

International
IR Rectifier

11DQ03
 11DQ04

SCHOTTKY RECTIFIER

1.1 Amp

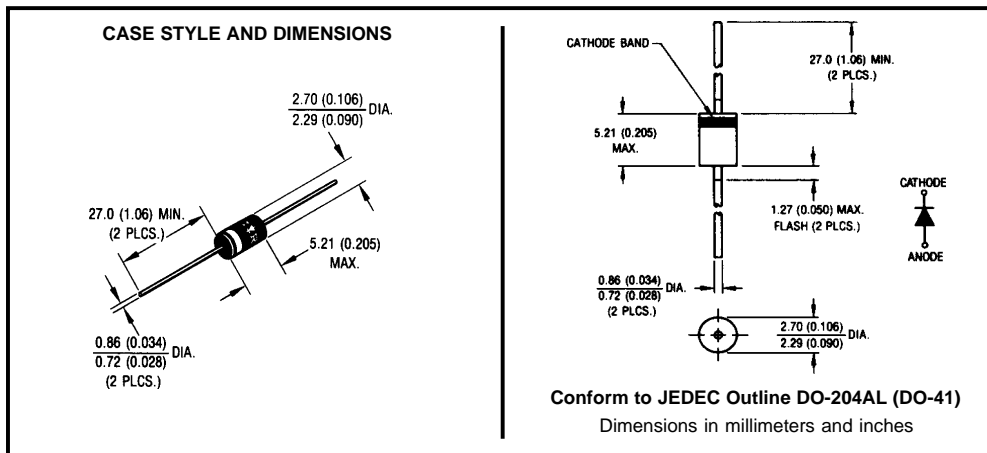
Major Ratings and Characteristics

Characteristics	11DQ..	Units
$I_{F(AV)}$ Rectangular waveform	1.1	A
V_{RRM}	30/40	V
I_{FSM} @ $t_p = 5 \mu s$ sine	225	A
V_F @ 1 Apk, $T_J = 25^\circ C$	0.55	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	11DQ03	11DQ04
V _R Max. DC Reverse Voltage (V)	30	40
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 = 75°C, rectangular wave form
I _{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6	225	A	Following any rated load condition and with rated V _{RWM} applied
	35		
E _{AS} Non-Repetitive Avalanche Energy	3.0	mJ	T _J = 25 °C, I _{AS} = 1.0 Amps, L = 6 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 x V _R typical

Electrical Specifications

Parameters	11DQ..	Units	Conditions
V _{FM} Max. Forward Voltage Drop * See Fig. 1 (1)	0.55	V	@ 1A
	0.71	V	@ 2A
	0.50	V	@ 1A
	0.61	V	@ 2A
I _{RM} Max. Reverse Leakage Current * See Fig. 2 (1)	1.0	mA	T _J = 25 °C
	6.0	mA	T _J = 125 °C
C _T Typical Junction Capacitance	60	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 < 300μs, Duty Cycle <2%

Thermal-Mechanical Specifications

Parameters	11DQ..	Units	Conditions
T _J Max. Junction Temperature Range (*)	-40 to 150	°C	
T _{stg} Max. Storage Temperature Range	-40 to 150	°C	
R _{thJA} Max. Thermal Resistance Junction to Ambient	100	°C/W	DC operation Without cooling fin
R _{thJL} 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

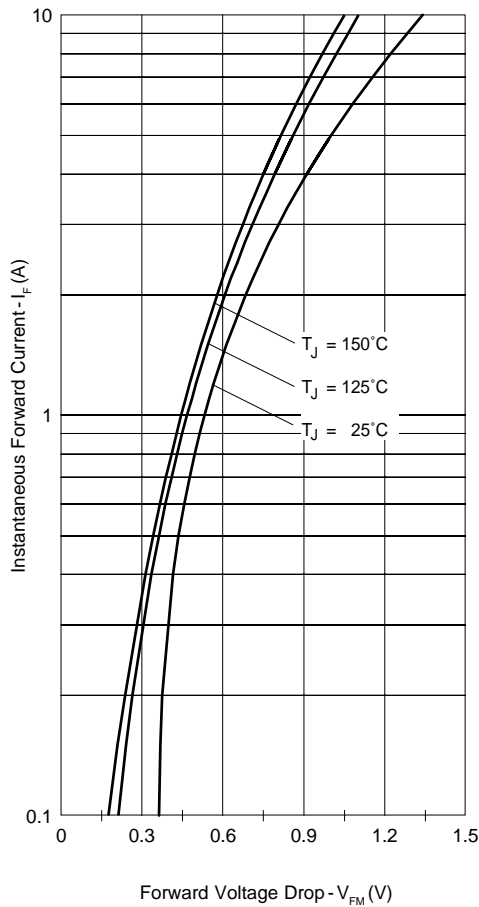


Fig. 1 - Max. Forward Voltage Drop Characteristics

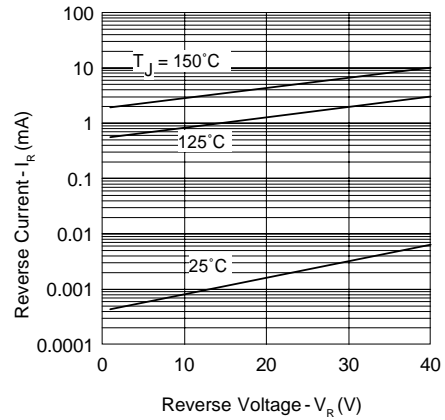


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

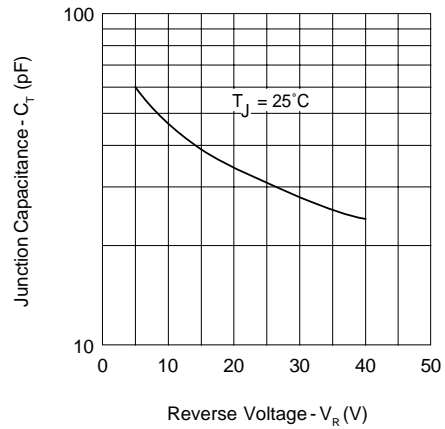


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

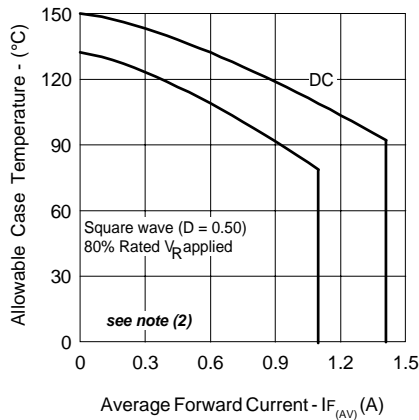


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

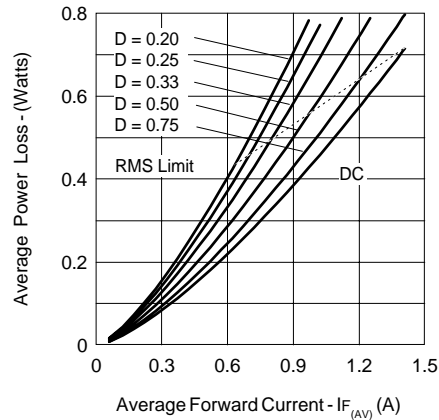


Fig. 5 - Forward Power Loss Characteristics

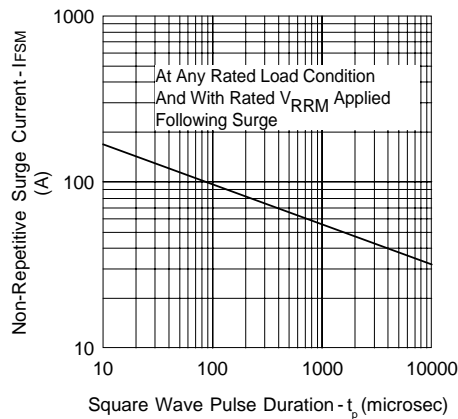


Fig. 6 - Max. Non-Repetitive Surge Current

(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);
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_{R1} (1 - D); I_{R1} @ V_{R1} = 80\% \text{ rated } V_R$

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							
1	- 11 = 1.1A (Axial and small packages - Current is x10)										
2	- D = DO-41 package										
3	- Q = Schottky Q.. Series										
4	- 04 = Voltage Ratings										
5	- 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.