International
IOR Rectifier

30BQ060

SCHOTTKY RECTIFIER

3 Amp

Major Ratings and Characteristics

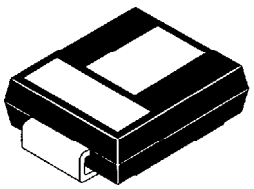
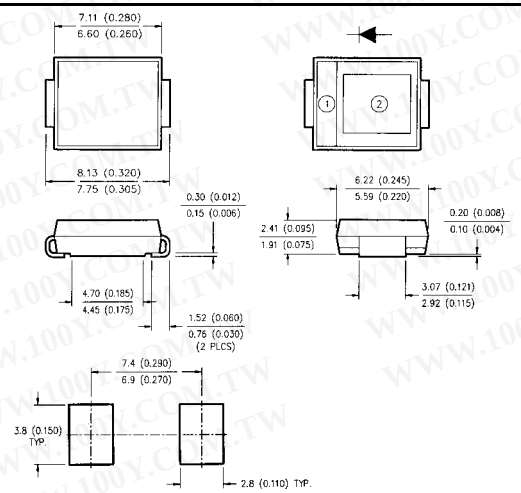
Characteristics	30BQ060	Units
$I_{F(AV)}$ Rectangular waveform	3.0	A
V_{RRM}	60	V
I_{FSM} @ tp = 5µs sine	1200	A
V_F @ 3.0Apk, T_J = 125°C	0.52	V
T_J	-55 to 150	°C

Description / Features

The 30BQ060 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

SMC

CASE STYLE	CASE OUTLINE
	

Voltage Ratings

Part number		30BQ060
V_R	Max. DC Reverse Voltage (V)	60
V_{RWM}	Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

	Parameters	30BQ	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current	3.0	A	50% duty cycle @ T_C = 107°C, rectangular waveform	
	See Fig. 5	4.0		50% duty cycle @ T_C = 98°C, rectangular waveform	
I_{FSM}	Max. Peak One Cycle Non - Repetitive	1200	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition
	Surge Current — see Fig. 7	130		10ms Sine 0r 6ms Rect. pulse	and with rated V_{RRM} applied.
E_{AS}	Non - Repetitive Avalanche Energy	35	mJ	T_J = 25°C, I_{AS} = 3.4A, L = 4.0mH	
I_{AR}	Repetitive Avalanche Current	3.4	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		30BQ	Units		Conditions
V_{FM}	Max. Forward Voltage Drop	0.58	V	@ 3.0A	T_J = 25°C
	See Fig. 1 ①	0.73	V	@ 6.0A	
		0.52	V	@ 3.0A	T_J = 125°C
		0.63	V	@ 6.0A	
I_{RM}	Max. Reverse Leakage Current ①	0.50	mA	T_J = 25°C	V_R = rated V_R
	See Fig. 2	20	mA	T_J = 125°C	
C_T	Max. Junction Capacitance	180	pF	V_R = 5V_{DC}, (test signal range 100KHz to 1MHz) 25°C	
L_S	Typical Series Inductance	3.0	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	30BQ	Units	Conditions
T_J	Max.Junction Temperature Range	-55 to 100	°C	
T_{STG}	Max. Storage Temperature Range	-55 to 100	°C	
R_{thJA}	Max. Thermal Resistance, Junction to Ambient	12	°C/W	DC operation — See Fig. 4
R_{thJL}	Max. Thermal Resistance, Junction to Lead ②	46	°C/W	DC operation
wt	Approximate Weight	0.24	g	
	Case Style	SMC		Similar to DO-214AB

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

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

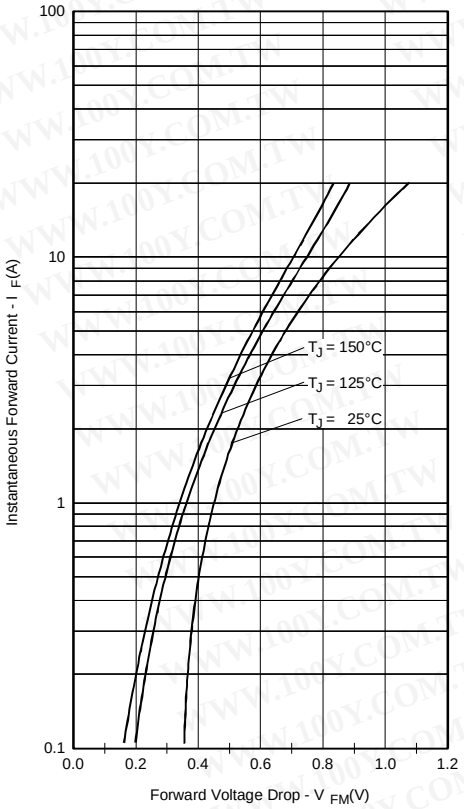


Fig. 1 Max. Forward Voltage Drop Characteristics

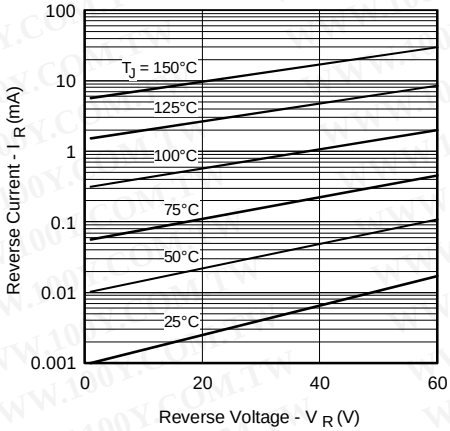


Fig. 2 Typical Values of Reverse Current Vs. Reverse Voltage

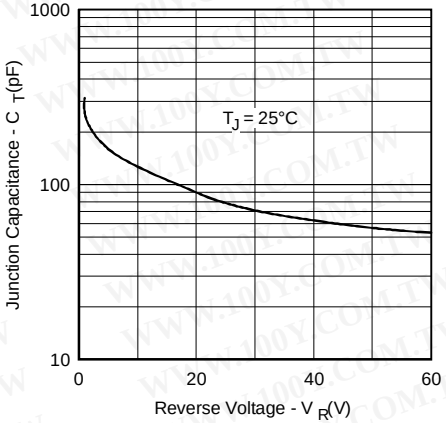


Fig. 3 Typical Junction CapacitanceVs. Reverse Voltage

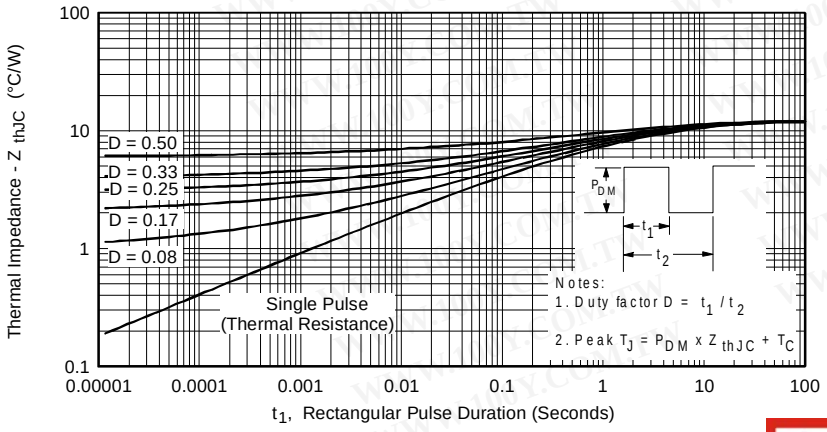


Fig. 4 Max. Thermal Impedance Z_{thJL} Characteristics

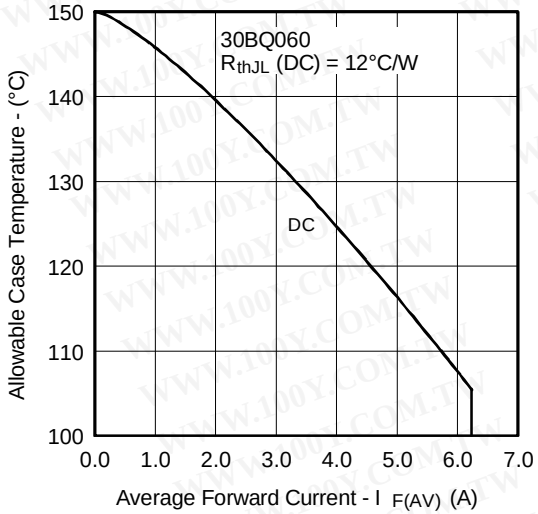


Fig. 5 Max. Allowable Case Temperature Vs. Average Forward Current

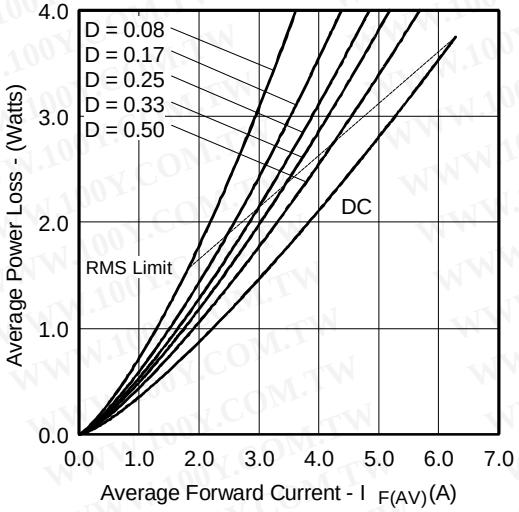


Fig. 6 Forward Power Loss Characteristics

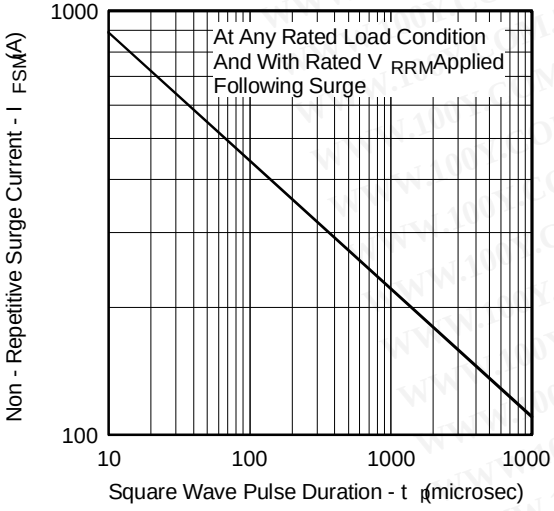


Fig.7 Max. Non-Repetitive Surge Current

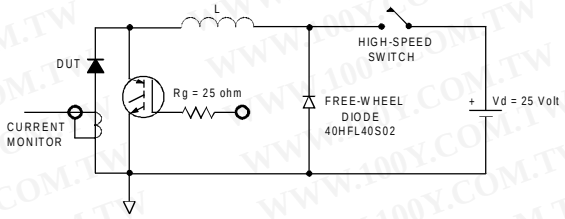


Fig. 8 Unclamped Inductive Test Circuit

Refer to the Appendix Section for the following:
Appendix D: Tape and Reel Information — See page 339.