PD-2.313 rev. A 12/97

International
IOR Rectifier

6CWQ03F
6CWQ04F

SCHOTTKY RECTIFIER 6.6 Amp

Major Ratings and Characteristics

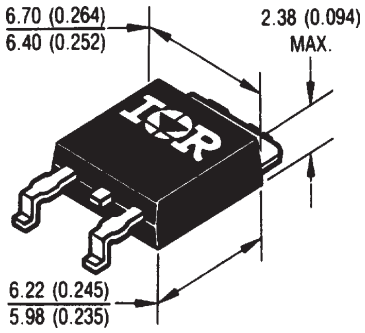
Characteristics	6CWQ..F	Units
$I_{F(AV)}$ Rectangular waveform	6.6	A
V_{RRM}	30/40	V
I_{FSM} @ tp = 5 µs sine	470	A
V_F @3 Apk, T_J = 25°C (per leg)	0.55	V
T_J	-40 to 125	°C

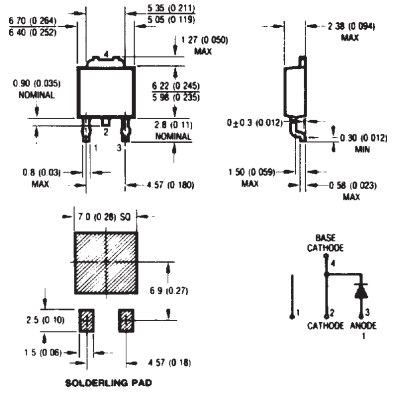
Description/Features

The 6CWQ..F surface mount, center tap, Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC boards. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Popular D-PAK outline
- Center tap configuration
- Small foot print, surface mountable
- 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		6CWQ03F	6CWQ04F
V_R	Max. DC Reverse Voltage (V)	30	40
V_{RWM}	Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters		6CWQ..F	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current *See Fig. 5	6.6	A	50% duty cycle @ T_C = 97 °C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive	470	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current (Per Leg) * See Fig. 7	42		10ms Sine or 6ms Rect. pulse	

Electrical Specifications

Parameters		6CWQ..F	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.55	V	@ 3A	T_J = 25 °C
		0.71	V	@ 6A	
		0.50	V	@ 3A	T_J = 125 °C
		0.63	V	@ 6A	
I_{RM}	Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	3	mA	T_J = 25 °C	V_R = rated V_R
		20	mA	T_J = 125 °C	
C_T	Typical Junction Capacitance (Per Leg)	180	pF	V_R = 5V_{DC}, (test signal range 100Khz to 1Mhz) 25°C	
L_S	Typical Series Inductance (Per Leg)	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		6CWQ..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	5.0	°C/W	DC operation *See Fig. 4
R_{thJA}	Max. Thermal Resistance Junction to Ambient	80	°C/W	DC operation PC Board mounted printland = 20x20mm
wt	Approximate Weight	0.3 (0.01)	g (oz.)	
	Case Style	D - PAK		Similar to TO-252AA

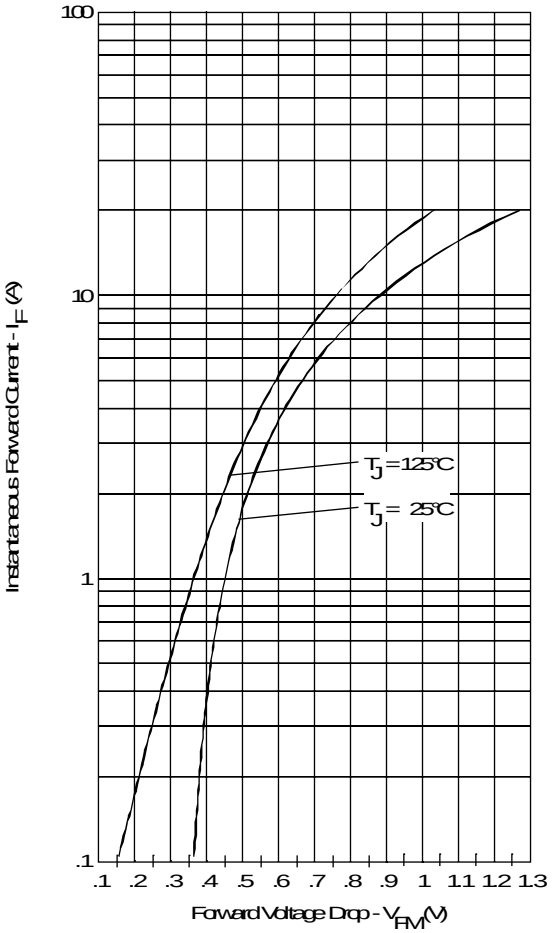


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

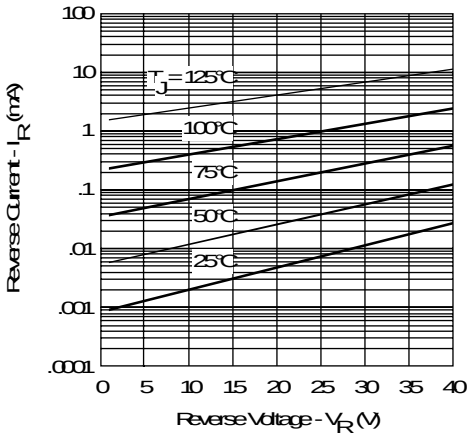


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

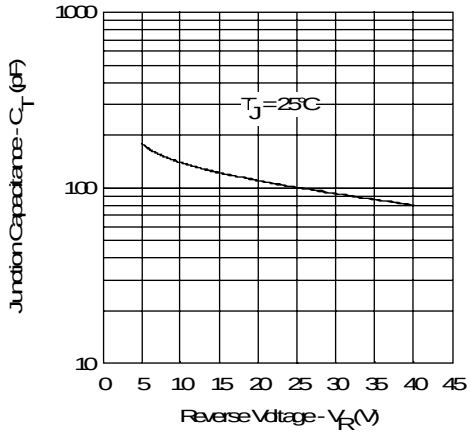


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

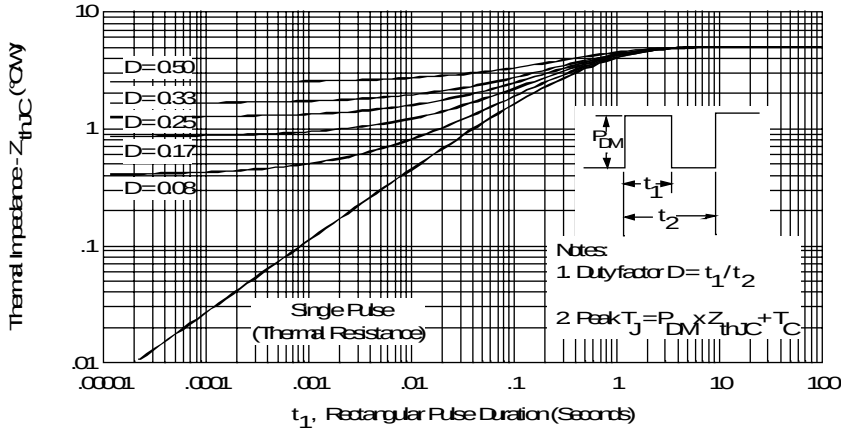


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

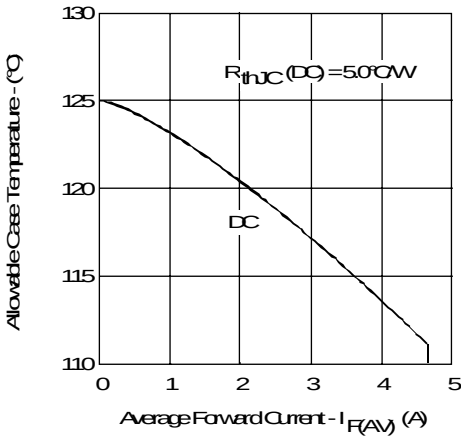


Fig. 5 - Max. Allowable Case Temperature
Vs. Average Forward Current (Per Leg)

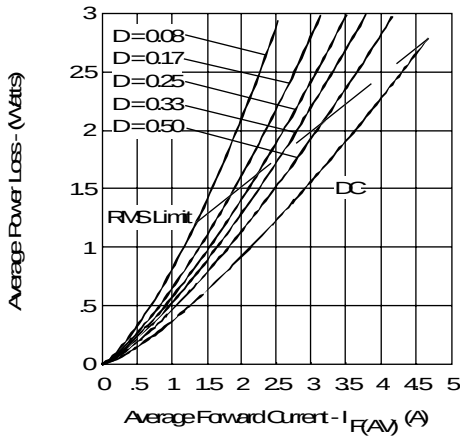


Fig. 6 - Forward Power Loss Characteristics
(Per Leg)

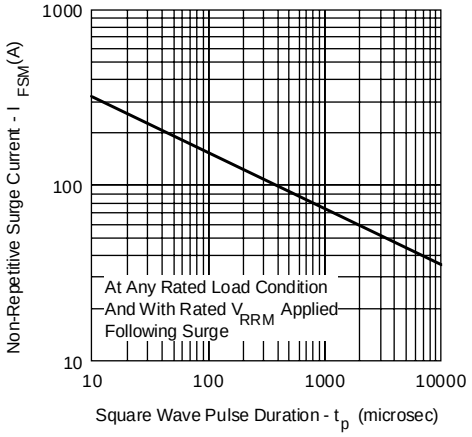


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)