

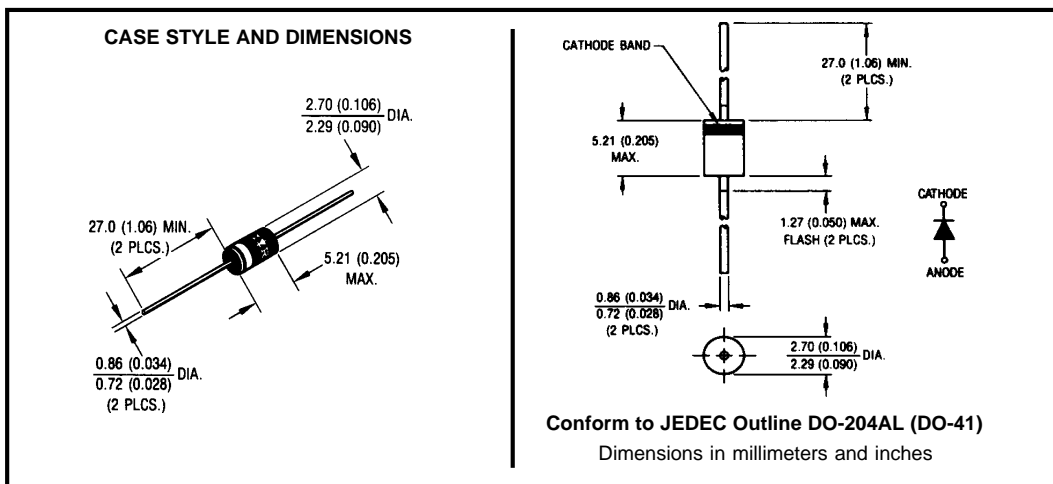
Major Ratings and Characteristics

| Characteristics | 11DQ.. | Units |
|----------------------------------|------------|------------|
| $I_{F(AV)}$ Rectangular waveform | 1.1 | A |
| V_{RRM} | 50/60 | V |
| I_{FSM} @ $t_p=5 \mu s$ sine | 150 | A |
| V_F @ 1 Apk, $T_J=125^\circ C$ | 0.53 | V |
| T_J range | -40 to 150 | $^\circ C$ |

Description/ Features

The 11DQ.. 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 | 11DQ05 | 11DQ06 |
|---|--------|--------|
| V_R Max. DC Reverse Voltage (V) | 50 | 60 |
| V_{RWM} Max. Working Peak Reverse Voltage (V) | | |

Absolute Maximum Ratings

| Parameters | 11DQ.. | Units | Conditions |
|---|--------|-------|--|
| $I_{F(AV)}$ Max. Average Forward Current * See Fig. 4 | 1.1 | A | 50% duty cycle @ $T_C = 84^\circ\text{C}$, rectangular wave form |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6 | 150 | A | Following any rated load condition and with rated V_{RRM} applied |
| | 25 | | |
| E_{AS} Non-Repetitive Avalanche Energy | 2.0 | mJ | $T_J = 25^\circ\text{C}$, $I_{AS} = 1$ Amps, $L = 4$ mH |
| I_{AR} Repetitive Avalanche Current | 1.0 | A | Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical |

Electrical Specifications

| Parameters | 11DQ.. | Units | Conditions |
|---|--------|------------------|---|
| V_{FM} Max. Forward Voltage Drop * See Fig. 1 (1) | 0.58 | V | @ 1A $T_J = 25^\circ\text{C}$ |
| | 0.76 | V | @ 2A $T_J = 25^\circ\text{C}$ |
| | 0.53 | V | @ 1A $T_J = 125^\circ\text{C}$ |
| | 0.64 | V | @ 2A $T_J = 125^\circ\text{C}$ |
| I_{RM} Max. Reverse Leakage Current * See Fig. 2 (1) | 1.0 | mA | $T_J = 25^\circ\text{C}$ $V_R = \text{rated } V_R$ |
| | 11 | mA | $T_J = 125^\circ\text{C}$ |
| C_T Typical Junction Capacitance | 55 | pF | $V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C |
| L_S Typical Series Inductance | 8.0 | nH | Measured lead to lead 5mm from package body |
| dv/dt Max. Voltage Rate of Change | 10000 | V/ μs | (Rated V_R) |

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

Thermal-Mechanical Specifications

| Parameters | 11DQ.. | Units | Conditions |
|--|-----------------|---------------------------|-------------------------------------|
| T_J Max. Junction Temperature Range (*) | -40 to 150 | $^\circ\text{C}$ | |
| T_{stg} Max. Storage Temperature Range | -40 to 150 | $^\circ\text{C}$ | |
| R_{thJA} Max. Thermal Resistance Junction to Ambient | 100 | $^\circ\text{C}/\text{W}$ | DC operation Without cooling fin |
| R_{thJL} Typical Thermal Resistance Junction to Lead | 81 | $^\circ\text{C}/\text{W}$ | DC operation (See Fig. 4) |
| wt Approximate Weight | 0.33(0.012) | g (oz.) | |
| Case Style | DO-204AL(DO-41) | | |

(*) $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

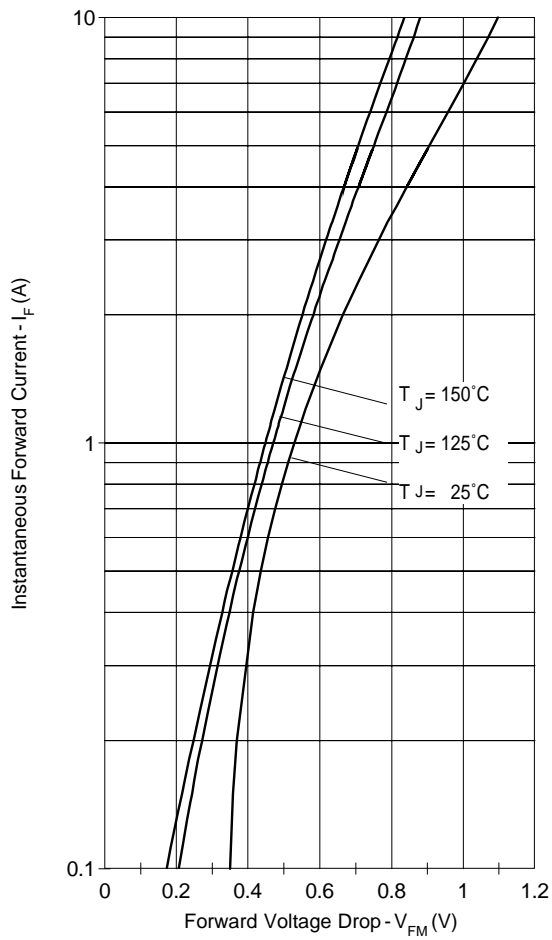


Fig. 1 - Maximum Forward Voltage Drop Characteristics

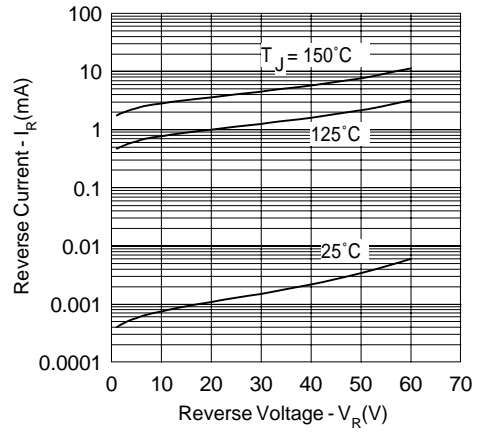


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

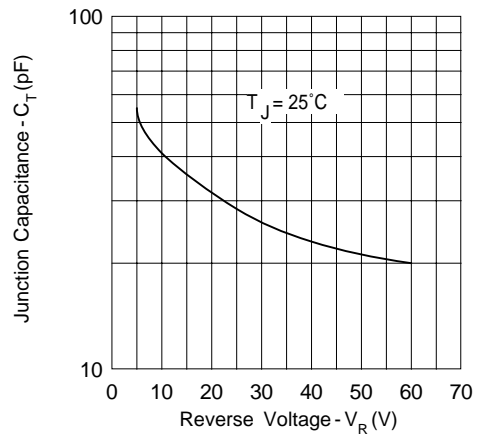


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

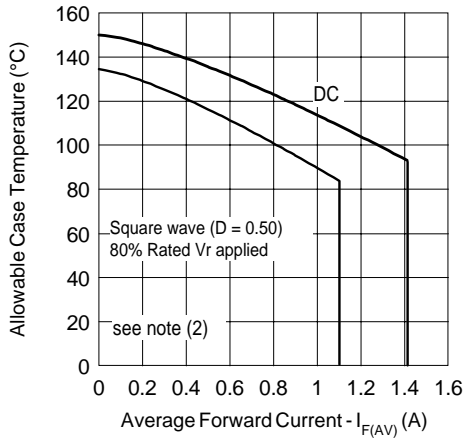


Fig. 4 - Maximum Ambient Temperature Vs. Average Forward Current, Printed Circuit Board Mounted

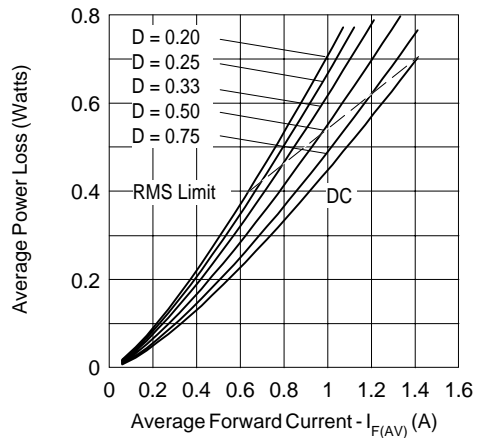


Fig. 5 - Forward Power Loss Characteristics

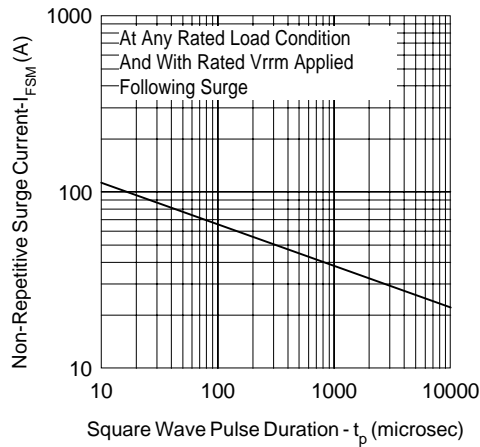


Fig. 6 - Maximum Non-Repetitive Surge Current

(2) Formula used: $T_c = T_j - (Pd + Pd_{REV}) \times R_{thJC}$;
 $Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = 80\% \text{ rated } V_R$

Ordering Information Table

| Device Code | | | | | | | | | | | |
|-------------|--|----|----|----|----|----|---|---|---|---|---|
| | <table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">11</td> <td style="padding: 5px;">D</td> <td style="padding: 5px;">Q</td> <td style="padding: 5px;">06</td> <td style="padding: 5px;">TR</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> </tr> </table> | 11 | D | Q | 06 | TR | ① | ② | ③ | ④ | ⑤ |
| 11 | D | Q | 06 | TR | | | | | | | |
| ① | ② | ③ | ④ | ⑤ | | | | | | | |
| 1 | - 11 = 1.1A (Axial and small packages - Current is x10) | | | | | | | | | | |
| 2 | - D = DO-41 package | | | | | | | | | | |
| 3 | - Q = Schottky Q.. Series | | | | | | | | | | |
| 4 | - 10 = Voltage Ratings | | | | | | | | | | |
| 5 | - TR = Tape & Reel package (5000 pcs) - = Box package (1000 pcs) | | | | | | | | | | |

| |
|----------|
| 06 = 60V |
| 05 = 50V |

Data and specifications subject to change without notice.
 This product has been designed and qualified for Industrial Level.
 Qualification Standards can be found on IR's Web site.