Schottky Diode

10BQ100

100V / 1A

DATASHEET

OEM – International Rectifier

Source: International Rectifier Databook 1995

International Rectifier

PD - 2.437A

10BQ100

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} @ tp = 5µs sine	780	A
V_F @ 1.0Apk, T_J = 125°C	0.62	V
T_J	-55 to 175	°C

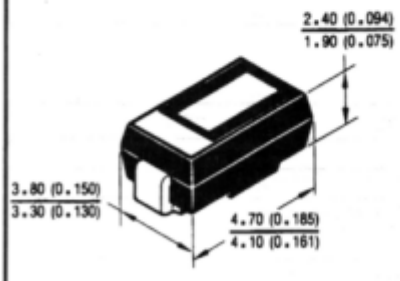
Description / Features

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.

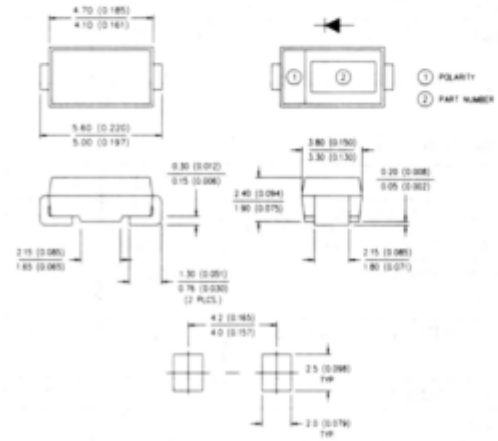
- Small footprint, surface mountable
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long-term reliability

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 0r 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

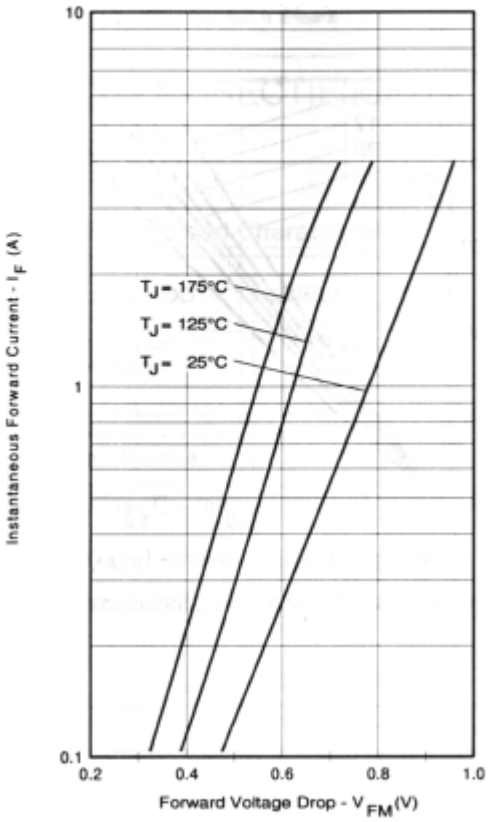


Fig. 1 Max. Forward Voltage Drop Characteristics

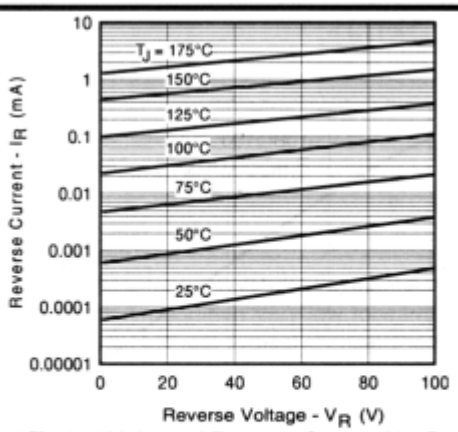


Fig. 2 Typical Values of Reverse Current Vs. Reverse Voltage

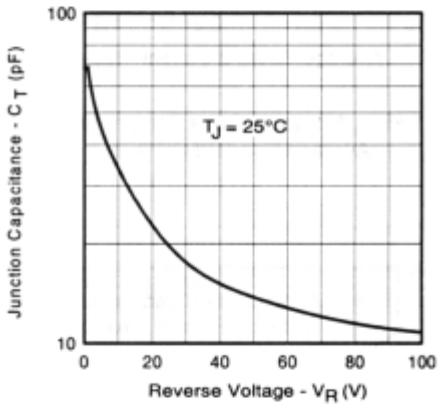


Fig. 3 Typical Junction CapacitanceVs. Reverse Voltage

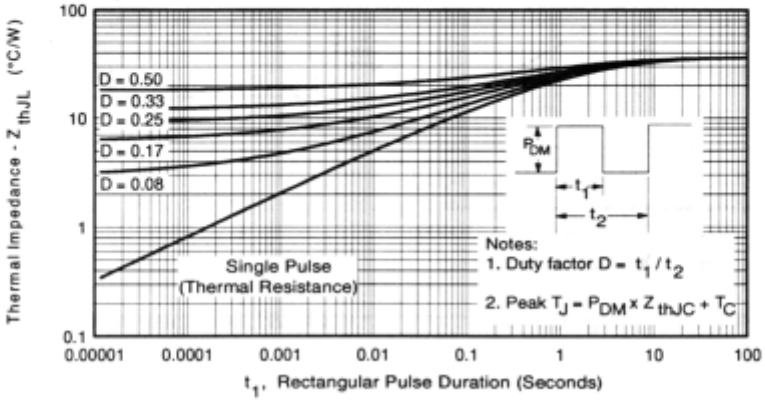


Fig. 4 Max. Thermal Impedance Z_{thJL} Characteristics

10BQ100

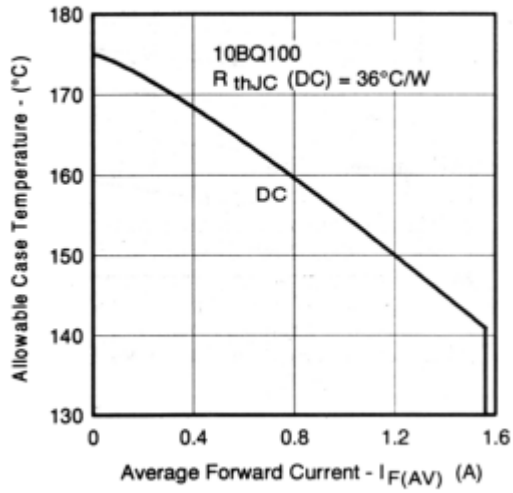


Fig. 5 Max. Allowable Case Temperature Vs. Average Forward Current

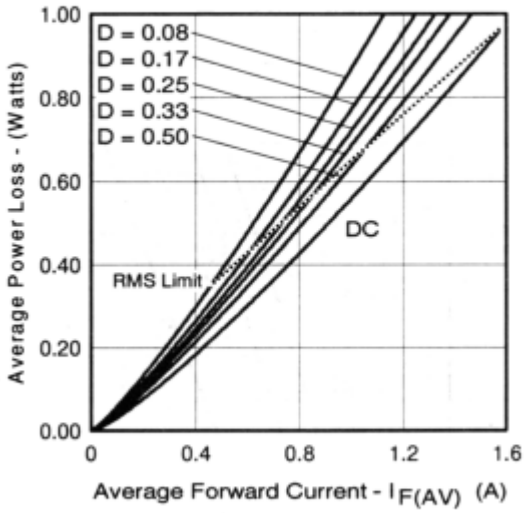


Fig. 6 Forward Power Loss Characteristics

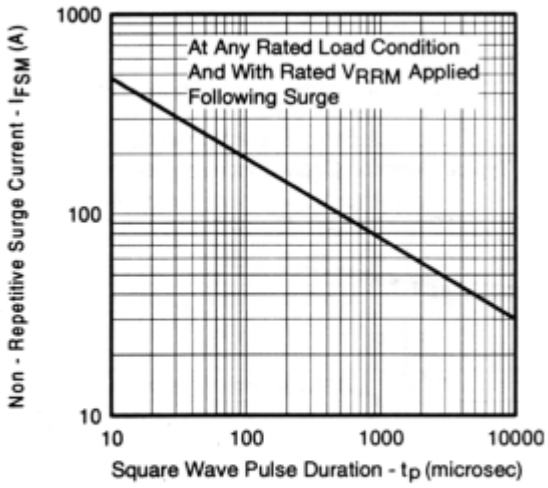


Fig.7 Max. Non-Repetitive Surge Current

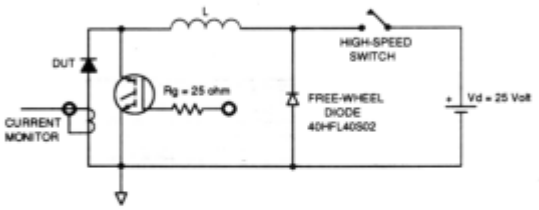


Fig. 8 Unclamped Inductive Test Circuit

Refer to the Appendix Section for the following:
Appendix D: Tape and Reel Information — See page 338.