

International
IR Rectifier

100BGQ015
 100BGQ015J

SCHOTTKY RECTIFIER

100 Amp

Major Ratings and Characteristics

Characteristics	100BGQ015	Units
$I_{F(AV)}$ Rectangular waveform @ T_C	100	A
	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 @ T_J	0.38	V
	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) @ $T_J = 100^\circ\text{C}$	15		
V_R Max. DC Reverse Voltage (V) @ $T_J = 125^\circ\text{C}$	5		

Absolute Maximum Ratings

Parameters	100BGQ	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	100	A	50% duty cycle @ $T_C = 91^\circ\text{C}$, rectangular wave form
$I_{F(RMS)}$ RMS Forward Current	141	A	$T_C = 88^\circ\text{C}$
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	5000	A	5 μs Sine or 3 μs Rect. pulse
	1000		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy	9	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2\text{Amps}$, $L = 4.5\text{mH}$
I_{AR} Repetitive Avalanche Current	2	A	Current decaying linearly to zero in 1 μsec 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	$T_J = 25^\circ\text{C}$
	0.42	0.46	V	@ 100A	
	0.26	0.29	V	@ 50A	$T_J = 125^\circ\text{C}$
	0.38	0.42	V	@ 100A	
I_{RM} Reverse Leakage Current (1)	7	18	mA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_R$
	580	870	mA	$T_J = 100^\circ\text{C}$	
	480	700	mA	$T_J = 100^\circ\text{C}$ $V_R = 12\text{V}$	
	1	1.2	A	$T_J = 125^\circ\text{C}$ $V_R = 5\text{V}$	
$V_{F(TO)}$ Threshold Voltage	0.155		V	$T_J = T_J \text{ max.}$	
r_t Forward Slope Resistance	2.45		m Ω		
C_T Max. Junction Capacitance	3800		pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°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/ μs		

(1) Pulse Width < 300 μs , 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™		

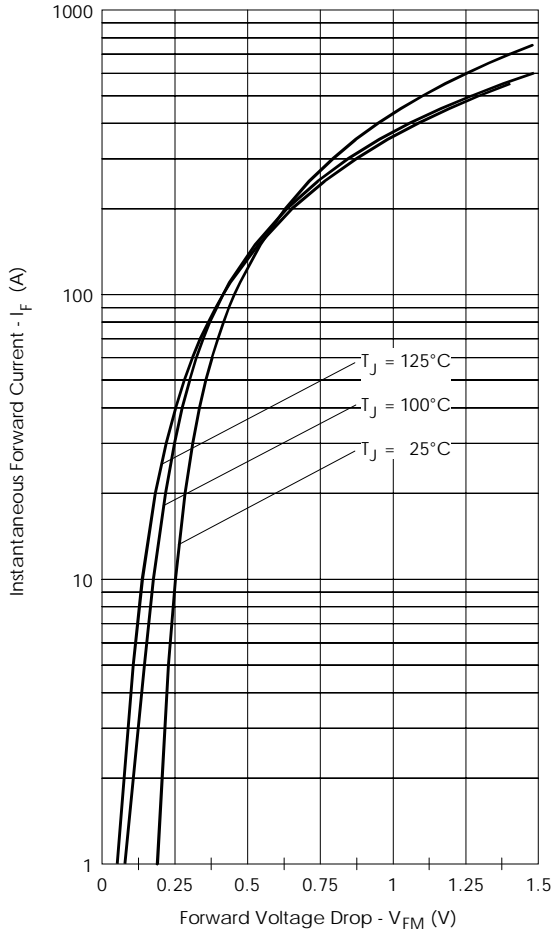


Fig. 1 - Maximum Forward Voltage Drop Characteristics

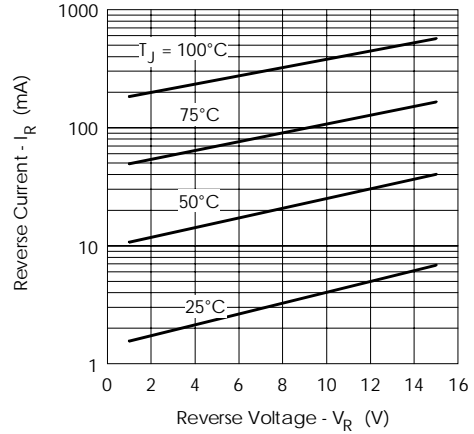


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

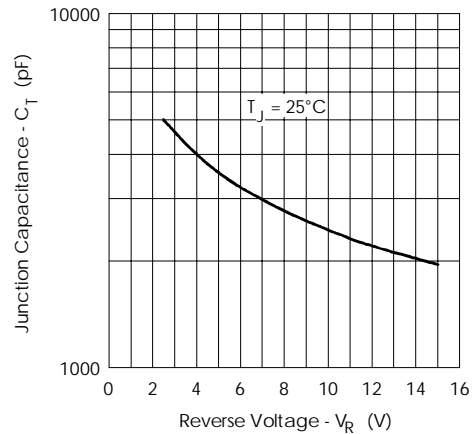


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

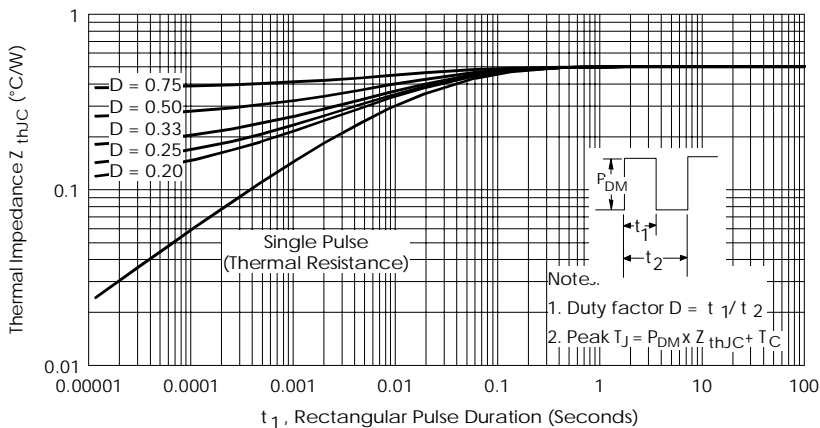


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

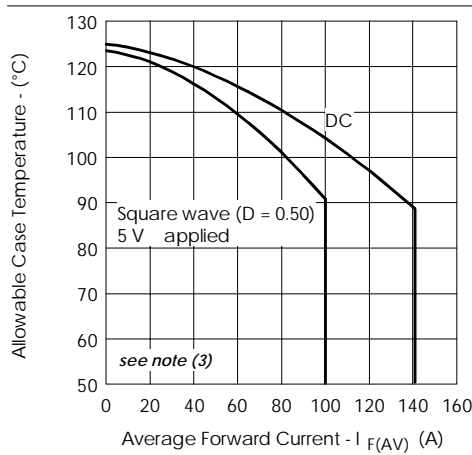


Fig.5- Maximum Allowable Case Temperature Vs. Average Forward Current

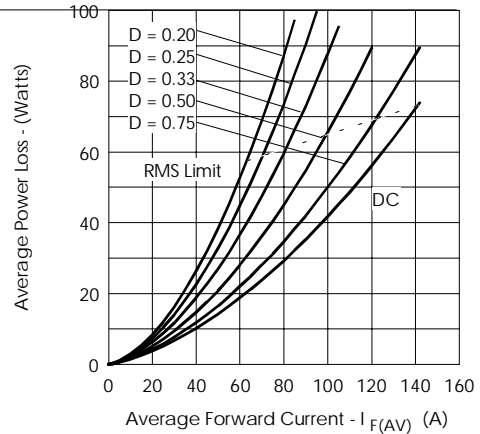


Fig.6- Forward Power Loss Characteristics

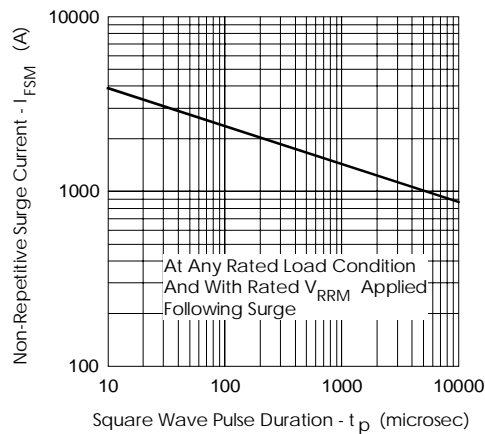


Fig.7- Maximum Non-Repetitive Surge Current

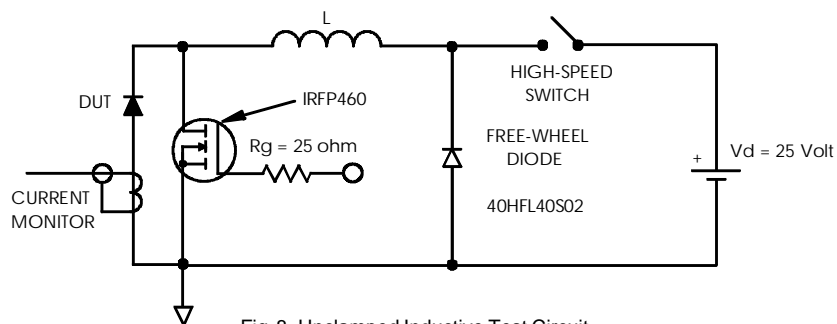


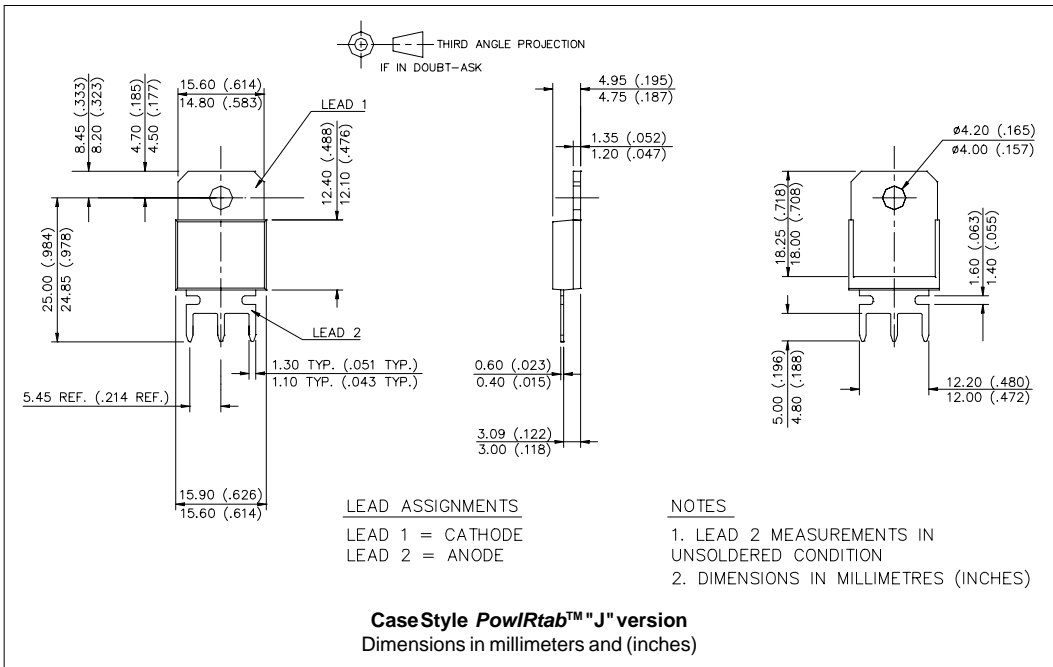
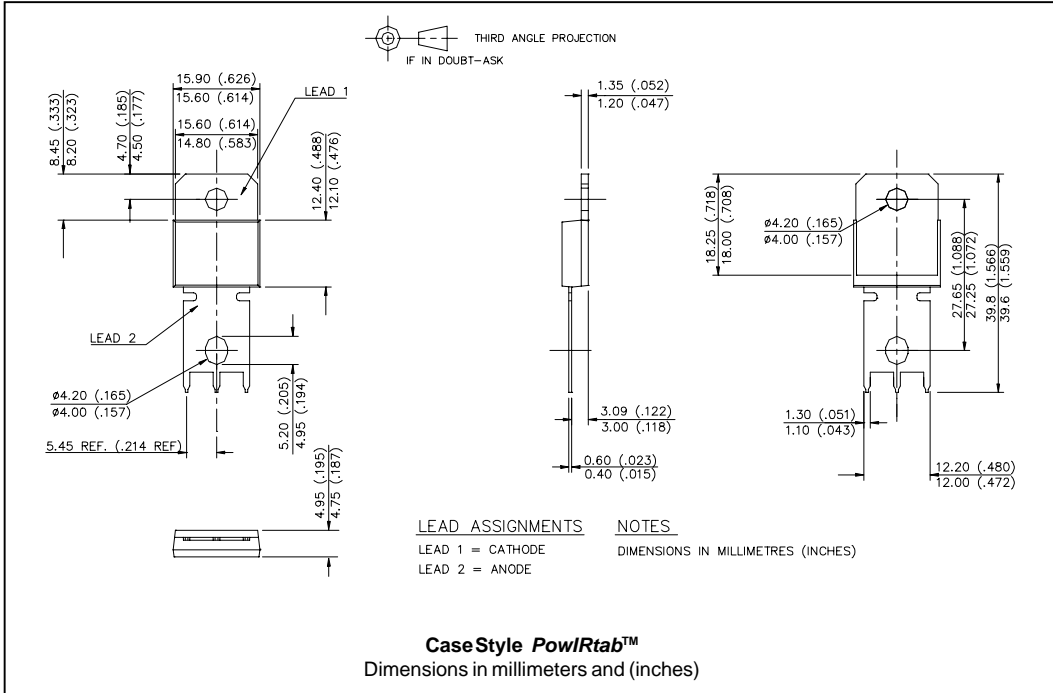
Fig.8- Unclamped Inductive Test Circuit

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

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

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

Outline Table



Ordering Information Table

Device Code			
100	BGQ	015	J
①	②	③	④
1	-	Current Rating	
2	-	Essential Part Number	
3	-	Voltage code: Code = V_{RRM}	
4	-	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.