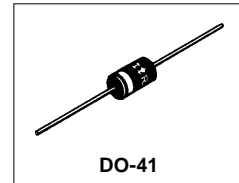




## SCHOTTKY RECTIFIER

### 21DQ06

2 Amp



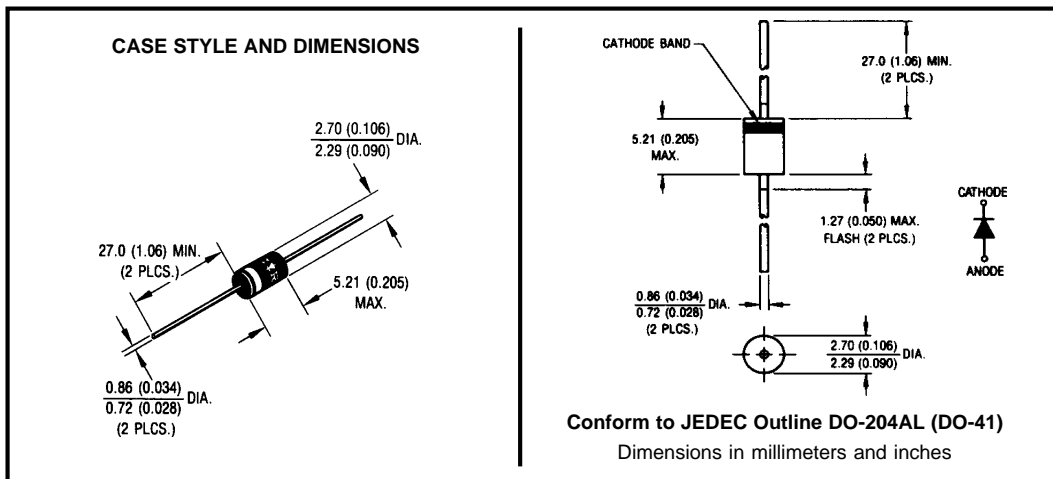
#### Major Ratings and Characteristics

Characteristics	21DQ06	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





# 21DQ06

## Voltage Ratings

Part number	21DQ06
V <sub>R</sub> Max. DC Reverse Voltage (V)	60
V <sub>RWM</sub> Max. Working Peak Reverse Voltage (V)	

## Absolute Maximum Ratings

Parameters	21DQ06	Units	Conditions
I <sub>F(AV)</sub> Max. Average Forward Current * See Fig. 4	2	A	50% duty cycle @ T <sub>C</sub> = 106°C, rectangular wave form
I <sub>FSM</sub> Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 6	340	A	5μs Sine or 3μs Rect. pulse
	60		10ms Sine or 6ms Rect. pulse
E <sub>AS</sub> Non-Repetitive Avalanche Energy	4.0	mJ	T <sub>J</sub> = 25 °C, I <sub>AS</sub> = 1 Amps, L = 8 mH
I <sub>AR</sub> Repetitive Avalanche Current	0.5	A	Current decaying linearly to zero in 1 μsec Frequency limited by T <sub>J</sub> max. V <sub>A</sub> = 1.5 x V <sub>R</sub> typical

## Electrical Specifications

Parameters	21DQ06		Units	Conditions	
	Typ.	Max.			
V <sub>FM</sub> Max. Forward Voltage Drop (1)	0.53	0.60	V	@ 2A	T <sub>J</sub> = 25 °C
	0.67	0.75	V	@ 4A	
	0.49	0.55	V	@ 2A	T <sub>J</sub> = 125 °C
	0.61	0.67	V	@ 4A	
I <sub>RM</sub> Max. Reverse Leakage Current (1)	0.02	0.50	mA	T <sub>J</sub> = 25 °C	V <sub>R</sub> = rated V <sub>R</sub>
	7.0	10	mA	T <sub>J</sub> = 125 °C	
C <sub>T</sub> Typical Junction Capacitance	120		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	

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

## Thermal-Mechanical Specifications

Parameters	21DQ06	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	25	°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

# 21DQ06

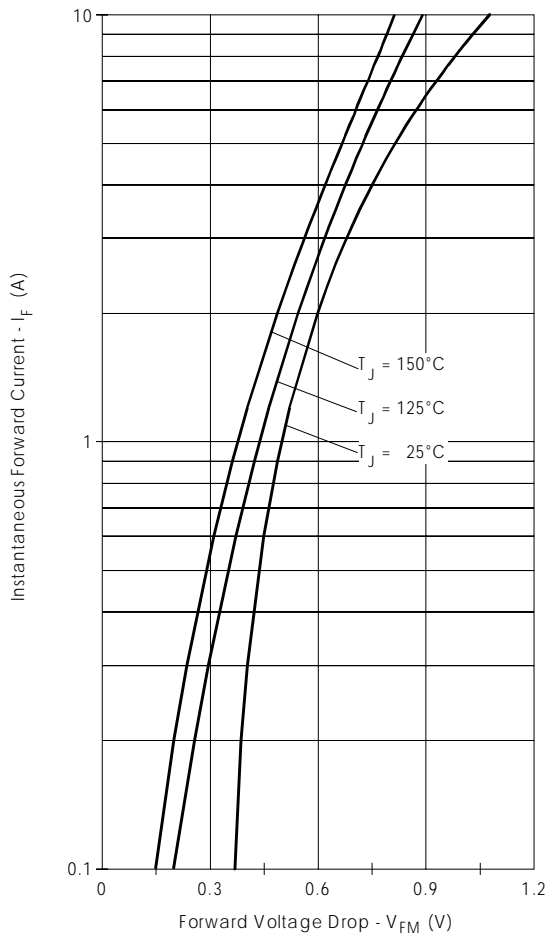


Fig. 1 - Maximum Forward Voltage Drop Characteristics

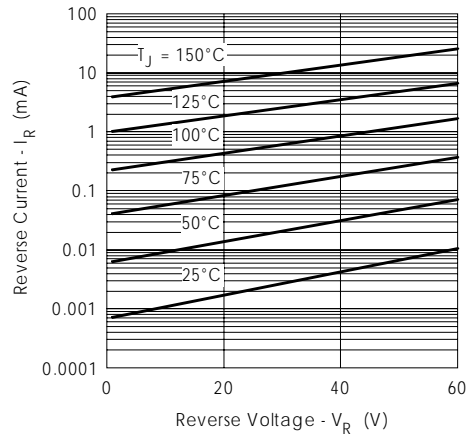


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

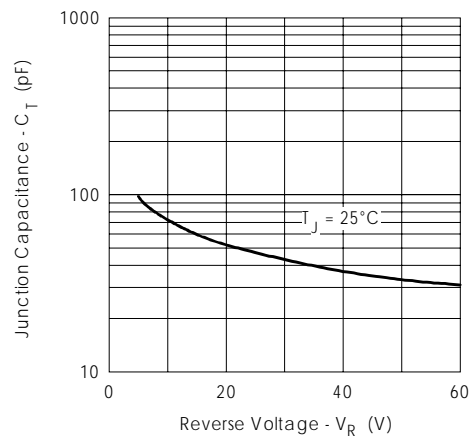


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

# 21DQ06

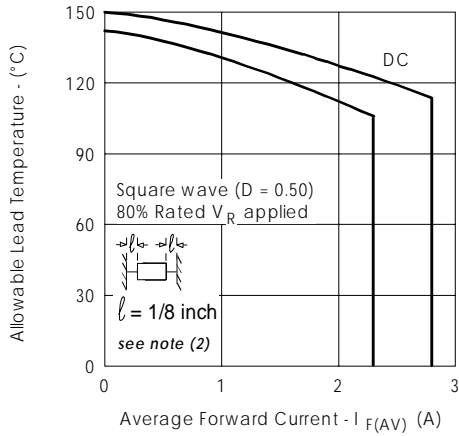


Fig. 4 - Maximum Allowable Lead Temperature Vs. Average Forward Current

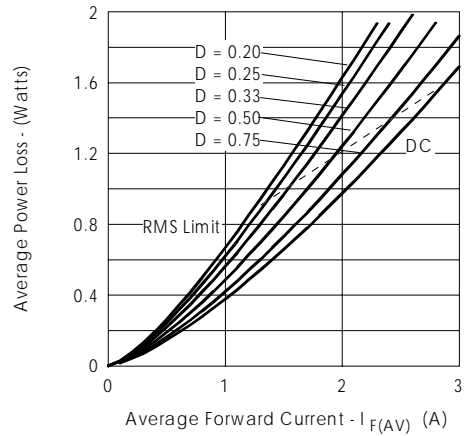


Fig. 5 - Forward Power Loss Characteristics

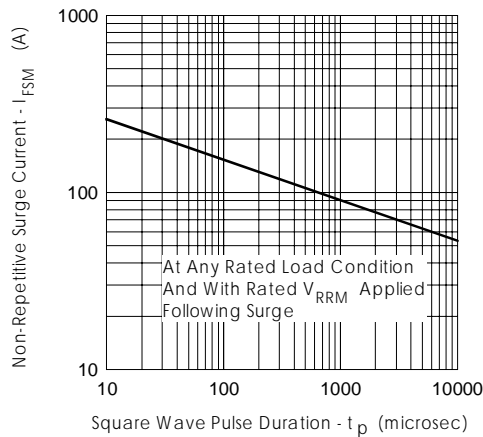


Fig. 6 - Maximum Non-Repetitive Surge Current

(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);

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