Bulletin PD-20998 rev. C 08/01

International
IOR Rectifier

65PQ015

SCHOTTKY RECTIFIER

65 Amps

Major Ratings and Characteristics

Characteristics		65PQ015	Units
$I_{F(AV)}$	Rectangular waveform	65	A
V_{RRM}		15	V
I_{FSM}	@tp = 5 µs sine	1500	A
V_F	@65Apk, T_J=125°C	0,46	V
T_J	range	-55 to 125	°C

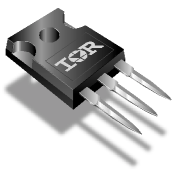
Description/Features

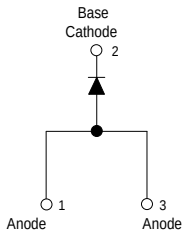
The 65PQ015 Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 °C junction temperature. Typical applications are in parallel switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- TO-247 package
- 125°C T_J operation (V_R < 5V)
- Single diode configuration
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- Guard ring for enhanced ruggedness and long term reliability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance

Case Styles

65PQ015





TO-247AC

Voltage Ratings

	Part number		65PQ015
V_R	Max. DC Reverse Voltage (V)	@ T_J = 100 °C	15
V_R	Max. DC Reverse Voltage (V)	@ T_J = 125 °C	5

Absolute Maximum Ratings

	Parameters	60PQ015	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current	65	A	50% duty cycle @ T_C = 83°C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current	1500	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		400		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy	9	mJ	T_J = 25 °C, I_{AS} = 2 Amps, L = 4.5 mH	
I_{AR}	Repetitive Avalanche Current	2	A	Current decaying linearly to zero in 1 µsec Frequency limited by T_J max. V_A = 1.5 x V_R typical	

Electrical Specifications

	Parameters	65PQ015	Units	Conditions	
V_{FM}	Forward Voltage Drop (1)	0,50	V	@ 65A	T_J = 25 °C
		0,71	V	@ 130A	
		0,46	V	@ 65A	T_J = 125 °C
		0,76	V	@ 130A	
I_{RM}	Reverse Leakage Current (1)	18	mA	T_J = 25 °C	V_R = rated V_R
		870	mA	T_J = 100 °C	
		1.2	A	T_J = 125 °C	V_R = 5V
$V_{F(TO)}$	Threshold Voltage	0,137	mV	T_J = T_J max.	
r_t	Forward Slope Resistance	4,9	mΩ		
C_T	Max. Junction Capacitance	4300	pF	V_R = 5V_{DC}, (test signal range 100Khz to 1Mhz) 25°C	
L_S	Typical Series Inductance	8	nH	Measured lead to lead 5mm from package body	
dv/dt	Max. Voltage Rate of Change (Rated V_R)	10000	V/ µs		

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

Thermal-Mechanical Specifications

	Parameters		65PQ015	Units	Conditions
T_J	Max. Junction Temperature Range		-55 to 125	°C	
T_{stg}	Max. Storage Temperature Range		-55 to 150	°C	
R_{thJC}	Max. Thermal Resistance Junction to Case		0.8	°C/W	DC operation
R_{thCS}	Typical Thermal Resistance, Case to Heatsink		0.3	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight		6 (0.21)	g (oz.)	
T	Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)	Non-lubricated threads
		Max.	12(10)		
	Case Style		TO-247AC (TO-3P)		JEDEC

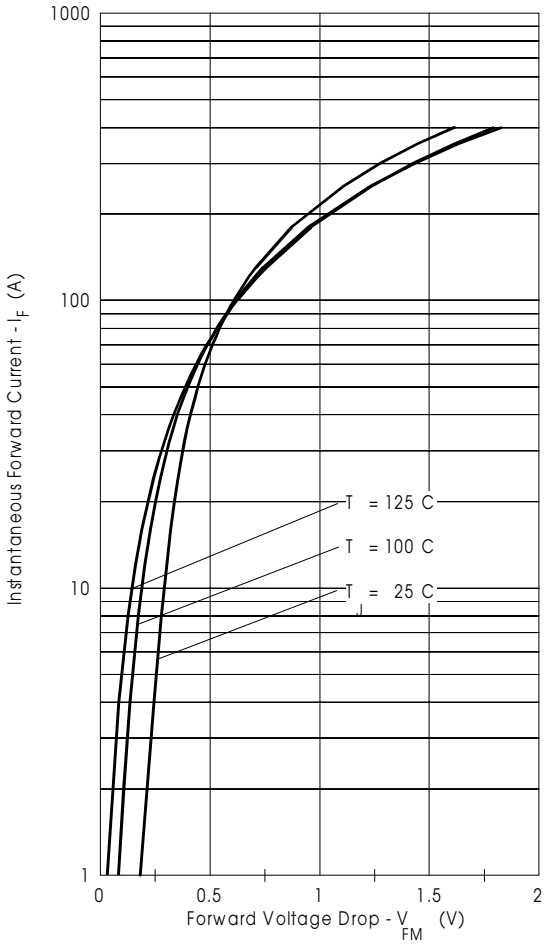


Fig. 1 - Maximum Forward Voltage Drop Characteristics

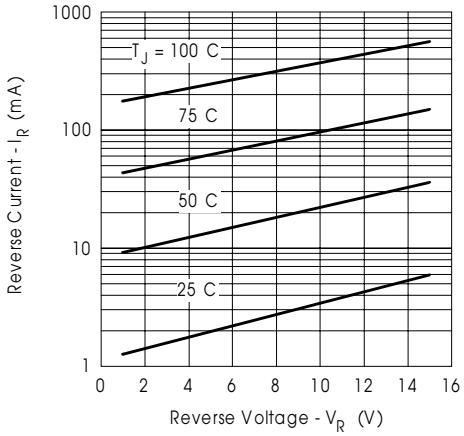


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

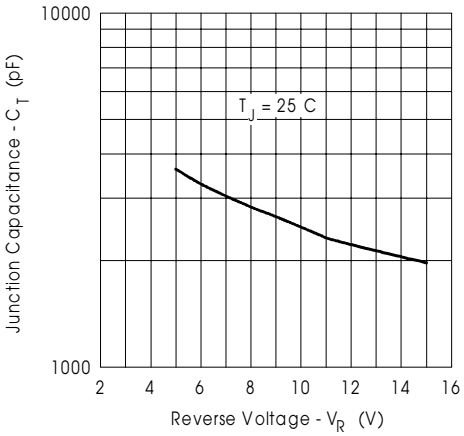


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

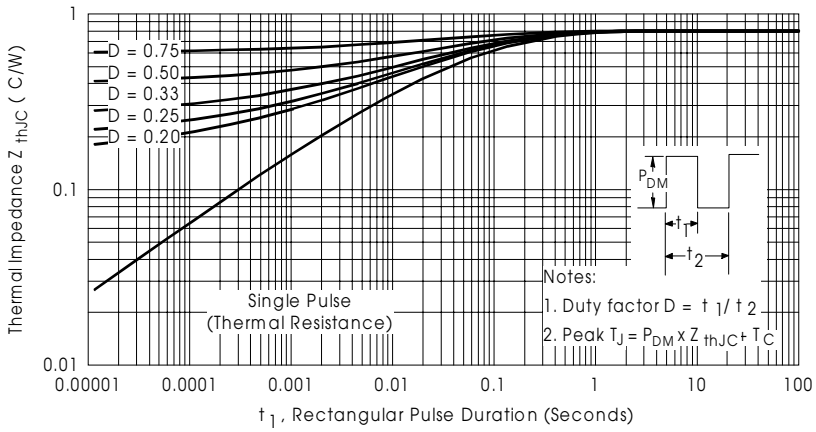


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

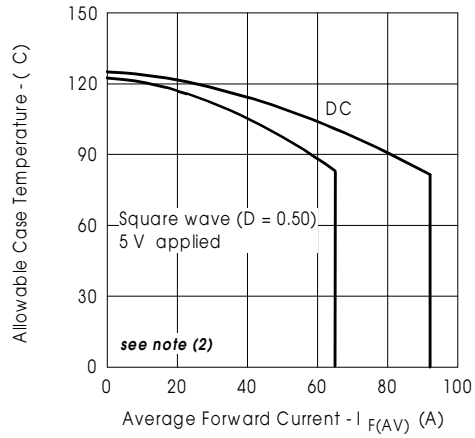


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

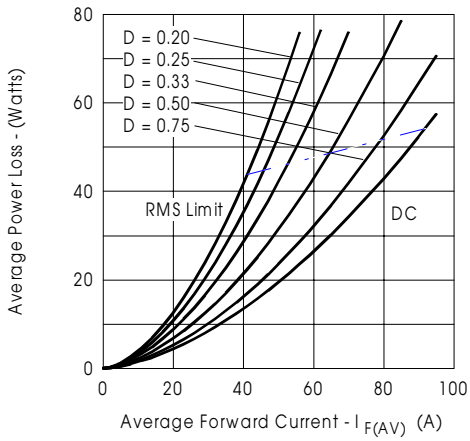


Fig. 6 - Forward Power Loss Characteristics

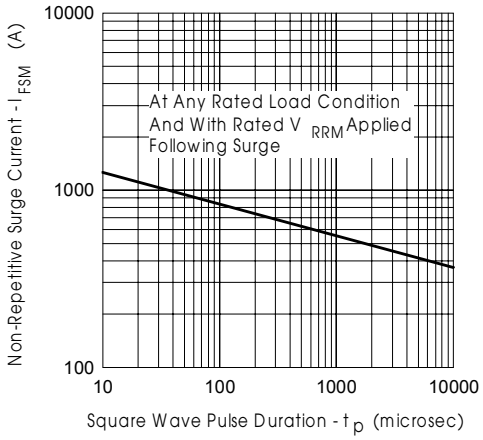


Fig. 7 - Maximum Non-Repetitive Surge Current

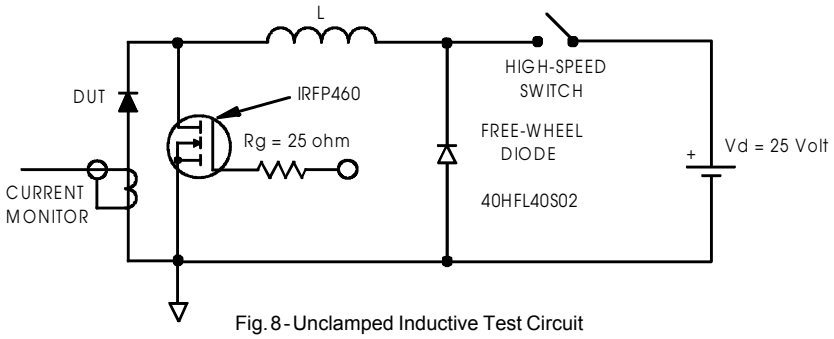
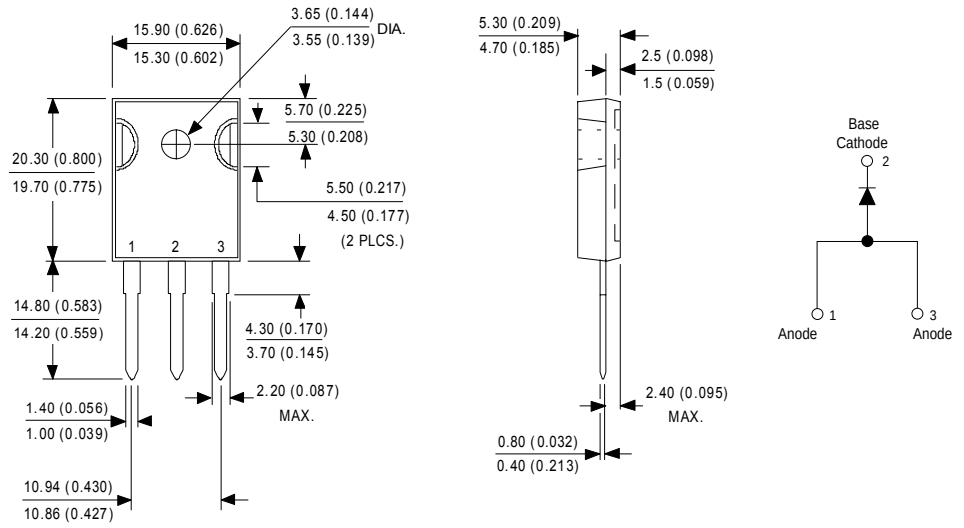


Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM}$ @ ($I_{F(AV)}$ / D) (see Fig. 6);
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R$ (1 - D); I_R @ V_{R1} = 5 V

Outline Table



Conform to JEDEC outline TO-247AC (TO-3P)
Dimensions in millimeters and (inches)

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
IOR Rectifier

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