

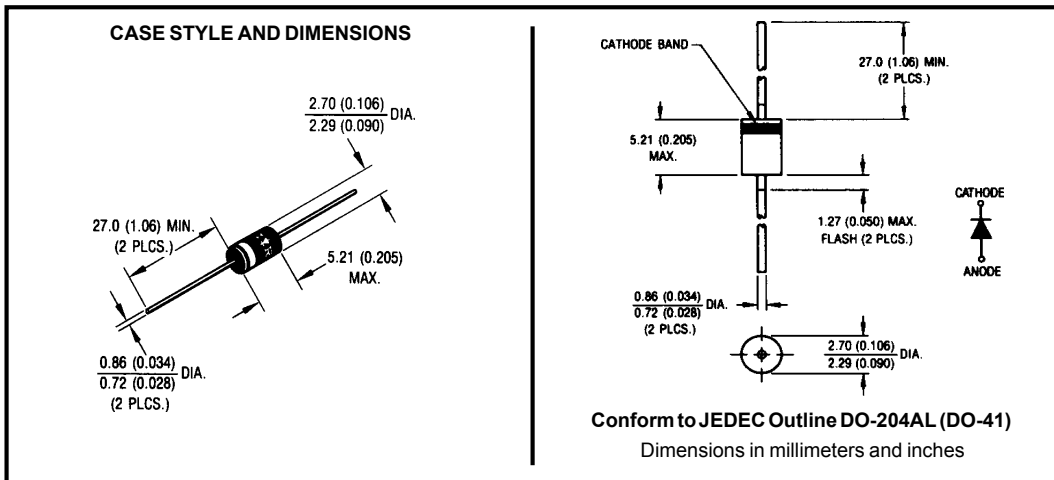
**Major Ratings and Characteristics**

Characteristics	11DQ..	Units
$I_{F(AV)}$ Rectangular waveform	1.1	A
$V_{RRM}$	30/40	V
$I_{FSM}$ @tp=5 $\mu$ s sine	225	A
$V_F$ @1 Apk, $T_J = 25^\circ\text{C}$	0.55	V
$T_J$ range	-40 to 150	$^\circ\text{C}$

**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



# 11DQ03, 11DQ04

Bulletin PD-2.287 rev. D 03/02



## Voltage Ratings

Part number	11DQ03	11DQ04
V <sub>R</sub> Max. DC Reverse Voltage (V)	30	40
V <sub>RWM</sub> Max. Working Peak Reverse Voltage (V)		

## Absolute Maximum Ratings

Parameters	11DQ..	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current * See Fig. 4	1.1	A	50% duty cycle @ T <sub>C</sub> = 75°C, rectangular waveform
I <sub>FSM</sub> Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6	225	A	Following any rated load condition and with rated V <sub>RRM</sub> applied
	35		
E <sub>AS</sub> Non-Repetitive Avalanche Energy	4.0	mJ	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 2 Amps, L = 10 mH
I <sub>AR</sub> Repetitive Avalanche Current	1.0	A	Current decaying linearly to zero in 1µsec Frequency limited by T <sub>J</sub> max. V <sub>A</sub> = 1.5 × V <sub>R</sub> typical

## Electrical Specifications

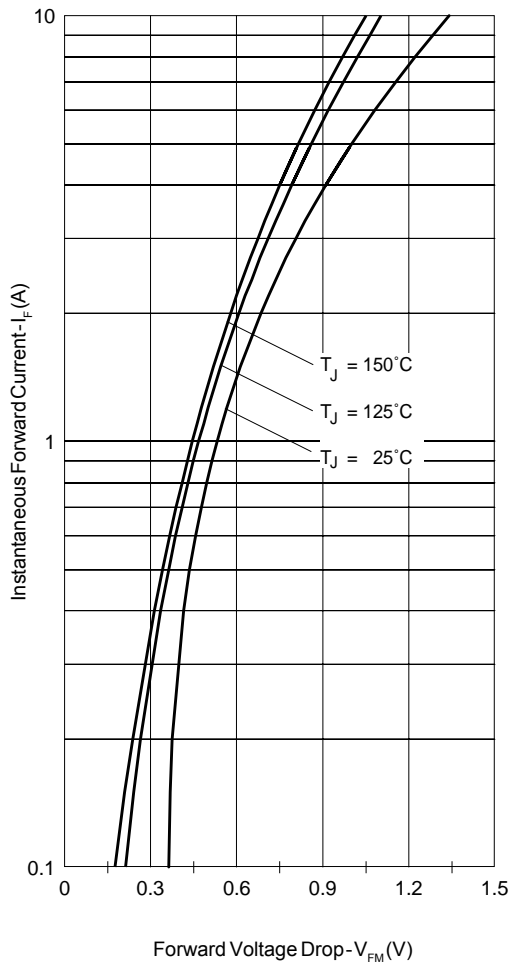
Parameters	11DQ..	Units	Conditions
V <sub>FM</sub> Max. Forward Voltage Drop * See Fig. 1 (1)	0.55	V	@ 1A T <sub>J</sub> = 25 °C
	0.71	V	@ 2A
	0.50	V	@ 1A T <sub>J</sub> = 125 °C
	0.61	V	@ 2A
I <sub>RM</sub> Max. Reverse Leakage Current * See Fig. 2 (1)	1.0	mA	T <sub>J</sub> = 25 °C
	6.0	mA	T <sub>J</sub> = 125 °C
C <sub>T</sub> Typical Junction Capacitance	60	pF	V <sub>R</sub> = 5V <sub>DC</sub> , (test signal range 100Khz to 1Mhz) 25°C
L <sub>S</sub> 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 <sub>R</sub> )

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

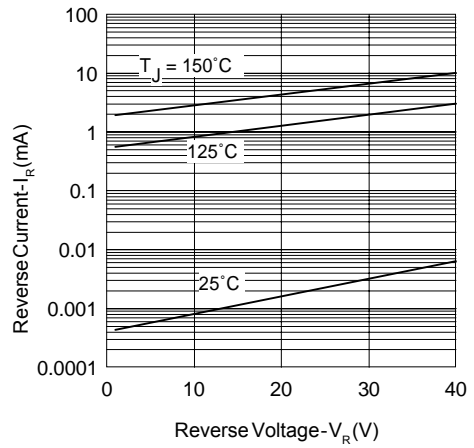
## Thermal-Mechanical Specifications

Parameters	11DQ..	Units	Conditions
T <sub>J</sub> Max. Junction Temperature Range (*)	-40 to 150	°C	
T <sub>stg</sub> Max. Storage Temperature Range	-40 to 150	°C	
R <sub>thJA</sub> Max. Thermal Resistance Junction to Ambient	100	°C/W	DC operation Without cooling fin
R <sub>thJL</sub> Typical Thermal Resistance Junction to Lead	81	°C/W	DC operation (* See Fig. 4)
wt Approximate Weight	0.33(0.012)	g(oz.)	
Case Style	DO-204AL(DO-41)		

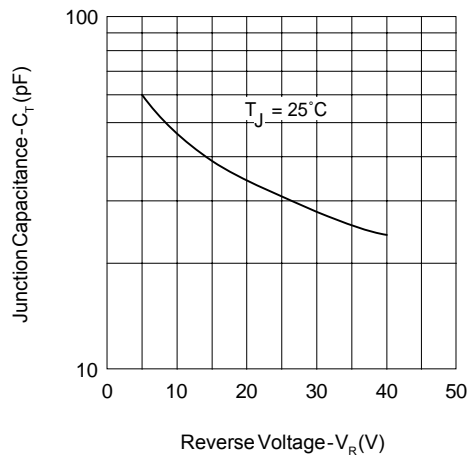
(\*)  $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{th(j-a)}}$  thermal runaway condition for a diode on its own heatsink



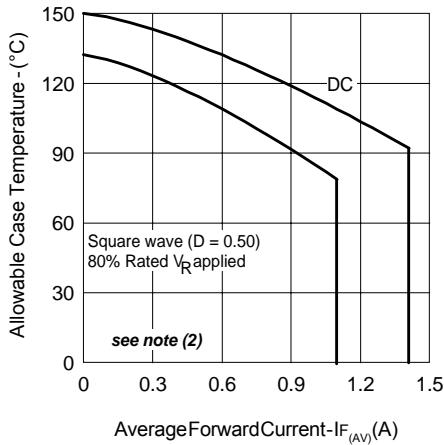
**Fig. 1 - Max. Forward Voltage Drop Characteristics**



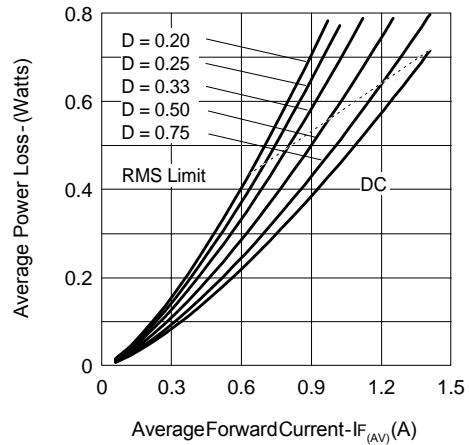
**Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage**



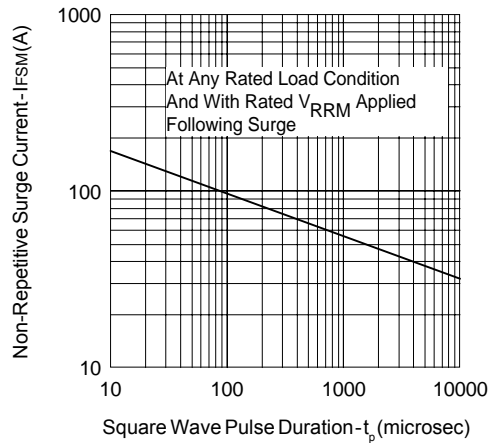
**Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage**



**Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current**



**Fig. 5 - Forward Power Loss Characteristics**



**Fig. 6 - Max. 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;">04</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	04	TR	①	②	③	④	⑤
11	D	Q	04	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>	- 04 = Voltage Ratings										
<b>5</b>	- TR = Tape & Reel package ( 5000 pcs)										
	- = Box package (1000 pcs)										

04 = 40V
03 = 30V

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.