

International
IOR Rectifier

21DQ06

SCHOTTKY RECTIFIER

2 Amp

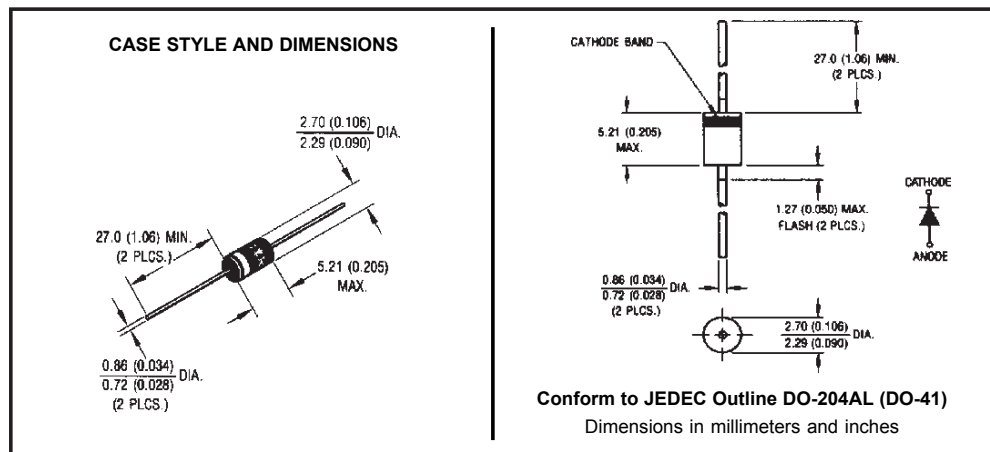
Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	2	A
V_{RRM}	60	V
V_F @2 Apk, $T_J = 125^\circ\text{C}$	0.55	V
T_J range	-40 to 150	$^\circ\text{C}$

Description/Features

The 21DQ06 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



Voltage Ratings

Part number	21DQ06
V_R Max. DC Reverse Voltage (V)	60
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	21DQ06	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 4	2	A	50% duty cycle @ $T_C = 106^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6	340	A	Following any rated load condition and with rated V_{RWM} applied
	60		
E_{AS} Non-Repetitive Avalanche Energy	4.0	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 1$ Amps, $L = 8$ mH
I_{AR} Repetitive Avalanche Current	0.5	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	21DQ06		Units	Conditions	
	Typ.	Max.			
V_{FM} Max. Forward Voltage Drop (1)	0.53	0.60	V	@ 2A	$T_J = 25^\circ\text{C}$
	0.67	0.75	V	@ 4A	
	0.49	0.55	V	@ 2A	$T_J = 125^\circ\text{C}$
	0.61	0.67	V	@ 4A	
I_{RM} Max. Reverse Leakage Current (1)	0.02	0.50	mA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_R$
	7.0	10	mA	$T_J = 125^\circ\text{C}$	
C_T Typical Junction Capacitance	120		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	

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

Thermal-Mechanical Specifications

Parameters	21DQ06	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	$^\circ\text{C/W}$	DC operation Without cooling fin
R_{thJL} Typical Thermal Resistance Junction to Lead	25	$^\circ\text{C/W}$	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

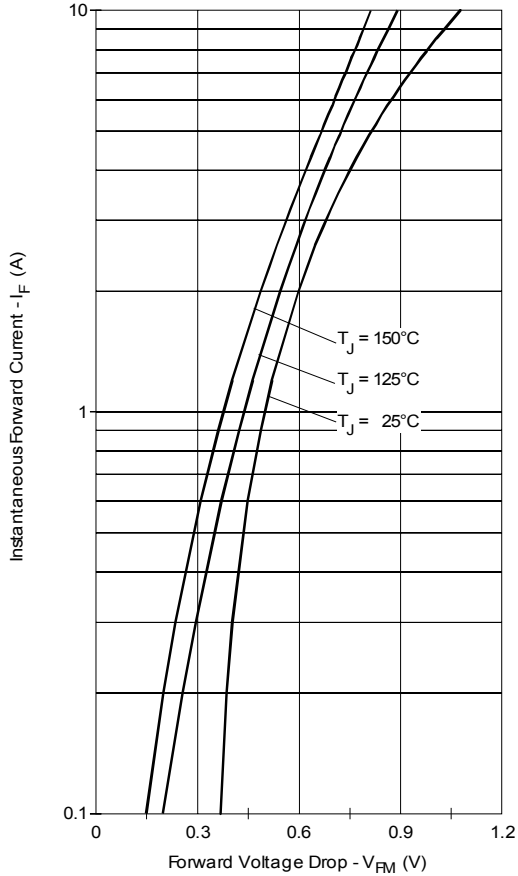


Fig. 1 - Maximum Forward Voltage Drop Characteristics

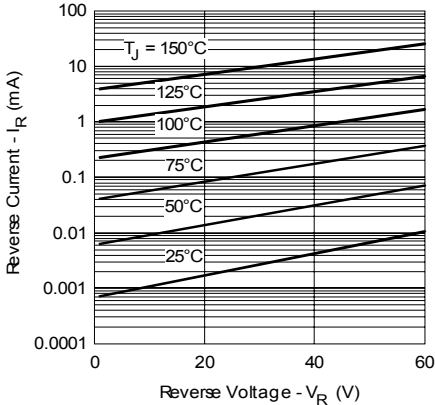


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

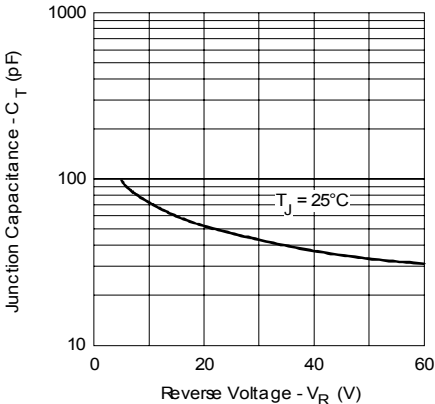


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

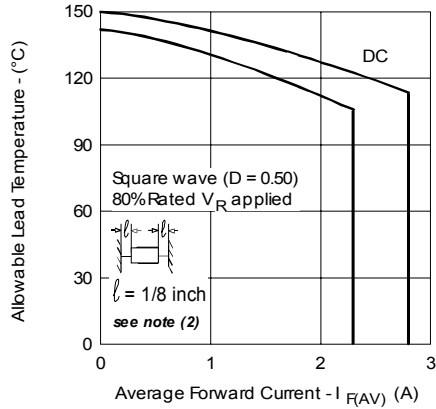


Fig. 4 - Maximum Allowable Lead Temperature Vs. Average Forward Current

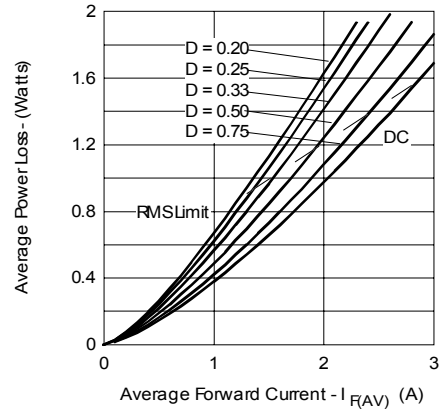


Fig. 5 - Forward Power Loss Characteristics

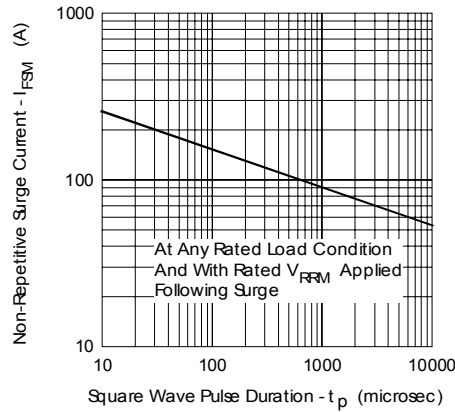


Fig. 6 - Maximum Non-Repetitive Surge Current

(2) Formula used: $T_L = T_J - (Pd + Pd_{REV}) \times R_{thJL}$;
 $Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 5);
 $Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D); I_R @ V_{R1} = 80\% \text{ rated } V_R$

Ordering Information Table

Device Code											
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">21</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>	21	D	Q	06	TR	(1)	(2)	(3)	(4)	(5)
21	D	Q	06	TR							
(1)	(2)	(3)	(4)	(5)							
1	- 21 = 2.1A (Axial and small packages - Current is x10)										
2	- D = DO-41 package										
3	- Q = Schottky Q.. Series										
4	- 06 = Voltage Rating : 60V										
5	- TR= Tape & Reel package (5000 pcs)										
	- TB = Tape & Box package (Ammunition -3000 pcs)										
	- = Box package (1000 pcs)										

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.



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