

# International IOR Rectifier

PD-2.312 rev. A 12/97

**50WQ09F**  
**50WQ10F**

**SCHOTTKY RECTIFIER**

**5.5 Amp**

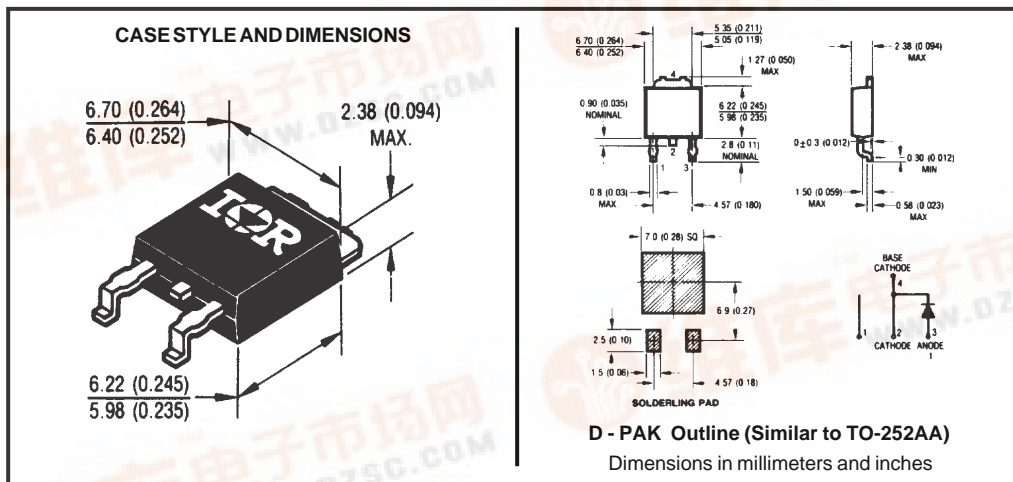
### Major Ratings and Characteristics

Characteristics	50WQ..F	Units
$I_{F(AV)}$ Rectangular waveform	5.5	A
$V_{RRM}$	90/100	V
$I_{FSM}$ @ $t_p = 5 \mu s$ sine	210	A
$V_F$ @ 5 Apk, $T_J = 25^\circ C$	0.93	V
$T_J$	-40 to 125	$^\circ C$

### Description/Features

The 50WQ..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	50WQ09F	50WQ10F
$V_R$ Max. DC Reverse Voltage (V)	90	100
$V_{RWM}$ Max. Working Peak Reverse Voltage (V)		

## Absolute Maximum Ratings

Parameters	50WQ..F	Units	Conditions	
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	5.5	A	50% duty cycle @ $T_C=90^\circ\text{C}$ , rectangular wave form	
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current * See Fig. 7	210	A	5 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ Rect. pulse	Following any rated load condition and with rated $V_{RWM}$ applied
	42		10ms Sine or 6ms Rect. pulse	

## Electrical Specifications

Parameters	50WQ..F	Units	Conditions	
$V_{FM}$ Max. Forward Voltage Drop * See Fig. 1 (1)	0.93	V	@ 5A	$T_J = 25^\circ\text{C}$
	1.08	V	@ 10A	
	0.77	V	@ 5A	$T_J = 125^\circ\text{C}$
	0.89	V	@ 10A	
$I_{RM}$ Max. Reverse Leakage Current * See Fig. 2 (1)	1	mA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_R$
	3	mA	$T_J = 125^\circ\text{C}$	
$C_T$ Typical Junction Capacitance	100	pF	$V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25^\circ\text{C}$	
$L_S$ Typical Series Inductance	5.0	nH	Measured lead to lead 5mm from package body	

(1) Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

## Thermal-Mechanical Specifications

Parameters	50WQ..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	

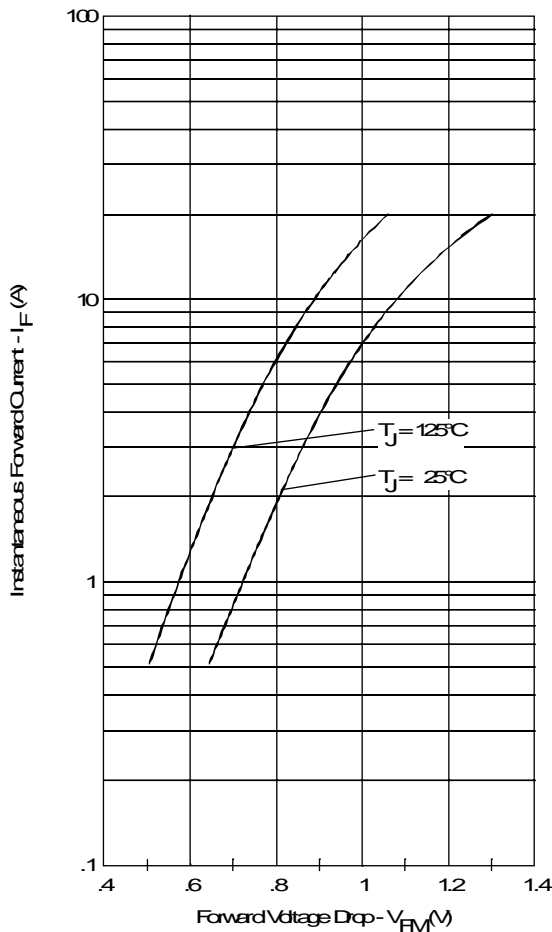


Fig. 1 - Maximum Forward Voltage Drop Characteristics

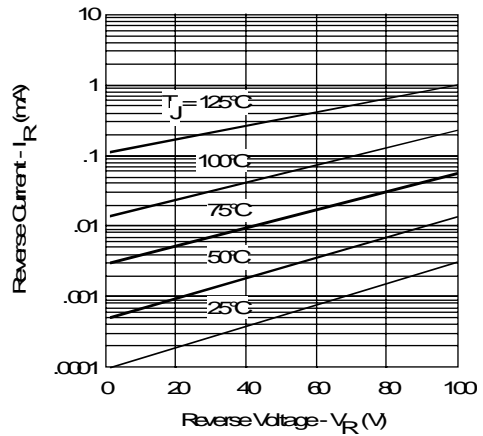


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

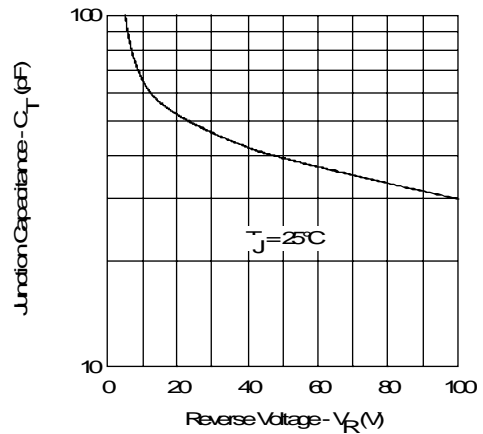


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

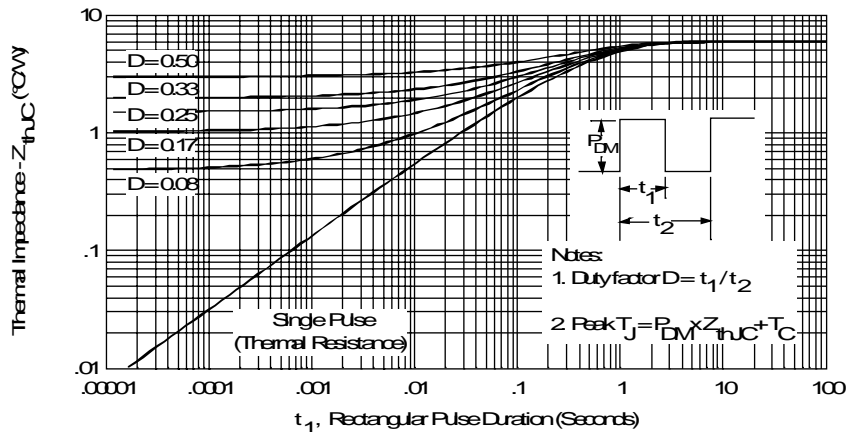


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

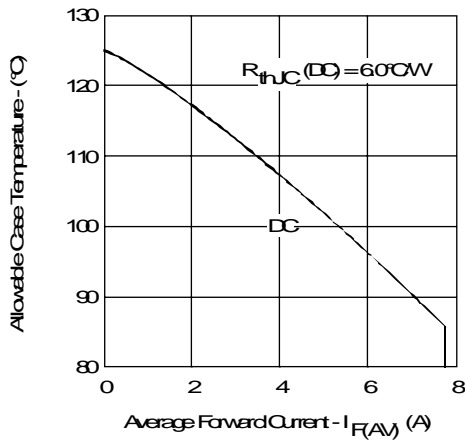


Fig.5-Maximum Allowable Case Temperature Vs. Average Forward Current

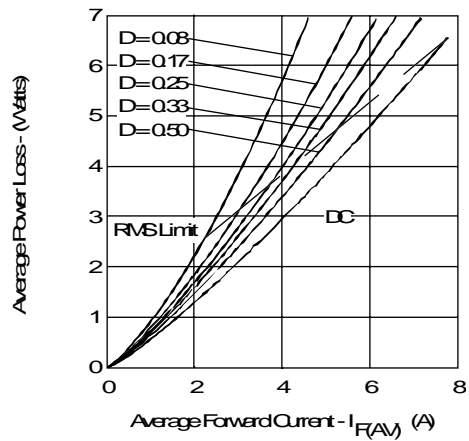


Fig.6-Forward Power Loss Characteristics

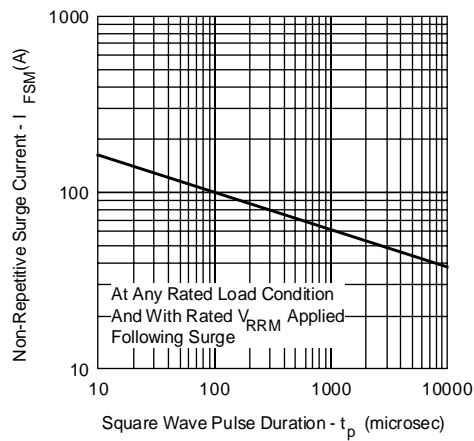


Fig.7-Maximum Non-Repetitive Surge Current