

International **IR** Rectifier

65PQ015

SCHOTTKY RECTIFIER

65 Amps

$I_{F(AV)} = 65\text{Amp}$
 $V_R = 15\text{V}$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	65	A
V_{RRM}	15	V
I_{FSM} @tp = 5 μ s sine	1500	A
V_F @65Apk, $T_J = 125^\circ\text{C}$	0,46	V
T_J range	-55 to 125	$^\circ\text{C}$

Description/ Features

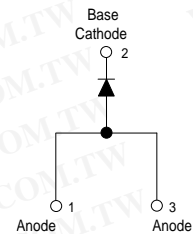
The 65PQ015 Schottky rectifier module has been optimized for ultra low forward voltage drop specifically for the OR-ing of parallel power supplies. The proprietary barrier technology allows for reliable operation up to 125 $^\circ\text{C}$ junction temperature. Typical applications are in parallel switching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

- TO-247 package
- 125 $^\circ\text{C}$ T_J operation ($V_R < 5\text{V}$)
- 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



TO-247AC



65PQ015

Bulletin PD-20998 rev. D 10/06

International
IRF Rectifier

Voltage Ratings

Part number	65PQ015		
V_R Max. DC Reverse Voltage (V)	@ $T_J = 100\text{ }^\circ\text{C}$	15	
V_R Max. DC Reverse Voltage (V)	@ $T_J = 125\text{ }^\circ\text{C}$	5	

Absolute Maximum Ratings

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

Electrical Specifications

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

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

Thermal-Mechanical Specifications

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

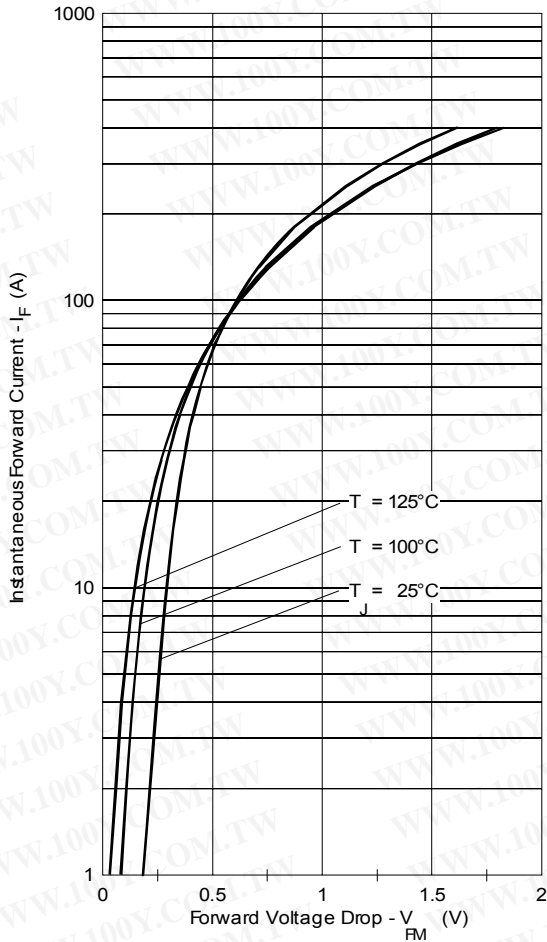


Fig. 1 - Maximum Forward Voltage Drop Characteristics

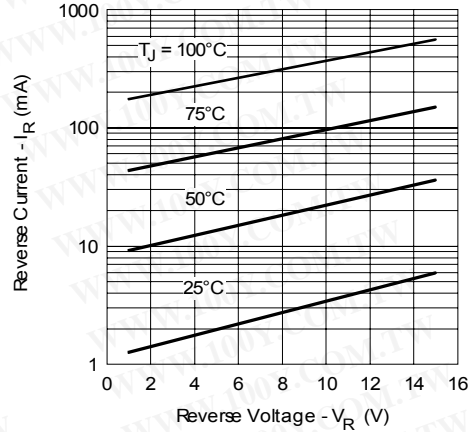


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

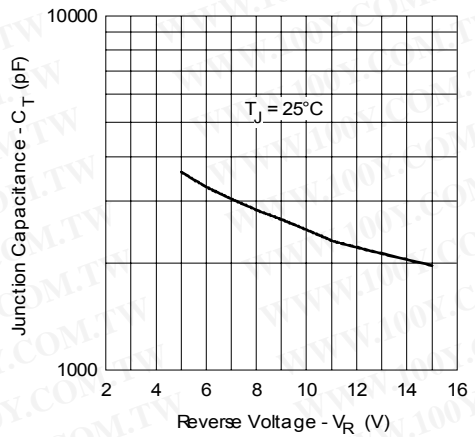


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

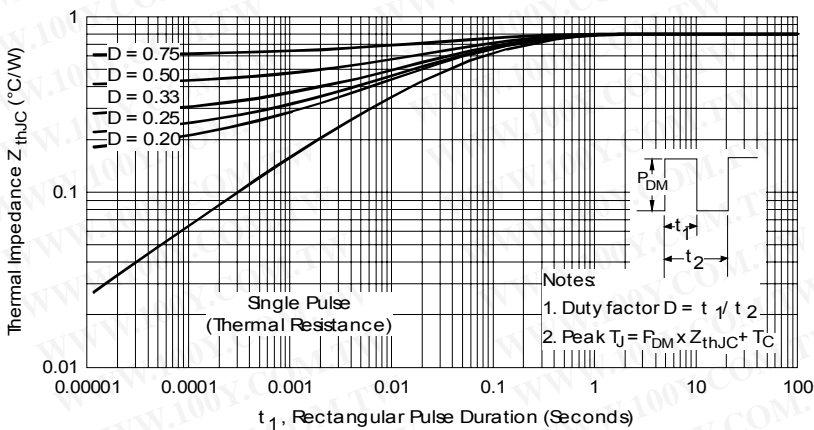


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

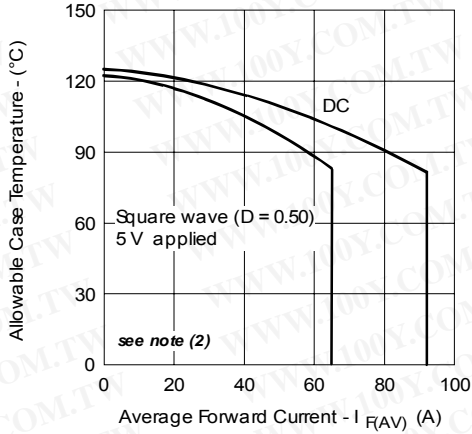


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

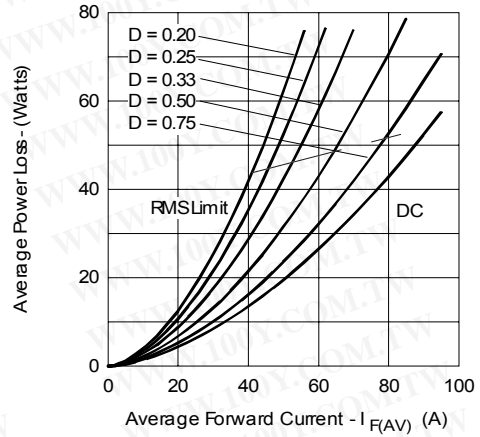


Fig. 6 - Forward Power Loss Characteristics

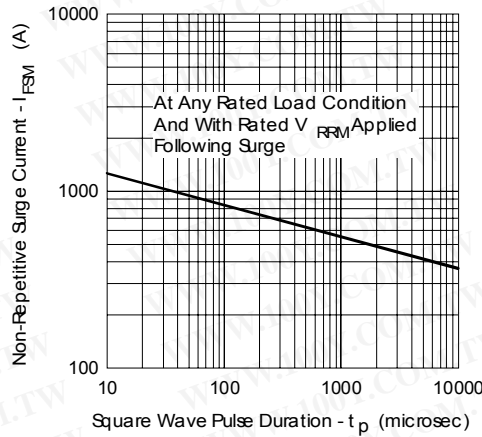


Fig. 7 - Maximum Non-Repetitive Surge Current

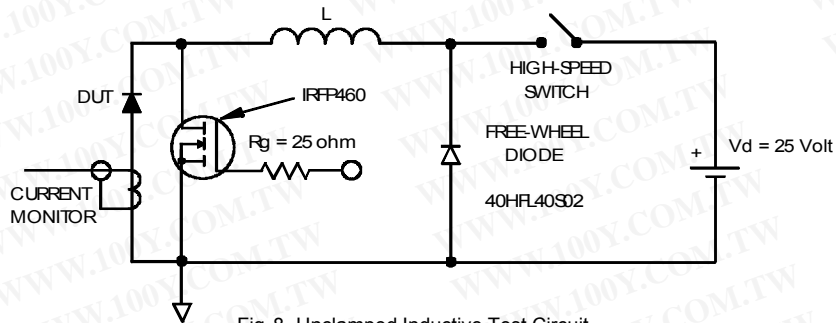
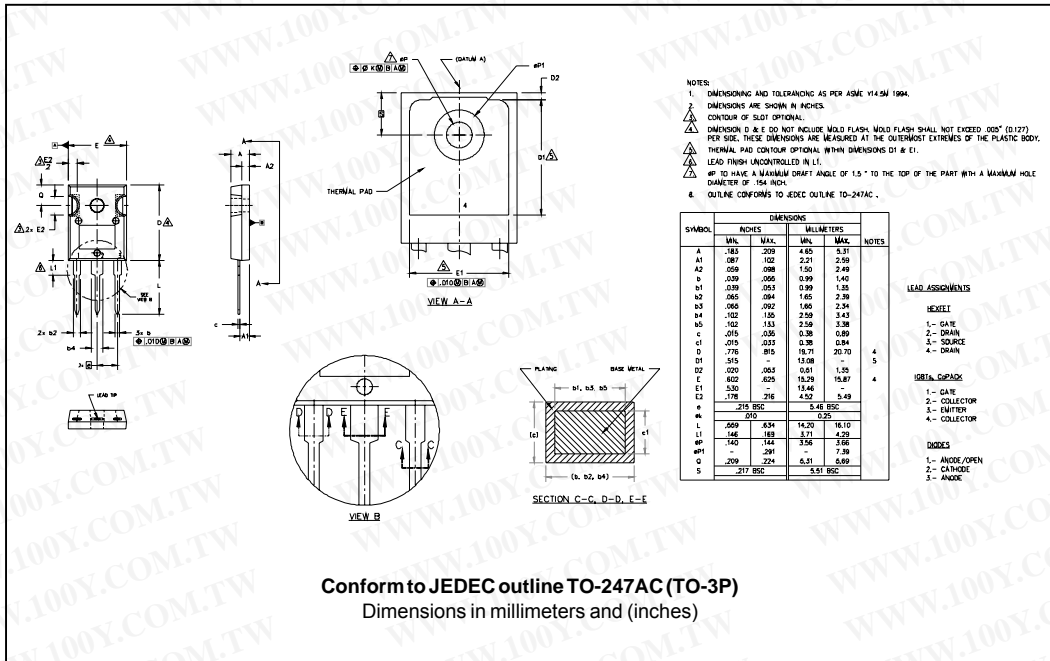


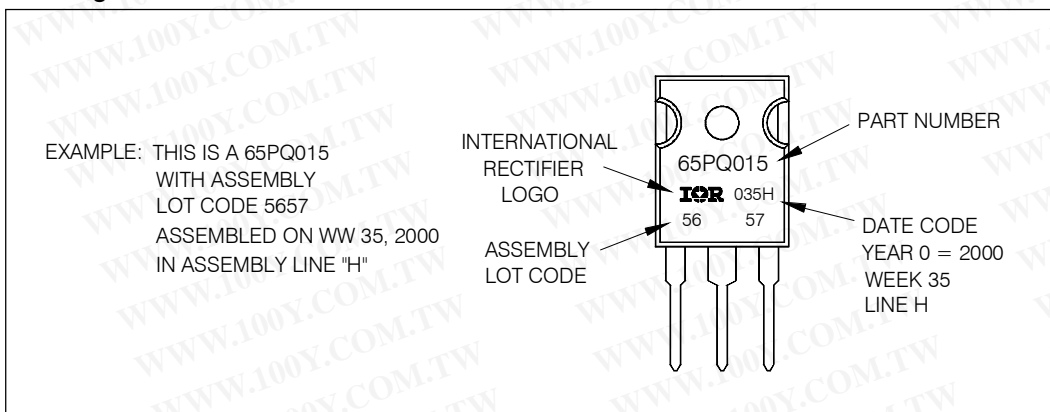
Fig. 8 - Unclamped Inductive Test Circuit

- (2) Formula used: $T_c = T_j - (P_d + P_{d_{REV}}) \times R_{thJC}$;
 $P_d = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} \times (I_{F(AV)} / D)$ (see Fig. 6);
 $P_{d_{REV}} = \text{Inverse Power Loss} = V_{R1} \times I_R \times (1 - D)$; $I_R @ V_{R1} = 5V$

Outline Table



Marking Information



Ordering Information Table

Device Code				
65	P	Q	015	-
①	②	③	④	⑤
1	-	Current Rating (65 = 65A)		
2	-	Package P = TO-247		
3	-	Schottky "Q" Series		
4	-	Voltage Code (015 = 15V)		
5	-	<ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free 		
Tube Standard Pack Quantity : 25 pieces				

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
IR Rectifier

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