Bulletin PD-2.287 rev. D 03/02

International
IOR Rectifier

11DQ03
11DQ04

SCHOTTKY RECTIFIER 1.1 Amp

Major Ratings and Characteristics

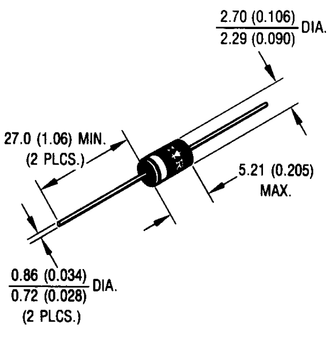
Characteristics	11DQ..	Units
$I_{F(AV)}$ Rectangular waveform	1.1	A
V_{RRM}	30/40	V
I_{FSM} @ tp = 5 μs sine	225	A
V_F @ 1 Apk, T_J = 25°C	0.55	V
T_J range	-40 to 150	°C

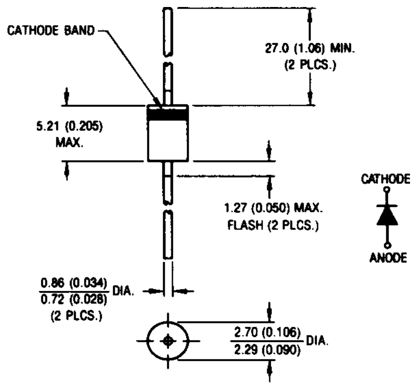
Description/Features

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

CASE STYLE AND DIMENSIONS





Conform to JEDEC Outline DO-204AL (DO-41)
Dimensions in millimeters and inches

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	225	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current * See Fig. 6	35		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy	4.0	mJ	T_J = 25 °C, I_{AS} = 2 Amps, L = 10 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	0.55	V	@ 1A	T_J = 25 °C
	* See Fig. 1 (1)	0.71	V	@ 2A	
		0.50	V	@ 1A	T_J = 125 °C
		0.61	V	@ 2A	
I_{RM}	Max. Reverse Leakage Current	1.0	mA	T_J = 25 °C	V_R = rated V_R
	* See Fig. 2 (1)	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)		

(*) $\frac{dPtot}{dTj} < \frac{1}{Rth(j\text{-}a)}$ thermal runaway condition for a diode on its own heatsink

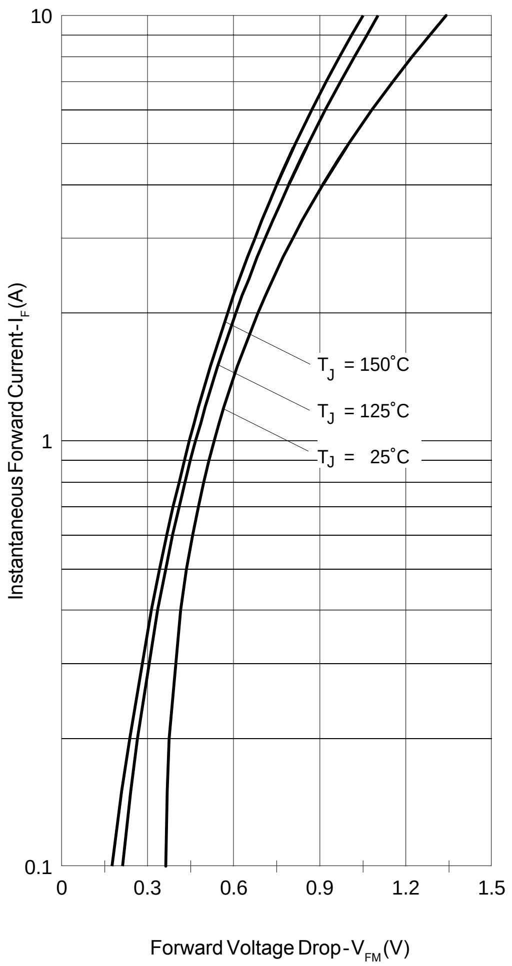


Fig. 1 - Max. Forward Voltage Drop Characteristics

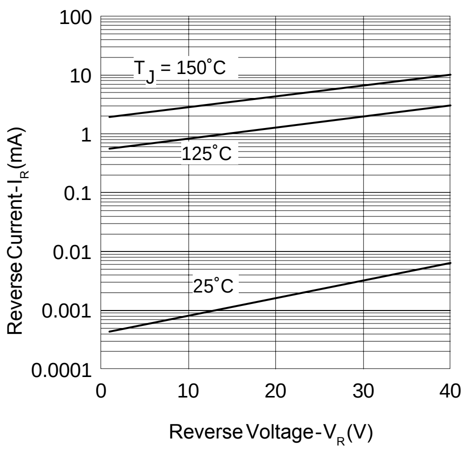


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

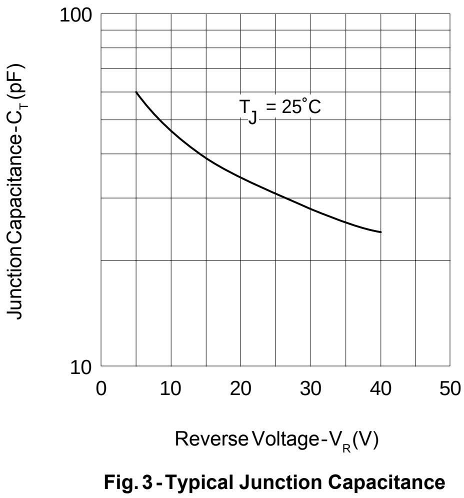


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

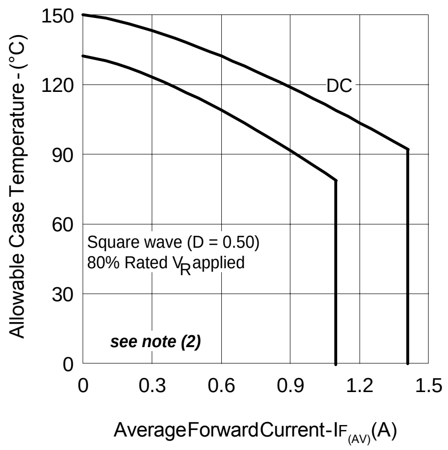


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

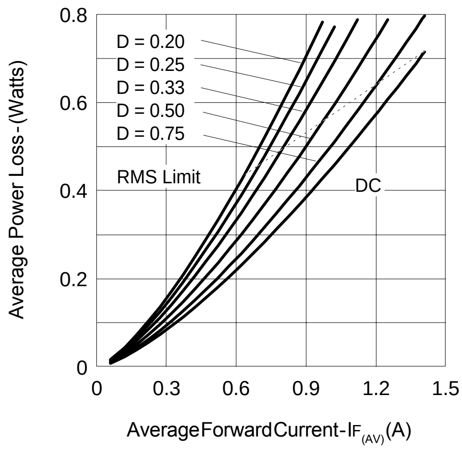


Fig. 5 - Forward Power Loss Characteristics

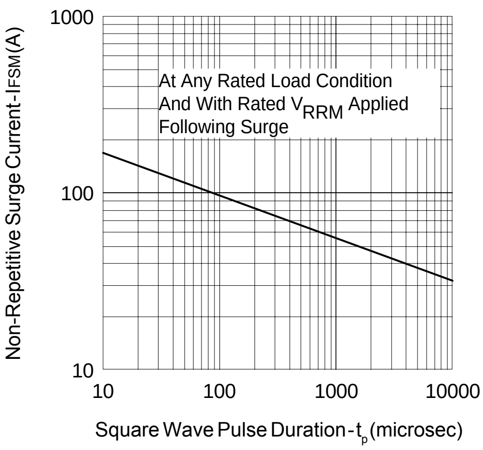


Fig. 6 - Max. Non-Repetitive Surge Current

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

Ordering Information Table

Device Code

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 (04 = 40V, 03 = 30V)
5	-	TR	=	Tape & Reel package (5000 pcs)
		-	=	Box package (1000 pcs)

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
Visit us at www.irf.com for sales contact information. 03/02