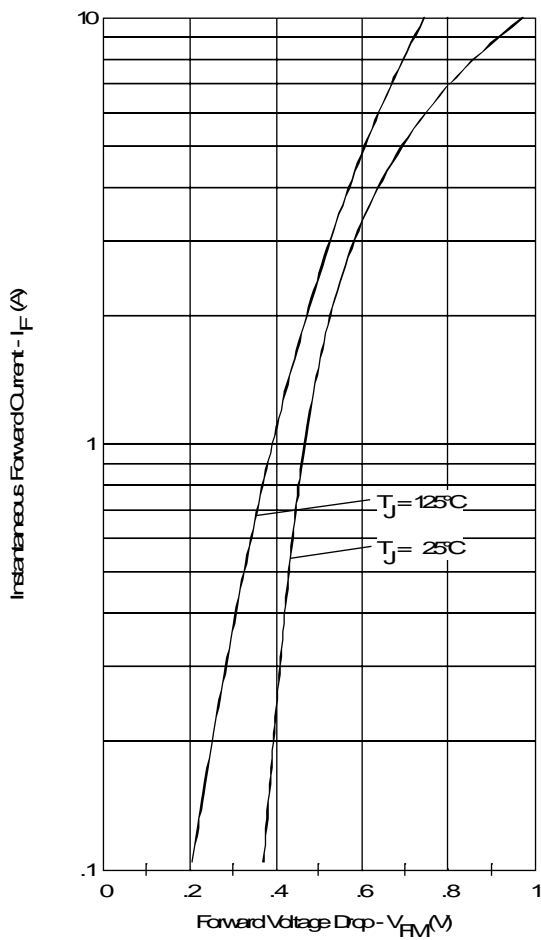


Fig. 1 - Maximum Forward Voltage Drop Characteristics

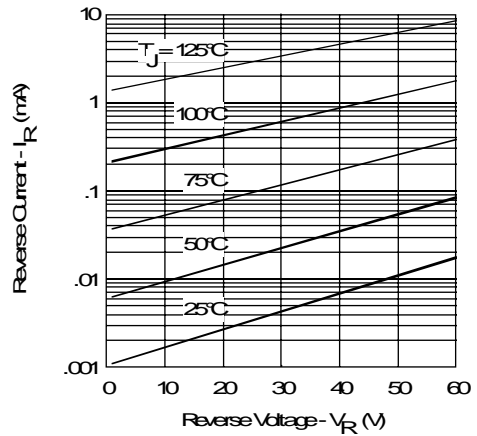


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

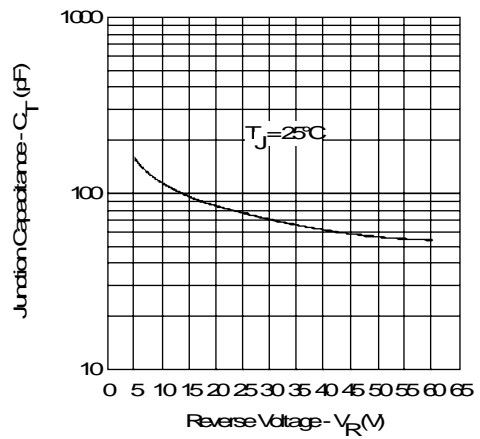


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

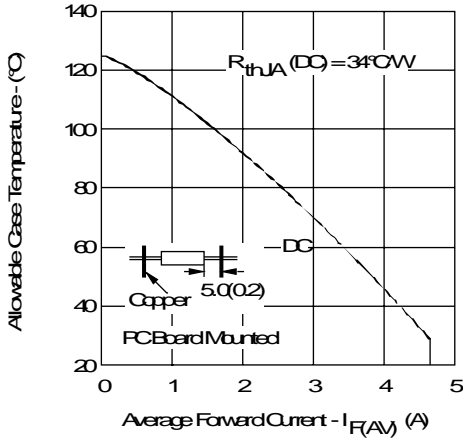


Fig.4-Maximum Allowable Case Temperature Vs. Average Forward Current, With Fins

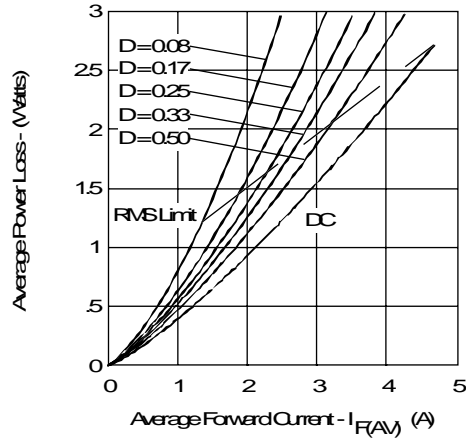


Fig.5-Forward Power Loss Characteristics

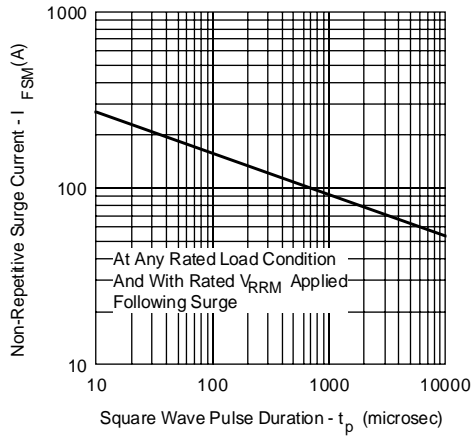


Fig.6-Maximum Non-Repetitive Surge Current