

International
IR Rectifier

100BGQ015
100BGQ015J

SCHOTTKY RECTIFIER

100 Amp

Major Ratings and Characteristics

Characteristics	100BGQ015	Units
$I_{F(AV)}$ Rectangular waveform @ T_C	100 91	A °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	0.38 125	V °C
T_J range	-55 to 125	°C

Description/Features

The NEW 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
- Optimized for OR-ing applications
- Ultra low forward voltage drop
- Continuous High Current operation
- Guard ring for enhanced ruggedness and long term reliability
- **PowIRtab™ package**

Case Styles

100BGQ015



100BGQ015J



100BGQ015, 100BGQ015J

PD-20995 rev. D 10/99

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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 1000	A	5 μs Sine or 3 μs Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RRM} applied
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)	10,000		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	-55to 125	°C	
T _{stg}	Max. Storage Temperature Range	-55to 125	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case	0.50	°C/W	DC operation
R _{thCS}	Typical Thermal Resistance, Case to Heatsink	0.20	°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™		

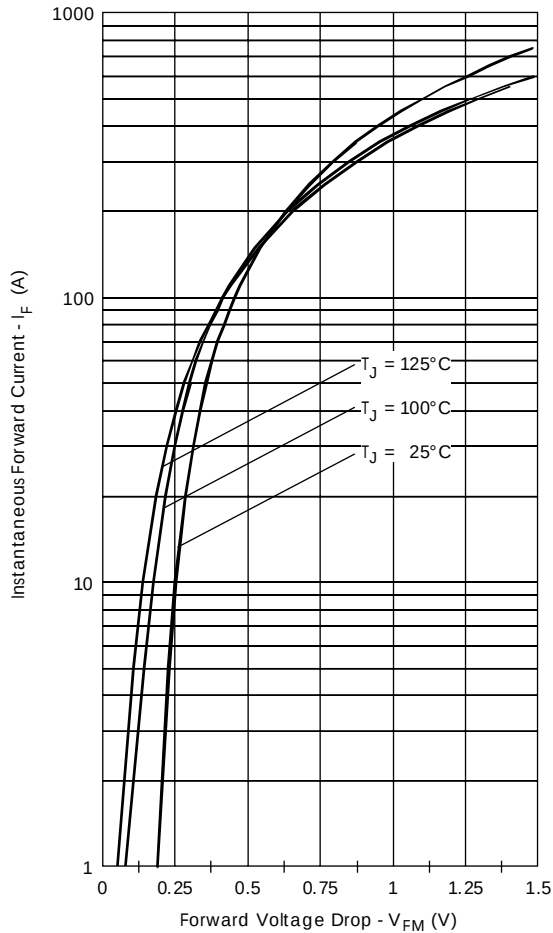


Fig. 1 - Maximum Forward Voltage Drop Characteristics

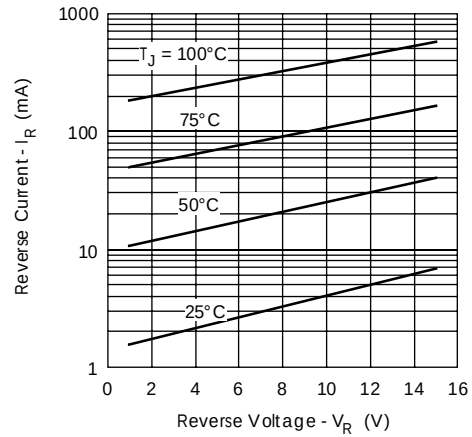


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

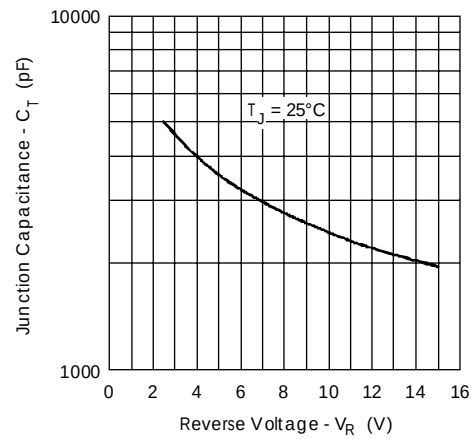


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

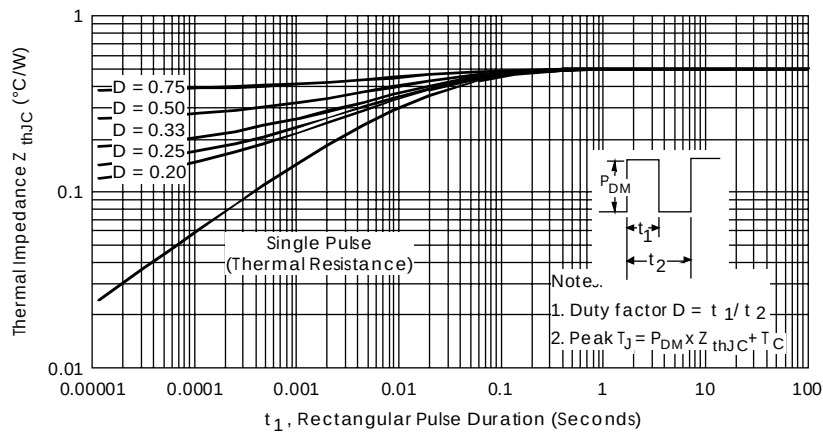


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

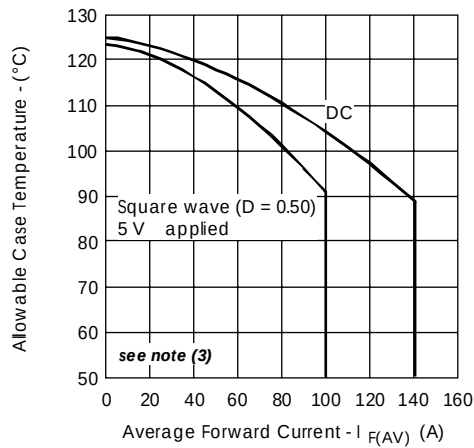


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

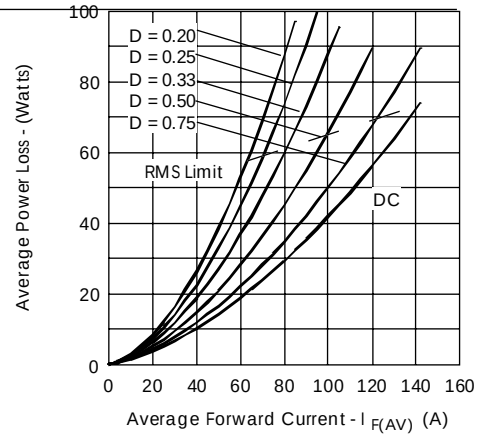


Fig. 6 - Forward Power Loss Characteristics

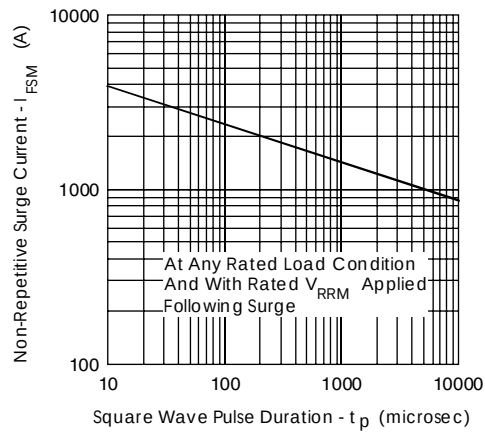


Fig. 7 - Maximum Non-Repetitive Surge Current

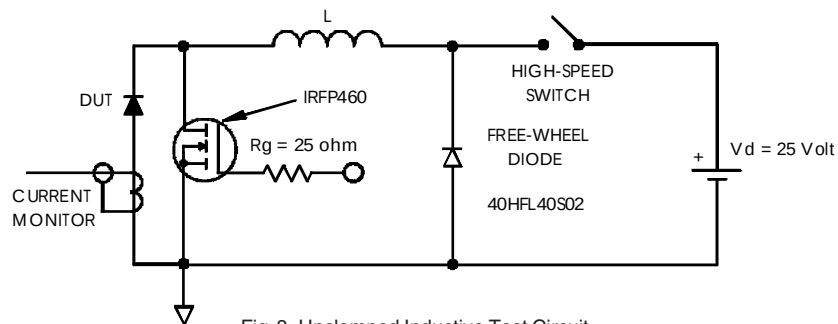


Fig. 8 - Unclamped Inductive Test Circuit

(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

Ordering Information Table

Device Code

100

BGQ

015

J

1

2

3

4

1

2

3

4

-

-

-

-

Current Rating

Essential Part Number

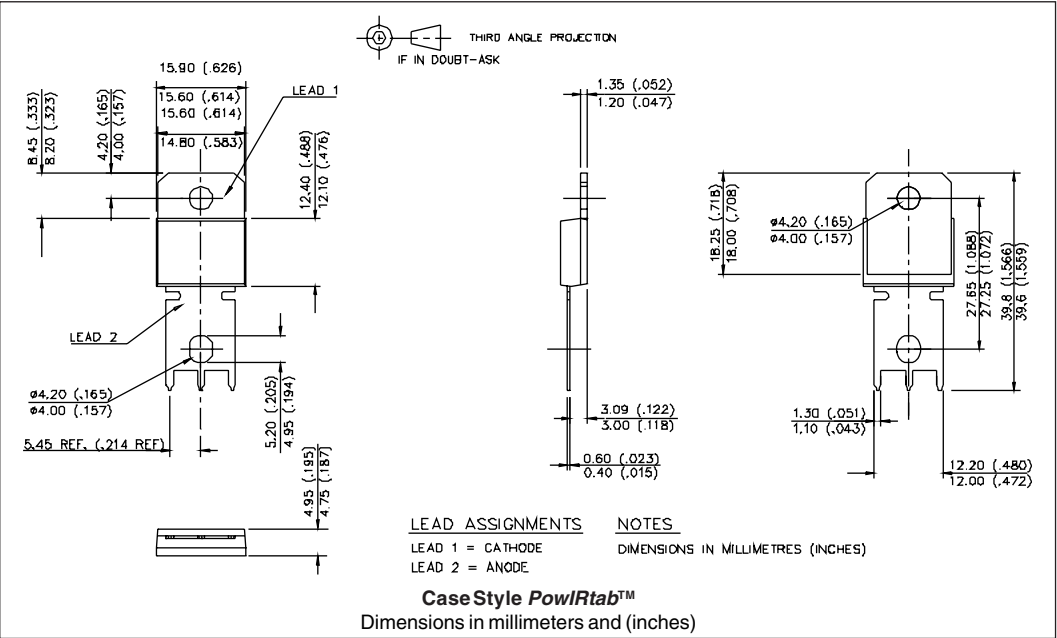
Voltage code: Code = V_{RRM}

none = PowIRtab™ standard

J

= Short Lead Version

Outline Table

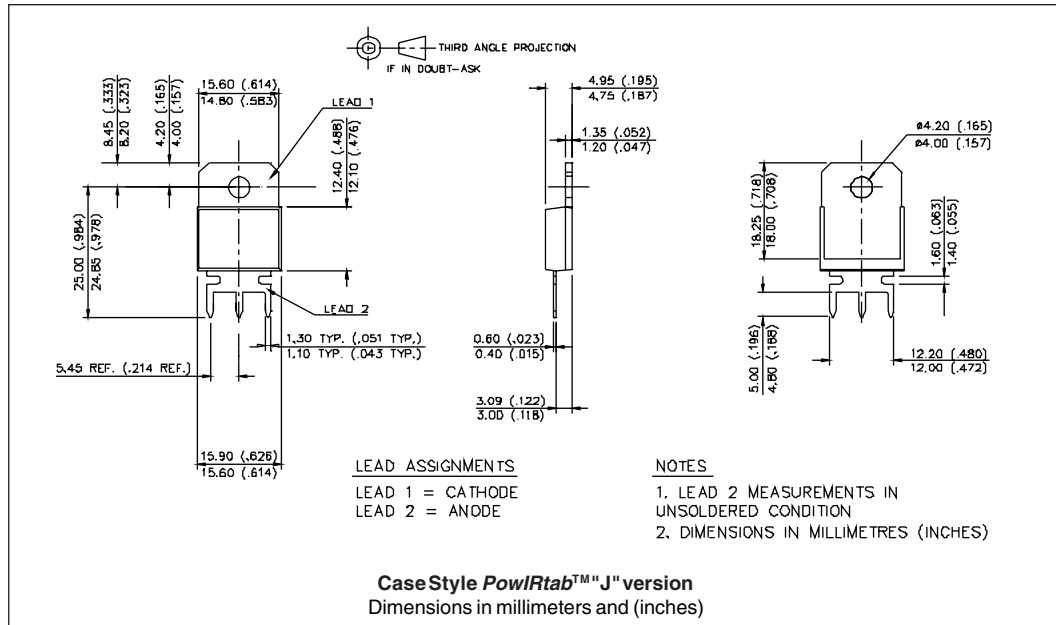


100BGQ015, 100BGQ015J

PD-20995 rev. D 10/99

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Outline Table



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Data and specifications subject to change without notice.