

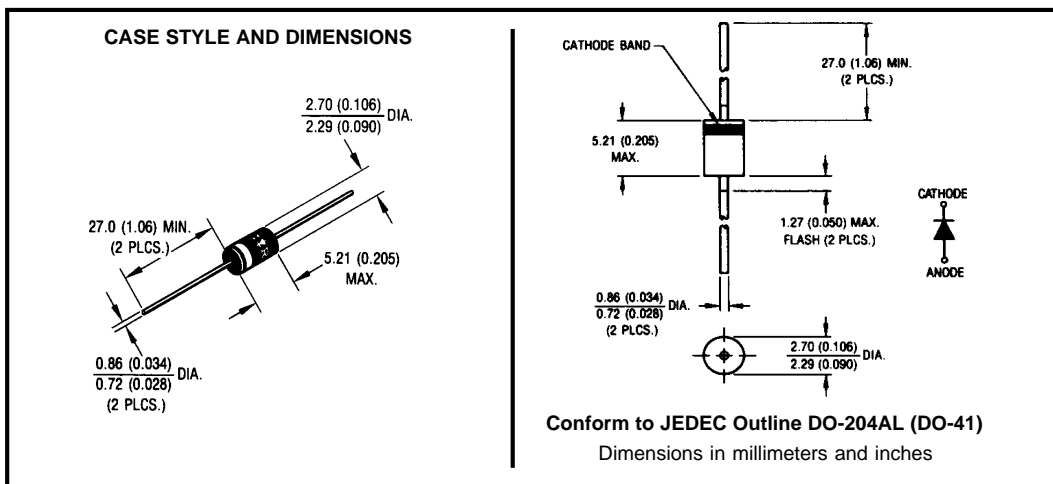
**Major Ratings and Characteristics**

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	5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse
	25		10ms Sine or 6ms Rect. pulse
$E_{AS}$ 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 $\mu\text{sec}$ 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
	0.76	V	@ 2A
	0.53	V	@ 1A
	0.64	V	@ 2A
$I_{RM}$ Max. Reverse Leakage Current * See Fig. 2 (1)	1.0	mA	$T_J = 25^\circ\text{C}$
	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) $25^\circ\text{C}$
$L_S$ Typical Series Inductance	8.0	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change	10000	V/ $\mu\text{s}$	(Rated $V_R$ )

(1) Pulse Width < 300 $\mu\text{s}$ , 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

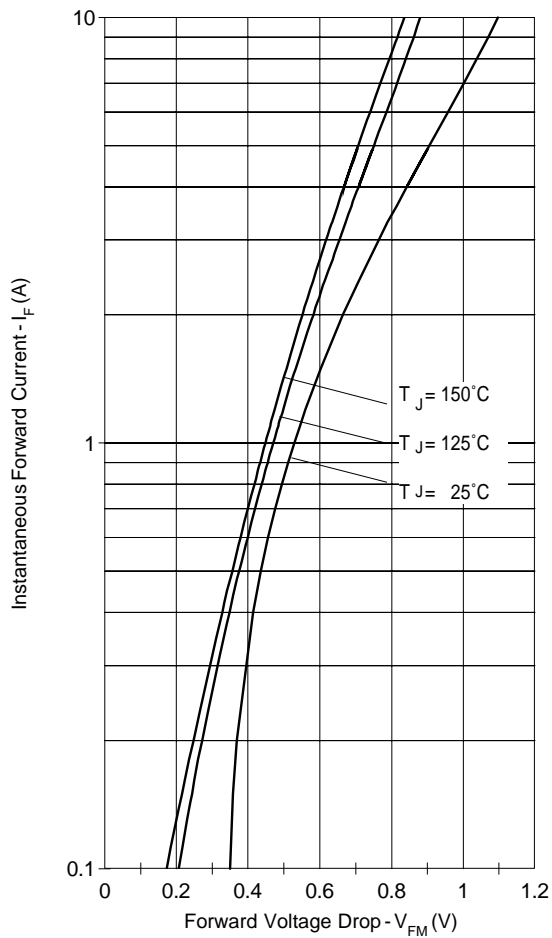


Fig. 1 - Maximum Forward Voltage Drop Characteristics

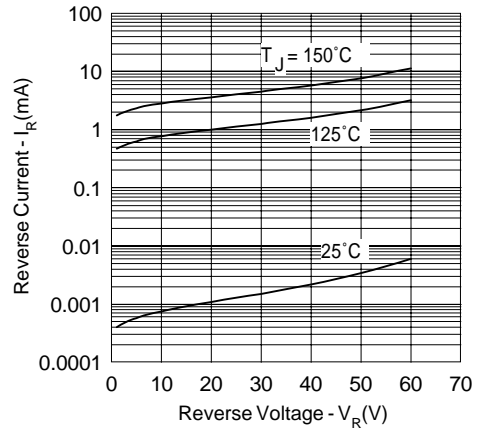


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

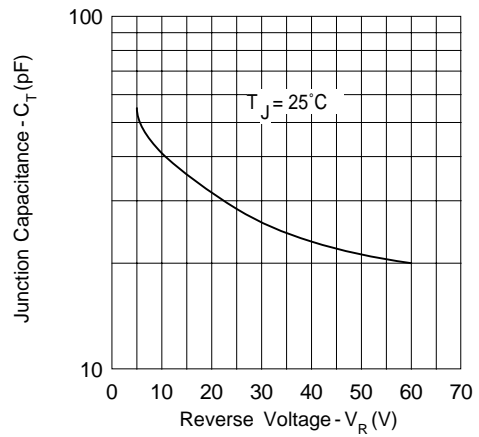


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

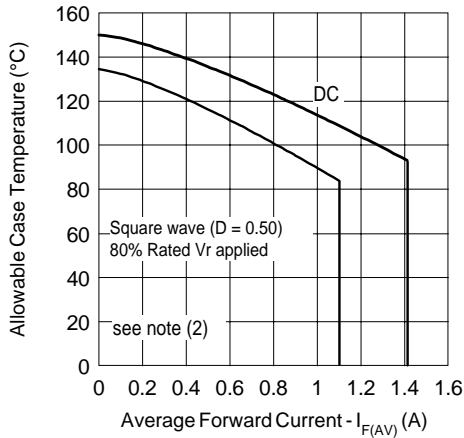


Fig. 4 - Maximum Ambient Temperature Vs. Average Forward Current, Printed Circuit Board Mounted

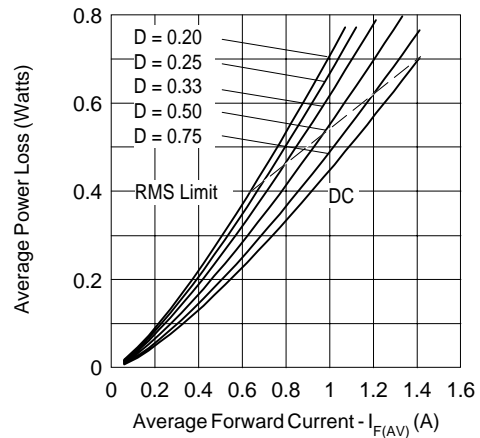


Fig. 5 - Forward Power Loss Characteristics

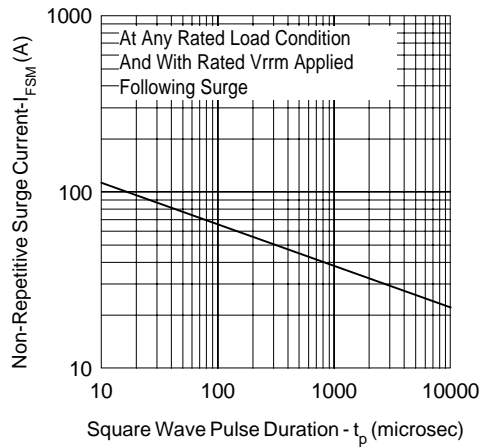


Fig. 6 - Maximum Non-Repetitive Surge Current

- (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							
<b>1</b>	- 11 = 1.1A (Axial and small packages - Current is x10)										
<b>2</b>	- D = DO-41 package										
<b>3</b>	- Q = Schottky Q.. Series										
<b>4</b>	- 10 = Voltage Ratings										
<b>5</b>	- 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.