

International
IR Rectifier

100BGQ100
 100BGQ100J

SCHOTTKY RECTIFIER

100 Amp

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform @ T_C	100 129	A °C
I_{DC} Maximum	141	A
V_{RRM}	100	V
I_{FSM} @ $t_p = 5 \mu s$ sine	6300	A
V_F @ 100Apk typical @ T_J	0.74 125	V °C
T_J range	-55 to 175	°C



Description/ Features

This Schottky rectifier has been optimized for low reverse leakage at high temperature

The proprietary barrier technology allows for reliable operation up to 175°C junction temperature. Typical applications are in switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 175°C T_J operation
- High Frequency Operation
- Low forward voltage drop
- Continuous High Current operation
- Guard ring for enhanced ruggedness and long term reliability
- **PowIRtab™ package**

Case Styles

100BGQ100	100BGQ100J
	

Voltage Ratings

Part number	100BGQ100, 100BGQ100J
V_R Max. DC Reverse Voltage (V)	100
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	100	A	50% duty cycle @ $T_C = 129^\circ\text{C}$, rectangular waveform
$I_{F(RMS)}$ RMS Forward Current	141	A	$T_C = 120^\circ\text{C}$
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	6300	A	5 μs Sine or 3 μs Rect. pulse
	800		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy	9	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2$ 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. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	Values		Units	Conditions	
	Typ.	Max.			
V_{FM} Forward Voltage Drop (1) (2)	0.80	0.84	V	@ 50A	$T_J = 25^\circ\text{C}$
	0.96	1.04	V	@ 100A	
	0.64	0.66	V	@ 50A	$T_J = 125^\circ\text{C}$
	0.74	0.77	V	@ 100A	
I_{RM} Reverse Leakage Current (1)	22	300	μA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_R$
	14	18	mA	$T_J = 125^\circ\text{C}$	
$V_{F(TO)}$ Threshold Voltage	0.484		V	$T_J = T_J \text{ max.}$	
r_t Forward Slope Resistance	2.0		m Ω		
C_T Max. Junction Capacitance	1320		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	Values	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 175	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 175	$^\circ\text{C}$	
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™		

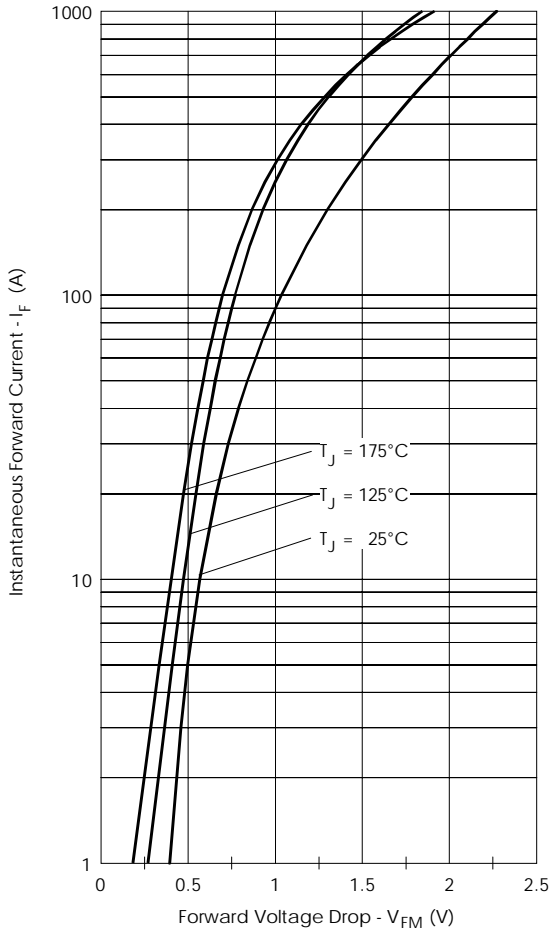


Fig. 1 - Maximum Forward Voltage Drop Characteristics

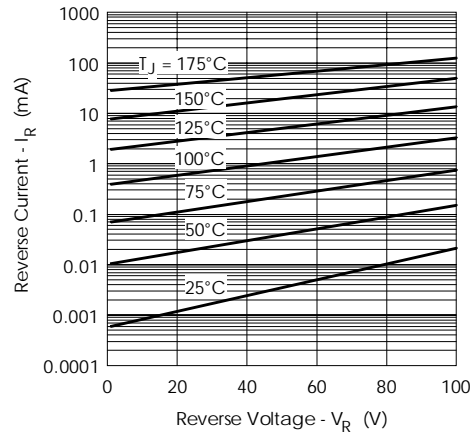


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

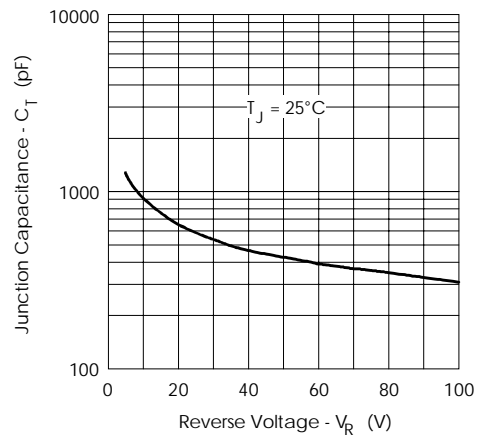


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

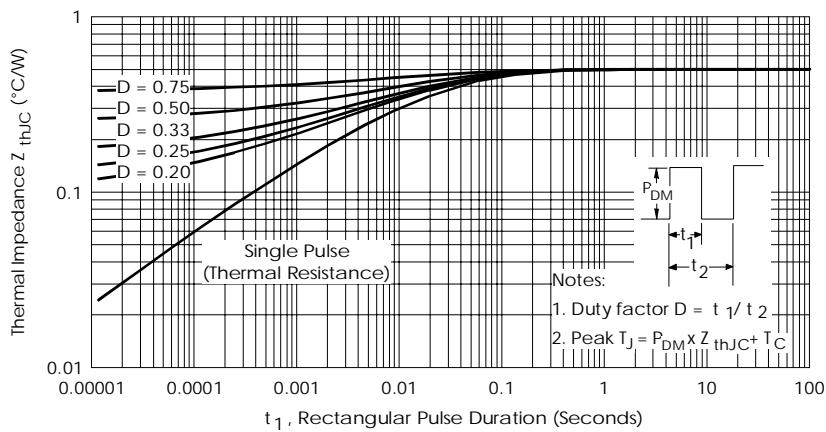


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

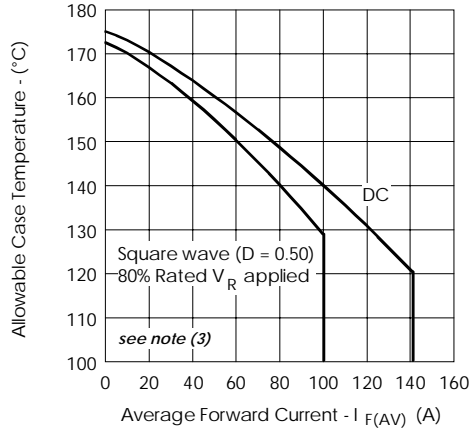


Fig.5- Maximum Allowable Case Temperature Vs. Average Forward Current

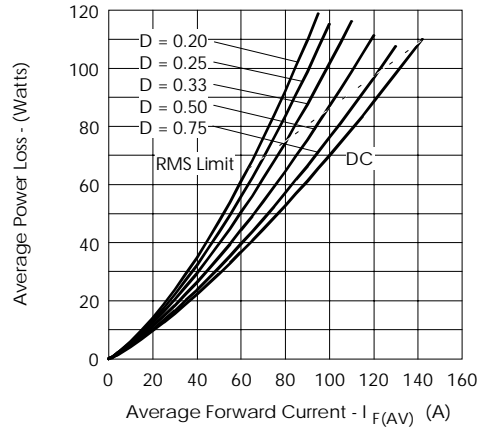


Fig.6- Forward Power Loss Characteristics

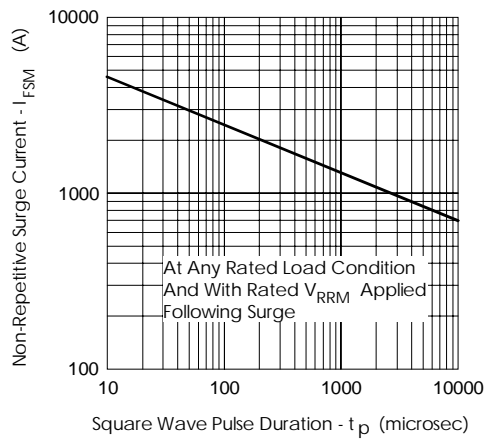


Fig.7- Maximum Non-Repetitive Surge Current

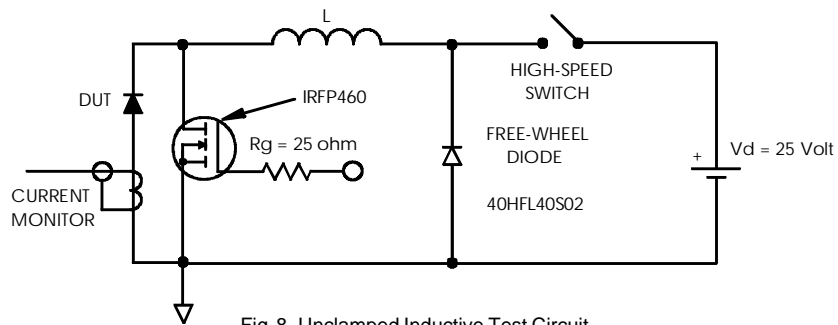


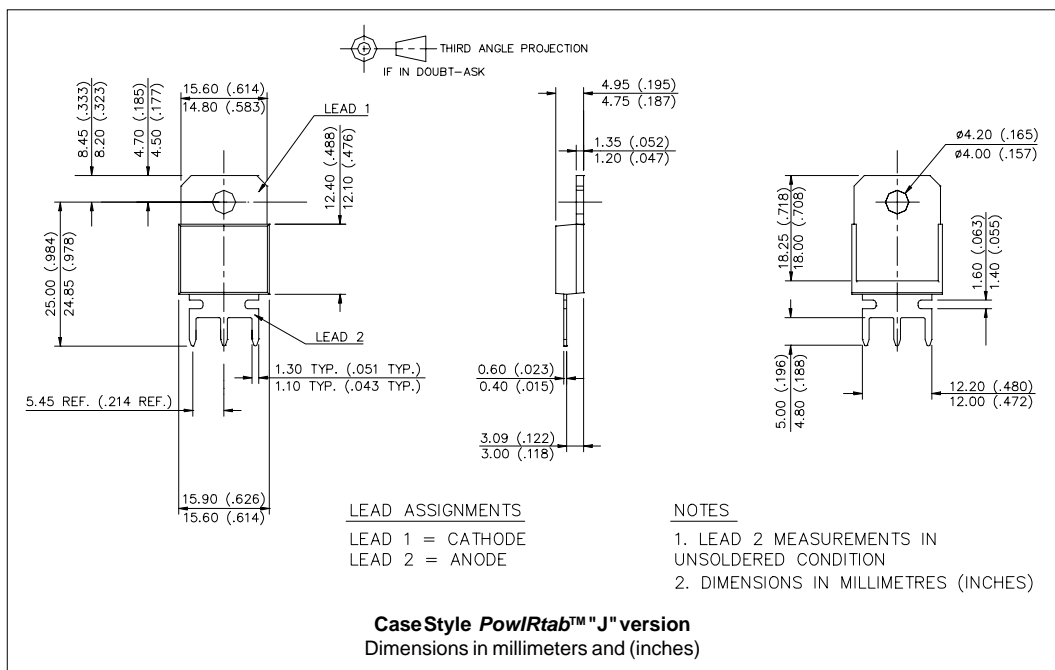
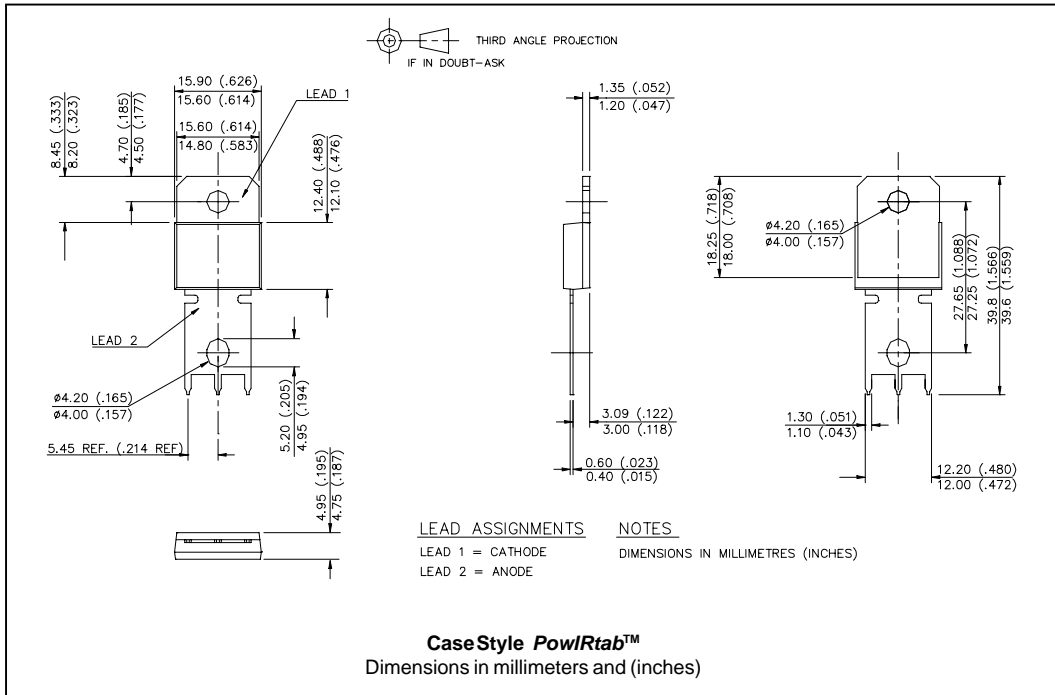
Fig.8- Unclamped Inductive Test Circuit

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

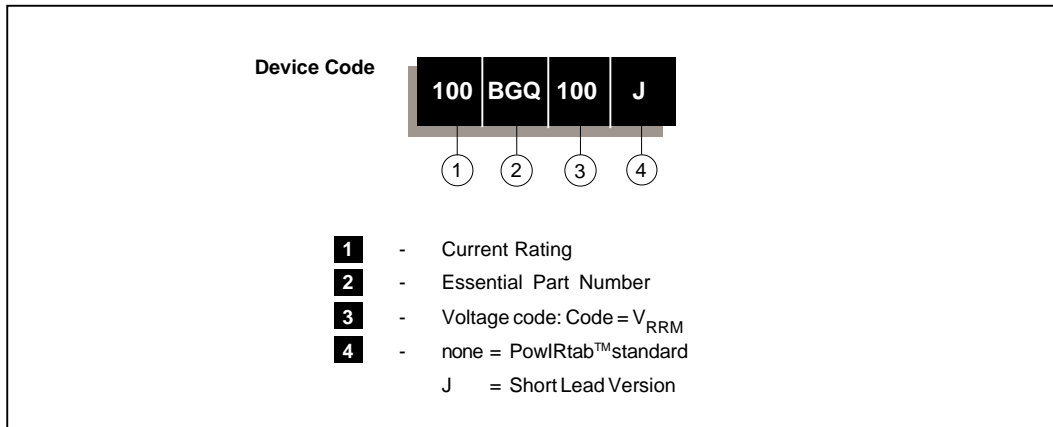
P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

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

Outline Table



Ordering Information Table



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.