

International IOR Rectifier

PD-2.303 rev. A 12/97

30WQ09F 30WQ10F

SCHOTTKY RECTIFIER

3.3 Amp

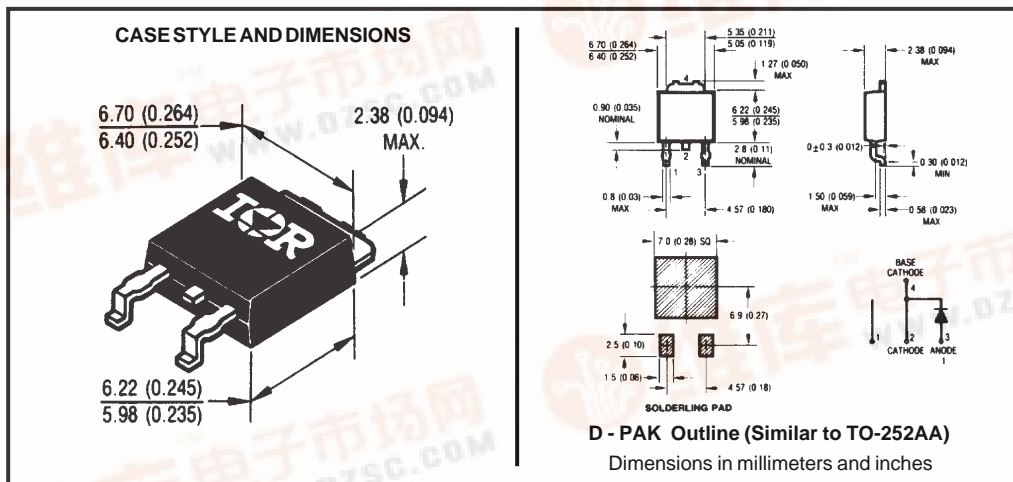
Major Ratings and Characteristics

Characteristics	30WQ..F	Units
$I_{F(AV)}$ Rectangular waveform	3.3	A
V_{RRM}	90/100	V
I_{FSM} @ $t_p = 5 \mu s$ sine	210	A
V_F @ 3 Apk, $T_J = 25^\circ C$	0.91	V
T_J range	-40 to 125	$^\circ C$

Description/Features

The 30WQ..F surface mount Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC board. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Popular D-PAK outline
- Small foot print, surface mountable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability



Voltage Ratings

Part number	30WQ09F	30WQ10F
V_R Max. DC Reverse Voltage (V)	90	100
V_{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	30WQ..F	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	3.3	A	50% duty cycle @ $T_C = 103^\circ\text{C}$, rectangular wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	210	A	5 μs Sine or 3 μs Rect. pulse
	40		10ms Sine or 6ms Rect. pulse
			Following any rated load condition and with rated V_{RWM} applied

Electrical Specifications

Parameters	30WQ..F	Units	Conditions
V_{FM} Max. Forward Voltage Drop * See Fig. 1 (1)	0.91	V	@ 3A
	1.03	V	@ 6A
	0.74	V	@ 3A
	0.86	V	@ 6A
I_{RM} Max. Reverse Leakage Current * See Fig. 2 (1)	1	mA	$T_J = 25^\circ\text{C}$
	2	mA	$T_J = 125^\circ\text{C}$
C_T Typical Junction Capacitance	60	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	5.0	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change (Rated V_R)	10,000	V/ μs	

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

Thermal-Mechanical Specifications

Parameters	30WQ..F	Units	Conditions
T_J Max. Junction Temperature Range	-40 to 125	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-40 to 125	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	6.0	$^\circ\text{C}/\text{W}$	DC operation * See Fig. 4
wt Approximate Weight	0.3(0.01)	g(oz.)	
Case Style	D-PAK		Similar to TO-252AA

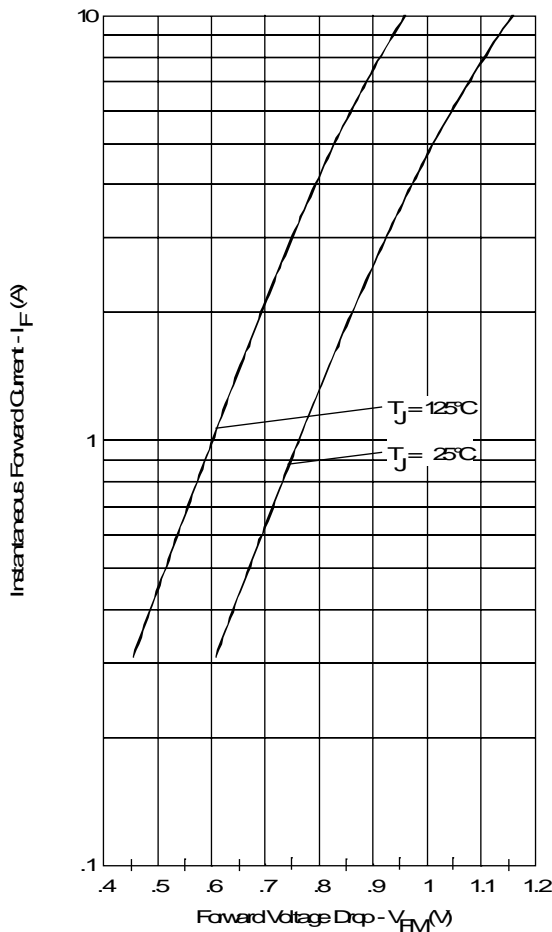


Fig. 1 - Maximum Forward Voltage Drop Characteristics

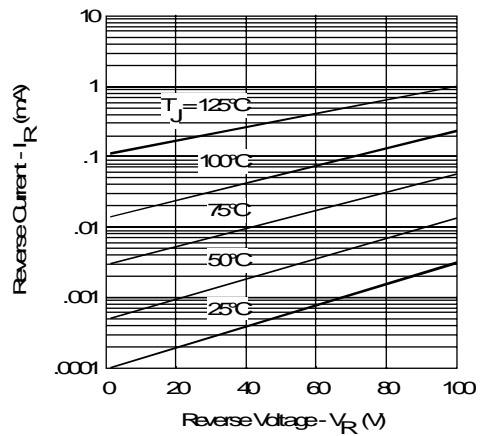


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

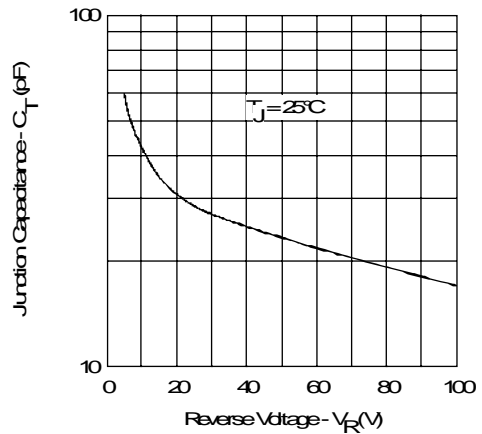


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

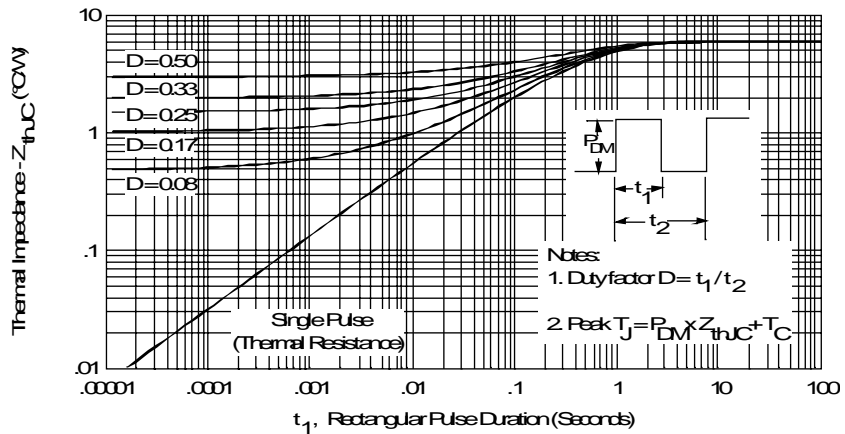


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

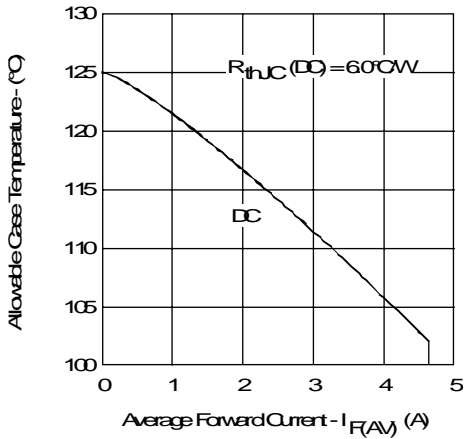


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

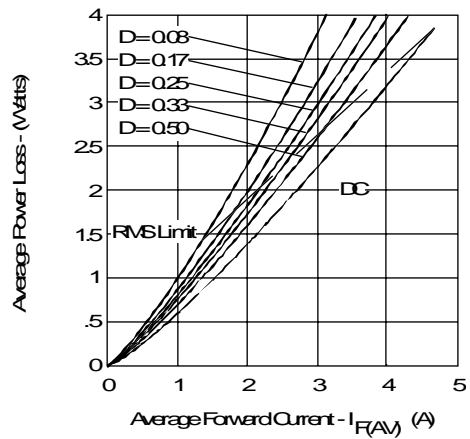


Fig. 6 - Forward Power Loss Characteristics

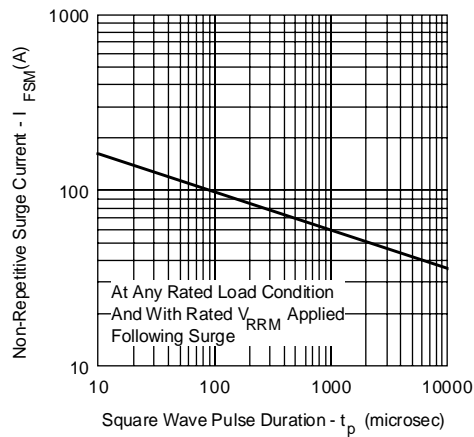


Fig. 7 - Maximum Non-Repetitive Surge Current