International Rectifier

11DQ03 11DQ04

SCHOTTKY RECTIFIER

1.1 Amp

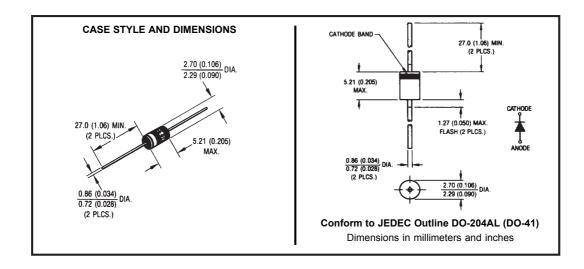
Major Ratings and Characteristics

Characteristics	Values	Units
I _{F(AV)} Rectangular waveform	1.1	А
V _{RRM}	30/40	V
I _{FSM} @tp=5μssine	225	Α
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
- · Lead-Free plating



Bulletin PD-2.287 rev. F 11/04

Voltage Ratings

Part number	11DQ03	11DQ04
V _R Max. DC Reverse Voltage (V)	30	40
V _{RWM} Max. Working Peak Reverse Voltage (V)	30	

Absolute Maximum Ratings

	Parameters	11DQ	Units	Conditions		
I _{F(AV)}	Max. Average Forward Current *See Fig. 4	1.1	А	50% duty cycle @ T _C = 75°C, rectangular wave form		
I _{FSM}	Max. Peak One Cycle Non-Repetitive	225	Α	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with	
	Surge Current *See Fig. 6	35	, ,	10ms Sine or 6ms Rect. pulse	rated V _{RRM} applied	
E _{AS}	Non-Repetitive Avalanche Energy	3.0	mJ	$T_J = 25 ^{\circ}\text{C}, I_{AS} = 1.0 \text{Amps}, L = 6 \text{mH}$		
I _{AR}	Repetitive Avalanche Current	1.0	А	Current decaying linearly to zero in 1 μ sec Frequency limited by T _J max. V _A = 1.5 x V _R typical		

Electrical Specifications

	Parameters	11DQ	Units	C	Conditions	
V _{FM}	Max. Forward Voltage Drop	0.55	V	@ 1A	T,= 25 °C	
1 141	* See Fig. 1 (1)	0.71	V	@ 2A	1 _J = 23 0	
		0.50	V	@ 1A	T 405 °C	
		0.61	V	@ 2A	T _J = 125 °C	
I _{RM}	Max. Reverse Leakage Current	1.0	mA	T _J = 25 °C	V _P = rated V _P	
	* See Fig. 2 (1)	6.0	mA	T _J = 125 °C	V _R - rated V _R	
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
TJ	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{\text{(*)}}{\text{dTj}} < \frac{1}{\text{Rth(j-a)}} \text{ thermal runaway condition for a diode on its own heatsink}$

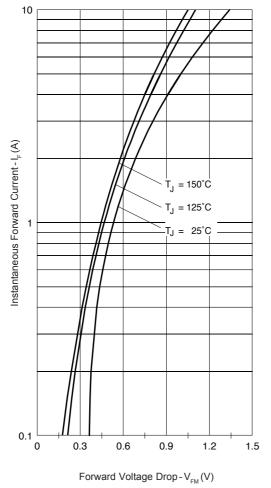


Fig. 1 - Max. Forward Voltage Drop Characteristics

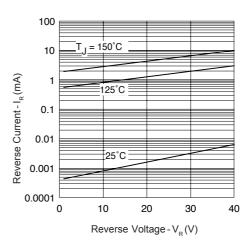


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

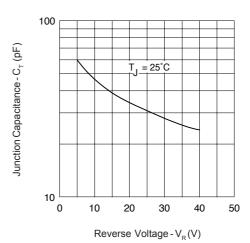


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

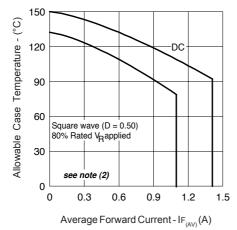


Fig. 4 - Max. Allowable Case Temperature Vs. Average Forward Current

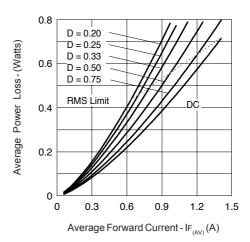


Fig. 5-Forward Power Loss Characteristics

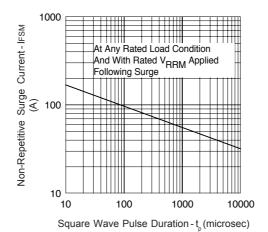
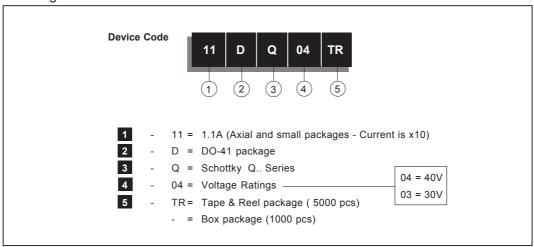


Fig. 6 - Max. Non-Repetitive Surge Current

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

Bulletin PD-2.287 rev. F 11/04

Ordering Information Table



Data and specifications subject to change without notice. This product has been designed and qualified for Industrial Level and Lead-Free.

Qualification Standards can be found on IR's Web site.



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. 11/04