

International  
**IR** Rectifier

100BGQ015  
 100BGQ015J

SCHOTTKY RECTIFIER

100 Amp

#### Major Ratings and Characteristics

Characteristics	100BGQ015	Units
$I_{F(AV)}$ Rectangular waveform	100	A
@ $T_C$	91	°C
$I_{DC}$ Maximum	141	A
$V_{RRM}$	15	V
$I_{FSM}$ @ $t_p = 5 \mu s$ sine	5000	A
$V_F$ @ 100Apk typical	0.38	V
@ $T_J$	125	°C
$T_J$ range	-55 to 125	°C

#### Description/ Features

The 100BGQ015 Schottky rectifier 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.

- 125°C  $T_J$  operation ( $V_R < 5V$ )
- Optimized for OR-ing applications
- High frequency operation
- Ultra low forward voltage drop
- Continuous High Current operation
- Guard ring for enhanced ruggedness and long term reliability
- **PowIRtab™ package**

#### Case Styles

100BGQ015



100BGQ015J



## Voltage Ratings

Part number	100BGQ015		
$V_R$ 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	100BGQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	100	A	50% duty cycle @ $T_C = 91\text{ }^\circ\text{C}$ , rectangular wave form
$I_{F(RMS)}$ RMS Forward Current	141	A	$T_C = 88\text{ }^\circ\text{C}$
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current	5000	A	5 $\mu$ s Sine or 3 $\mu$ s Rect. pulse
	1000		10ms Sine or 6ms Rect. pulse
$E_{AS}$ 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 $\mu$ sec Frequency limited by $T_J$ max. $V_A = 3 \times V_R$ typical

## Electrical Specifications

Parameters	100BGQ		Units	Conditions	
	Typ.	Max.			
$V_{FM}$ Forward Voltage Drop (1) (2)	0.34	0.37	V	@ 50A	$T_J = 25\text{ }^\circ\text{C}$
	0.42	0.46	V	@ 100A	
	0.26	0.29	V	@ 50A	$T_J = 125\text{ }^\circ\text{C}$
	0.38	0.42	V	@ 100A	
$I_{RM}$ Reverse Leakage Current (1)	7	18	mA	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{rated } V_R$
	580	870	mA	$T_J = 100\text{ }^\circ\text{C}$	
	480	700	mA	$T_J = 100\text{ }^\circ\text{C}$ , $V_R = 12\text{ V}$	
	1	1.2	A	$T_J = 125\text{ }^\circ\text{C}$ , $V_R = 5\text{ V}$	
$V_{F(TO)}$ Threshold Voltage	0.155		V	$T_J = T_J \text{ max.}$	
$r_t$ Forward Slope Resistance	2.45		m $\Omega$		
$C_T$ Max. Junction Capacitance	3800		pF	$V_R = 5V_{DC}$ , (test signal range 100Khz to 1Mhz) $25\text{ }^\circ\text{C}$	
$L_S$ Typical Series Inductance	3.5		nH	Measured from tab to mounting plane	
dv/dt Max. Voltage Rate of Change (Rated $V_R$ )	10000		V/ $\mu$ s		

(1) Pulse Width < 300 $\mu$ s, Duty Cycle < 2%(2)  $V_{FM} = V_{F(TO)} + r_t \times I_F$ 

## Thermal-Mechanical Specifications

Parameters	100BGQ	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	0.50	$^\circ\text{C/W}$	DC operation
$R_{thCS}$ Typical Thermal Resistance, Case to Heatsink	0.20	$^\circ\text{C/W}$	Mounting surface, smooth and greased
wt Approximate Weight	5(0.18)	g(oz.)	
T Mounting Torque	Min.	1.2(10)	N*m (lbf-in)
	Max.	2.4(20)	
Case Style	PowIRtab™		

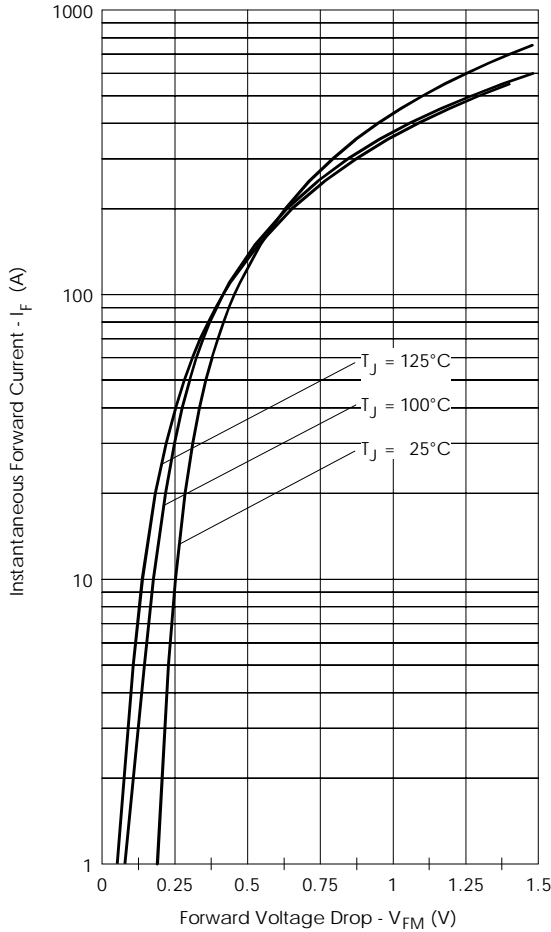


Fig. 1 - Maximum Forward Voltage Drop Characteristics

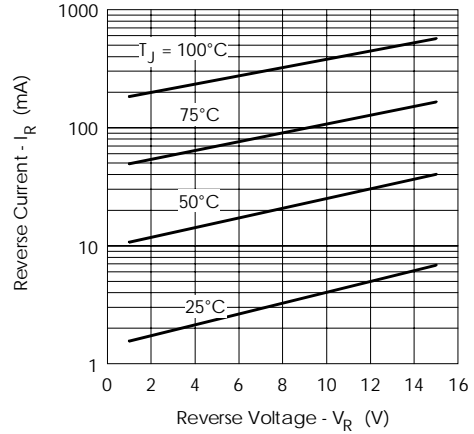


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

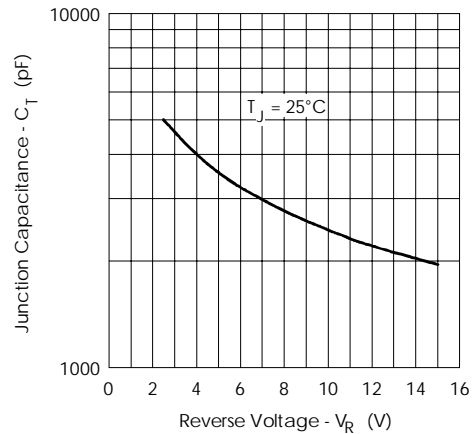


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

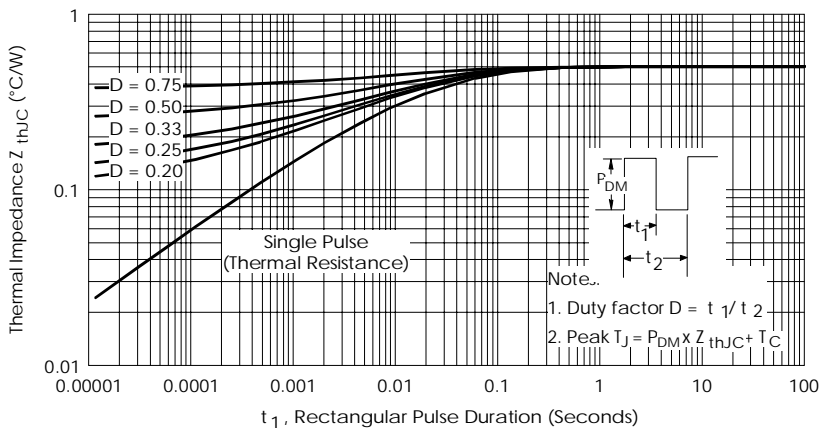


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

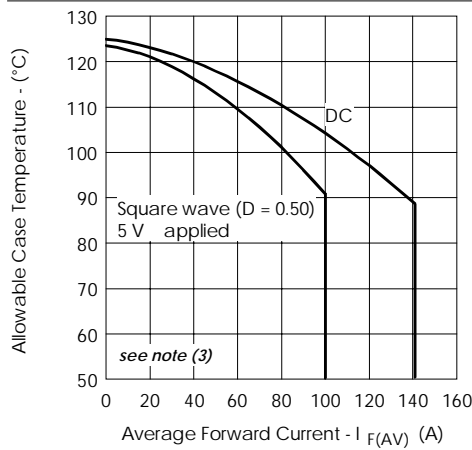


Fig.5- Maximum Allowable Case Temperature Vs. Average Forward Current

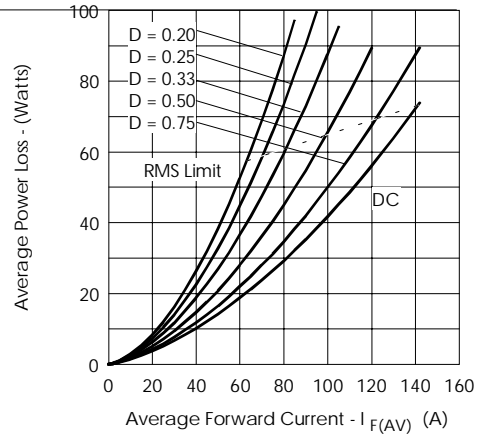


Fig.6- Forward Power Loss Characteristics

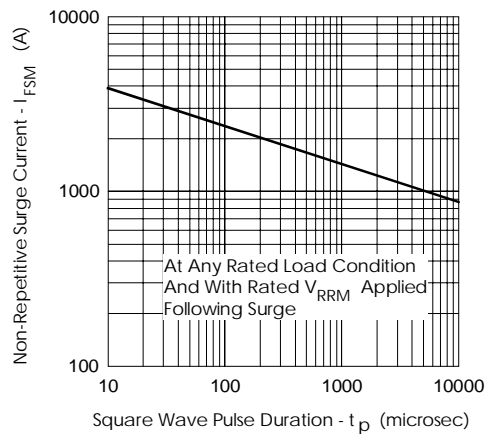


Fig.7- Maximum Non-Repetitive Surge Current

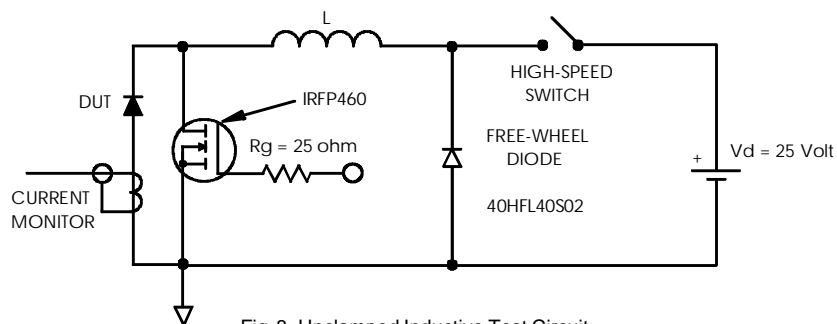


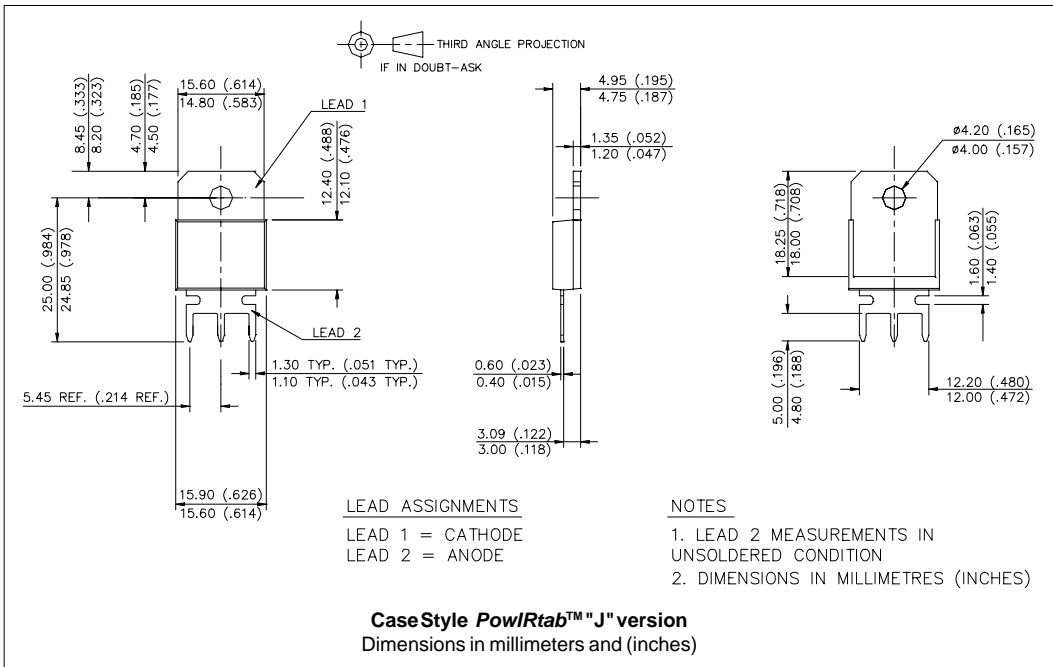
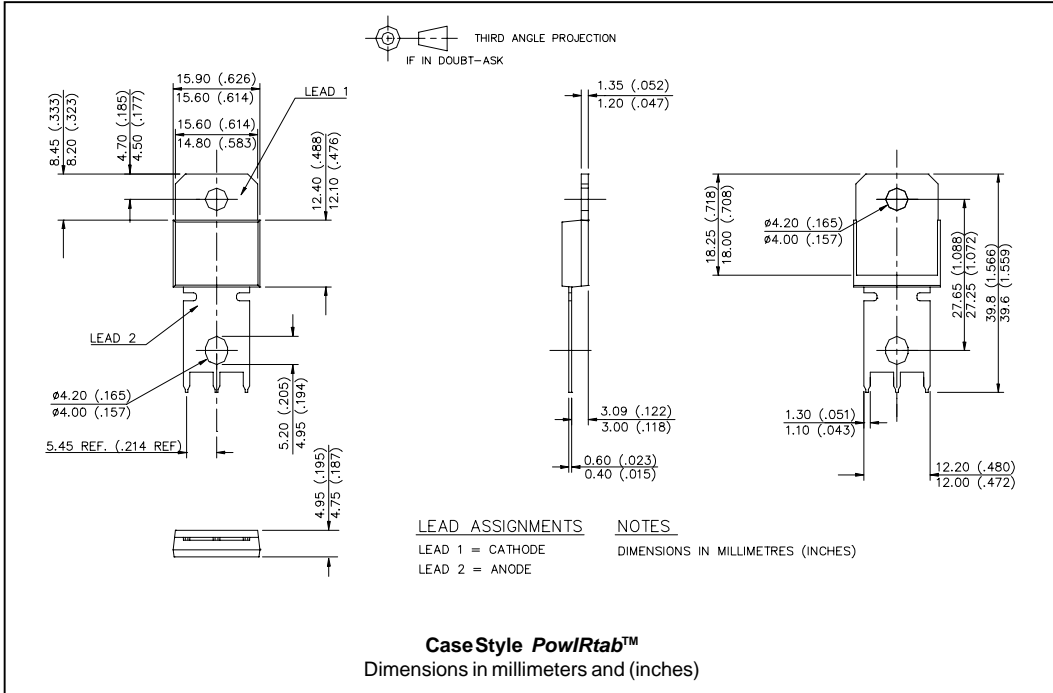
Fig.8- Unclamped Inductive Test Circuit

(3) Formula used:  $T_c = T_j - (P_d + P_{d_{REV}}) \times R_{thJC}$ ;

$P_d = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$  (see Fig. 6);

$P_{d_{REV}} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D)$ ;  $I_R @ V_{R1} = 80\% \text{ rated } V_R$

Outline Table



Ordering Information Table

Device Code	
<b>100</b>	<b>BGQ</b>
<b>015</b>	<b>J</b>
①	②
③	④

<b>1</b>	-	Current Rating
<b>2</b>	-	Essential Part Number
<b>3</b>	-	Voltage code: Code = $V_{RRM}$
<b>4</b>	-	none = PowIRtab™ standard
		J = Short Lead Version

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.

This datasheet has been download from:

[www.datasheetcatalog.com](http://www.datasheetcatalog.com)

Datasheets for electronics components.