

SCHOTTKY RECTIFIER

1 Amp

Major Ratings and Characteristics

Characteristics	10BQ100	Units
$I_{F(AV)}$ Rectangular waveform	1.0	A
V_{RRM}	100	V
I_{FSM} @ $t_p = 5\mu s$ sine	780	A
V_F @ 1.0Apk, $T_J = 125^\circ C$	0.62	V
T_J	-55 to 175	$^\circ C$

Description / Features

The 10BQ100 surface-mount Schottky rectifier has been designed for applications requiring very low forward drop and small foot prints on PC boards. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging and reverse battery protection.

- Small footprint, surface mountable
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long-term reliability

SMB	
CASE STYLE	CASE OUTLINE

10BQ100



Voltage Ratings

Part number	10BQ100	
V _R Max. DC Reverse Voltage (V)	100	
V _{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters		10BQ	Units	Conditions	
I _{F(AV)}	Max. Average Forward Current See Fig. 5	1.0	A	50% duty cycle @ T _C = 152°C, rectangular waveform	
I _{FSM}	Max. Peak One Cycle Non - Repetitive Surge Current — see Fig. 7	780	A	5μs Sine or 3μs Rect. pulse	Following any rated load condition and with rated V _{RRM} applied.
		38		10ms Sine or 6ms Rect. pulse	
E _{AS}	Non - Repetitive Avalanche Energy	9.7	mJ	T _J = 25°C, I _{AS} = 1.0A, L = 11mH	
I _{AR}	Repetitive Avalanche Current	1.0	A	Current decaying linearly to zero in 1μsec Frequency limited by T _J max. V _A = 1.5 X V _R typical	

Electrical Specifications

Parameters		10BQ	Units		Conditions
V _{FM}	Max. Forward Voltage Drop See Fig. 1 ①	0.78	V	@ 1.0A	T _J = 25°C
		0.87	V	@ 2.0A	
		0.62	V	@ 1.0A	T _J = 125°C
		0.70	V	@ 2.0A	
I _{RM}	Max. Reverse Leakage Current ① See Fig. 2	0.5	mA	T _J = 25°C	V _R = rated V _R
		1.0	mA	T _J = 125°C	
C _T	Max. Junction Capacitance	42	pF	V _R = 5V _{DC} , (test signal range 100KHz to 1MHz) 25°C	
L _S	Typical Series Inductance	2.0	nH	Measured lead to lead 5mm from package body	
dv/dt	Max. Voltage Rate of Change (Rated V _R)	10,000	V/μs		

Thermal-Mechanical Specifications

Parameters		10BQ	Units	Conditions
T _J	Max. Junction Temperature Range	-55 to 175	°C	
T _{STG}	Max. Storage Temperature Range	-55 to 175	°C	
R _{thJA}	Max. Thermal Resistance, Junction to Ambient	140	°C/W	DC operation — See Fig. 4
R _{thJL}	Max. Thermal Resistance, Junction to Lead ②	36	°C/W	DC operation
wt	Approximate Weight	0.10	g	
Case Style		SMB		Similar to DO-214AA

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

② Mounted 1 inch square PCB, thermal probe connected to lead 2mm from package

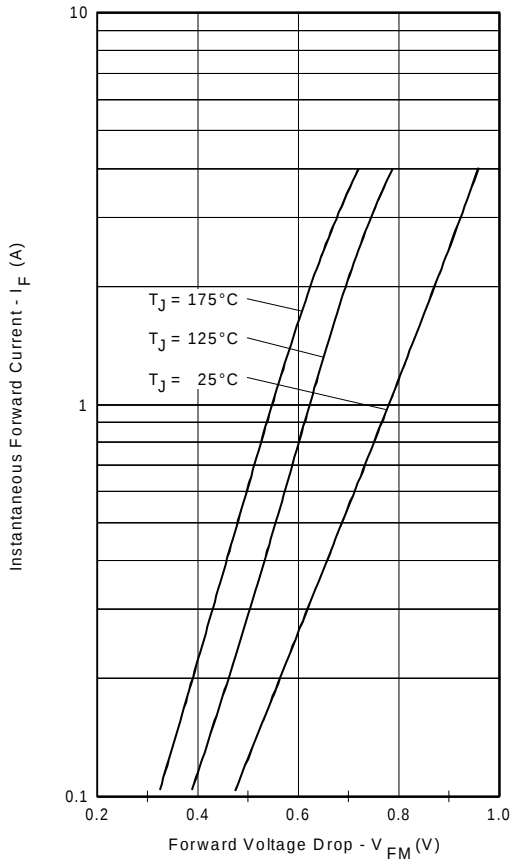


Fig. 1 Max. Forward Voltage Drop Characteristics

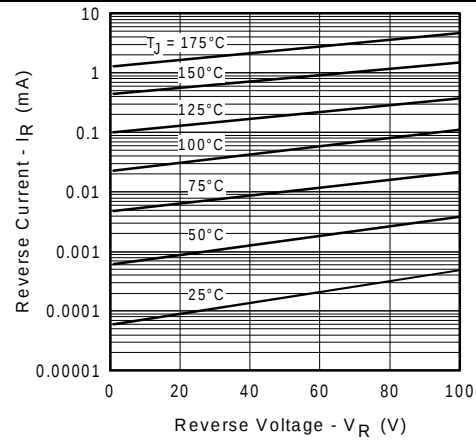


Fig. 2 Typical Values of Reverse Current Vs. Reverse Voltage

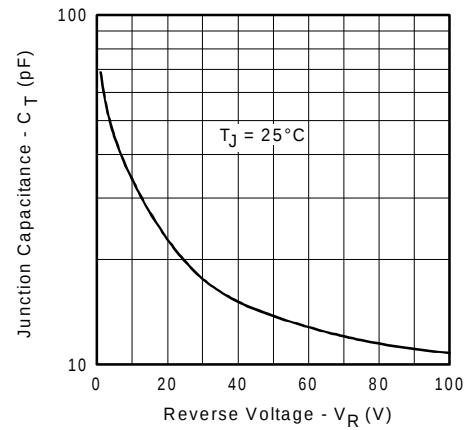


Fig. 3 Typical Junction Capacitance Vs. Reverse Voltage

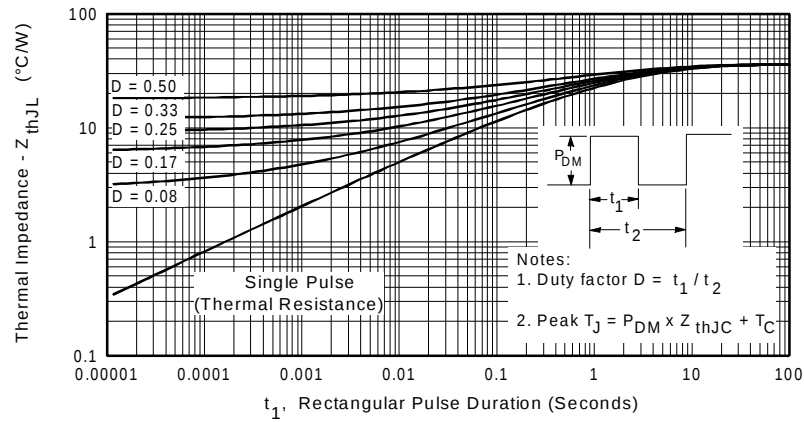


Fig. 4 Max. Thermal Impedance Z_{thJL} Characteristics

10BQ100

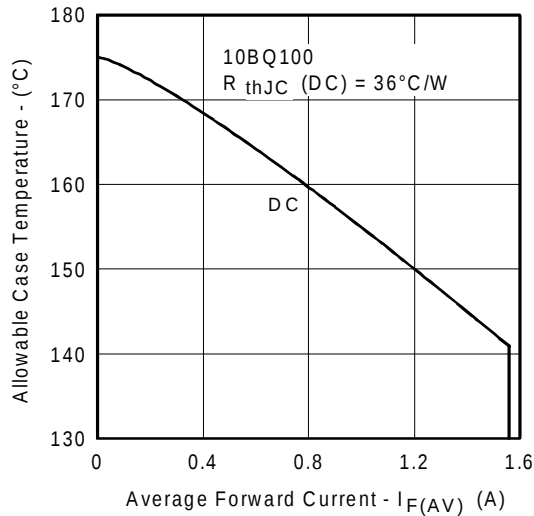


Fig. 5 Max. Allowable Case Temperature Vs. Average Forward Current

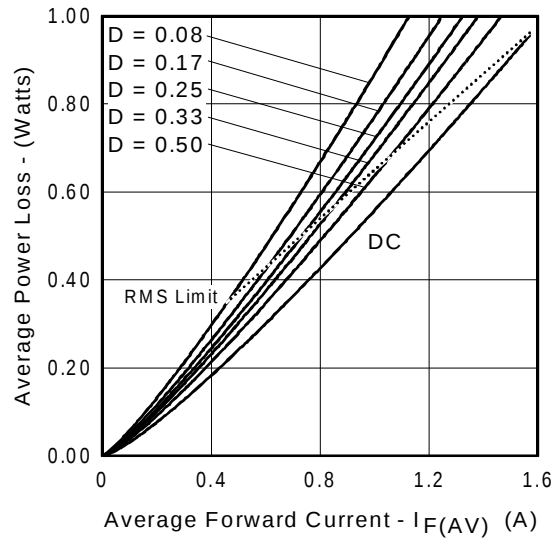


Fig. 6 Forward Power Loss Characteristics

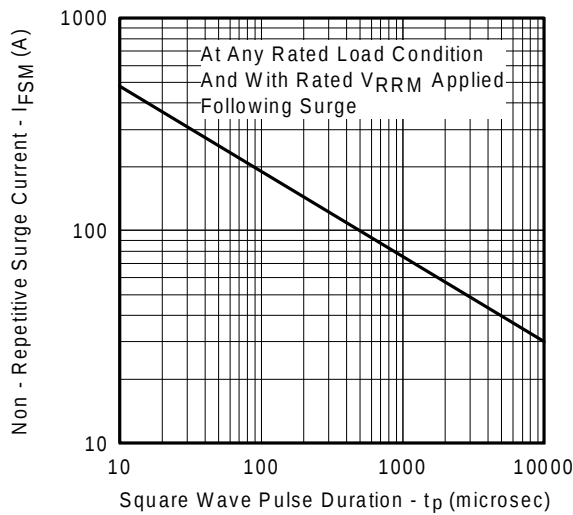


Fig. 7 Max. Non-Repetitive Surge Current

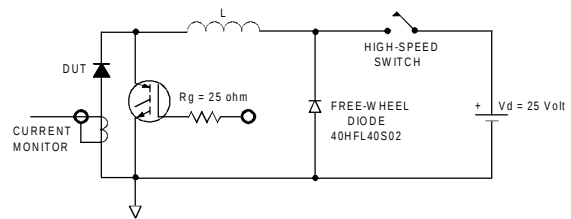
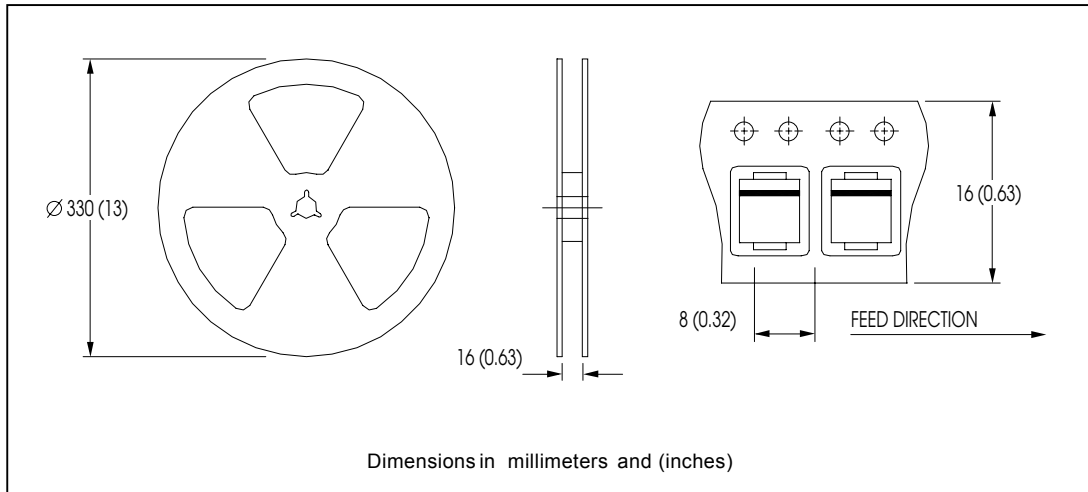


Fig. 8 Unclamped Inductive Test Circuit



10BQ100

Tape & Reel Information



Marking & Identification

Each device has 4 characters, configured two digits on two rows, for identification. The first row designates the device as manufactured by International Rectifier as indicated by the letters "IR". The second row indicates the current rating and voltage/process. See the drawing below for marking code.

FIRST ROW

IR

SECOND ROW

1st DIGIT = CURRENT RATING

2nd DIGIT = VOLTAGE/PROCESS

EXAMPLE: IR — INTERNATIONAL RECTIFIER

1F — 40 VOLT/STANDARD PROCESS

1 AMP

1st DIGIT

CURRENT

1 = 1 AMP

2nd DIGIT

VOLTAGE/PROCESS

C = 15 VOLTS

E = 30 VOLTS

F = 40 VOLTS

H = 60 VOLTS

J = 100 VOLTS

Ordering Information

10BQ SERIES - TAPE AND REEL

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 3000 PIECES).

EXAMPLE: 10BQ100TR - 6000 PIECES

10BQ SERIES - BULK QUANTITIES

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 1000 PIECES).

EXAMPLE: 10BQ100 - 2000 PIECES

10BQ100



International
IOR Rectifier

WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245 U.S.A. Tel: (310) 322 3331. Fax: (310) 322 3332.
EUROPEAN HEADQUARTERS: Hurst Green, Oxted, Surrey RH8 9BB, U.K. Tel: ++ 44 1883 732020. Fax: ++ 44 1883 733408.
IR CANADA: 15 Lincoln Court, Brampton, Markham, Ontario L6T3Z2. Tel: (905) 453 2200. Fax: (905) 475 8801.
IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg. Tel: ++ 49 6172 96590. Fax: ++ 49 6172 965933.
IR ITALY: Via Liguria 49, 10071 Borgaro, Torino. Tel: ++ 39 11 4510111. Fax: ++ 39 11 4510220.
IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171. Tel: 81 3 3983 0086.
IR SOUTHEAST ASIA: 1 Kim Seng Promenade, Great World City West Tower, 13-11, Singapore 237994. Tel: ++ 65 838 4630.
IR TAIWAN: 16 Fl. Suite D.207, Sec. 2, Tun Haw South Road, Taipei, 10673, Taiwan. Tel: 886 2 2377 9936.

<http://www.irf.com>

Fax-On-Demand: +44 1883 733420

Data and specifications subject to change without notice.
