PD-2.302 rev. A 12/97

International
IOR Rectifier

30WQ05F
30WQ06F

SCHOTTKY RECTIFIER 3.3 Amp

Major Ratings and Characteristics

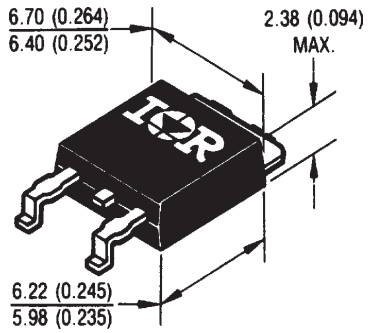
Characteristics		30WQ..F	Units
$I_{F(AV)}$	Rectangular waveform	3.3	A
V_{RRM}		50/60	V
I_{FSM}	@ tp = 5 µs sine	360	A
V_F	@ 3 Apk, T_J = 25°C	0.70	V
T_J	range	-40 to 125	°C

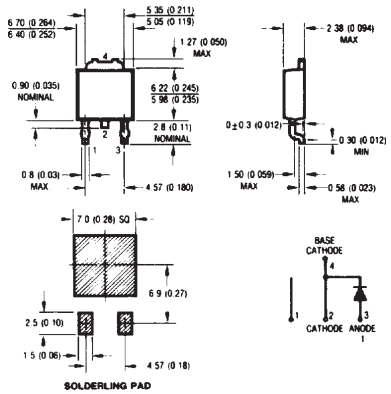
Description/Features

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 moutable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

CASE STYLE AND DIMENSIONS





D - PAK Outline (Similar to TO-252AA)

Dimensions in millimeters and inches

Voltage Ratings

	Part number	30WQ05F	30WQ06F
V_R	Max. DC Reverse Voltage (V)	50	60
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 = 104 °C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	360	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		40		10ms Sine or 6ms Rect. pulse	

Electrical Specifications

	Parameters	30WQ..F	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop * See Fig. 1 (1)	0.70	V	@ 3A	T_J = 25 °C
		1.14	V	@ 6A	
		0.60	V	@ 3A	T_J = 125 °C
		0.79	V	@ 6A	
I_{RM}	Max. Reverse Leakage Current * See Fig. 2 (1)	2	mA	T_J = 25 °C	V_R = rated V_R
		20	mA	T_J = 125 °C	
C_T	Typical Junction Capacitance	95	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 < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

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

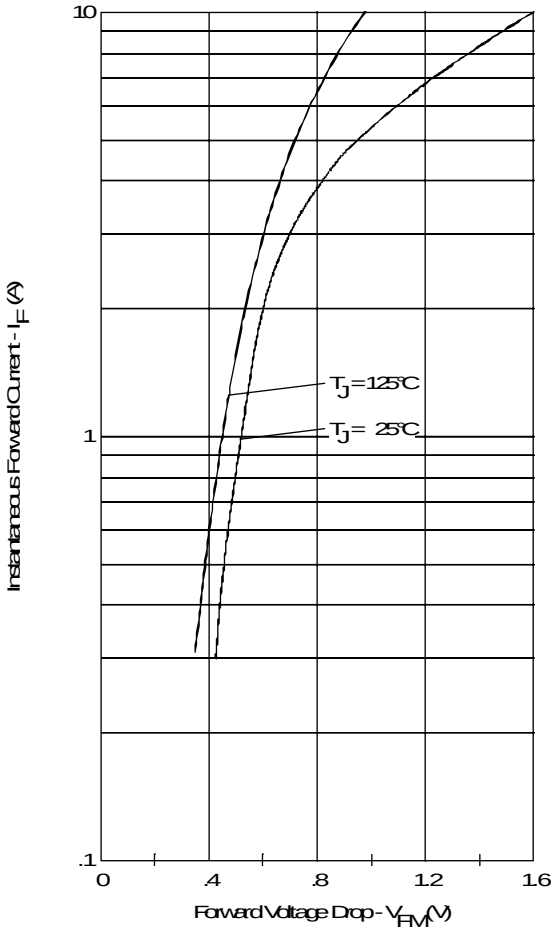


Fig. 1 - Maximum Forward Voltage Drop Characteristics

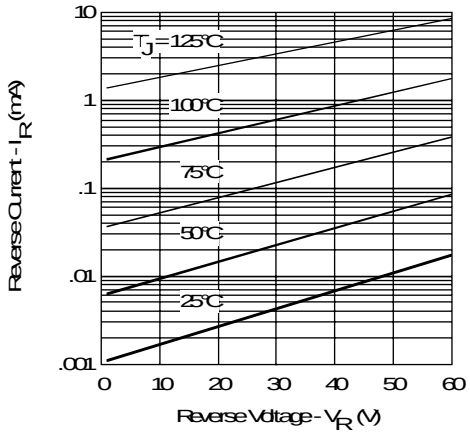


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

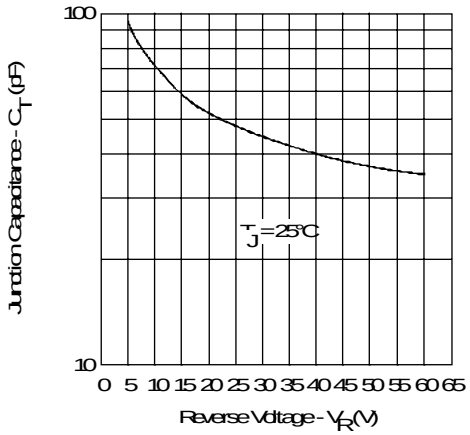


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

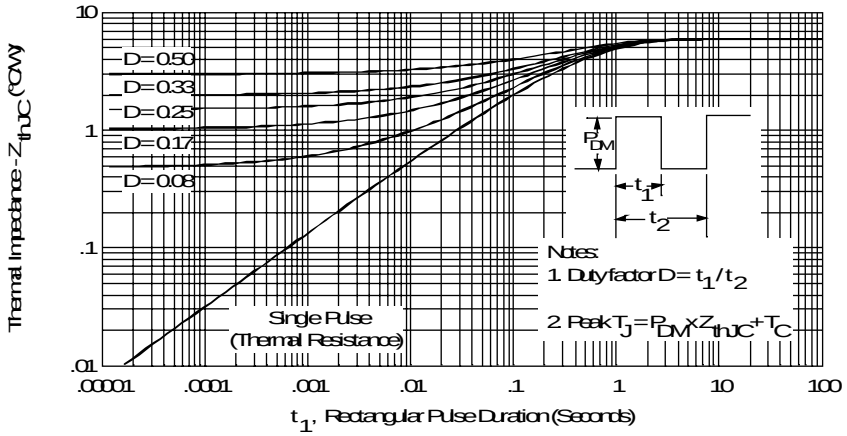


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

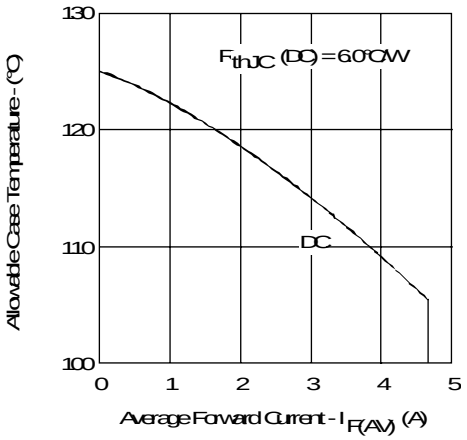


Fig. 5 - Maximum Allowable Case Temperature
Vs. Average Forward Current

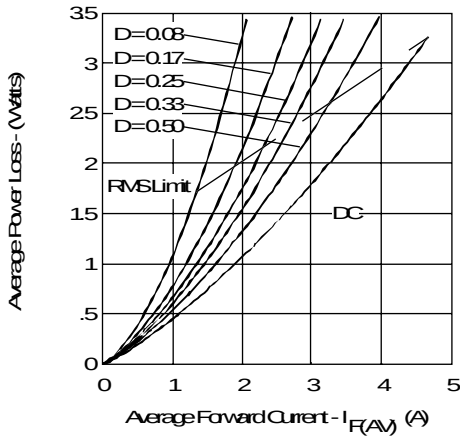


Fig. 6 - Forward Power Loss Characteristics

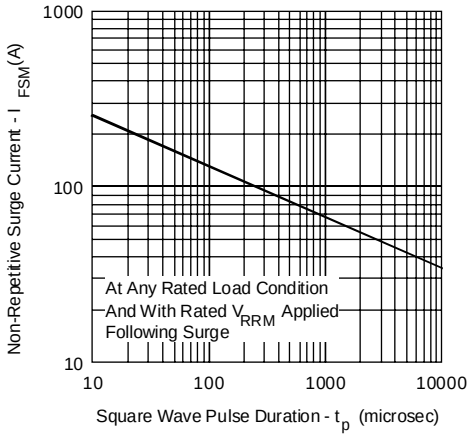


Fig. 7 - Maximum Non-Repetitive Surge Current