

4855452 INTERNATIONAL RECTIFIER

55C 05055 D

Data Sheet No. PD-2.047B

INTERNATIONAL RECTIFIER **IR**

T-03-17

80SQ SERIES

8 Amp Schottky Power Rectifiers

Major Ratings and Characteristics

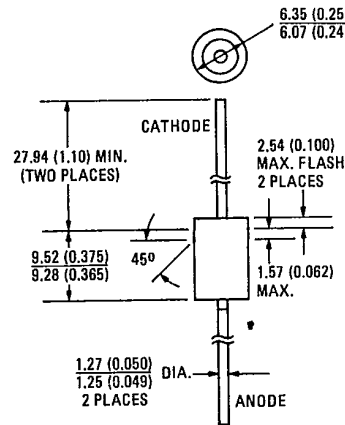
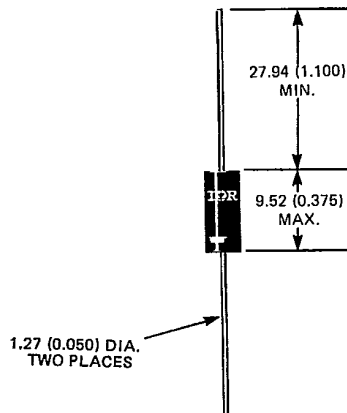
Characteristic	80SQ	Units
$I_F(AV)$ @ 180° Rectangular	8	A
@ 180° Half Sine Wave	7.2	A
I_{FSM} 50 Hz	380	A
60 Hz	400	
I^2_t @ 50 Hz	730	A^2s
@ 60 Hz	665	A^2s
$I^2\sqrt{t}$	10,330	$A^2\sqrt{s}$
C_t @ -5V	1000	pF
T_J	-65 to 175	°C
V_{RWM}	30 to 45	V

Description/Features

The 80SQ Schottky is designed to be operated at 175°C T_J . It employs the "830" process which results in a very low ratio of reverse leakage current to junction temperature. In addition to improvements in reliability and performance, it is a rugged device with a guaranteed repetitive peak reverse voltage capability and excellent ability to withstand reverse energy transients. It can be used in both existing and new designs.

- Economical axial lead package
- 175°C T_J operation
- Extremely low reverse leakage: 13 mA at 125°C
- No voltage derating on V_{RWM} over temperature range
- Provides extremely high power supply reliability
- No thermal runaway at rated temperature and operating parameters
- A guaranteed repetitive peak reverse voltage capability for short pulses which is 20% above V_{RWM}
- Ability to withstand reverse energy transients

CASE STYLE AND DIMENSIONS



Case Style C-24

All Dimensions in Millimeters and (Inches)

4855452 INTERNATIONAL RECTIFIER

55C 05056 D

80SQ Series

INTERNATIONAL RECTIFIER 

T-03-17

VOLTAGE RATINGS

Part Numbers	V _{RWM} - Max. Working Peak Reverse Voltage (V) ①	V _{RRM} - Max. Repetitive Peak Reverse Voltage (V) ① (200 ns Max. Pulse Width)	V _R - Max. Direct Reverse Voltage (V) ①
80SQ030	30	36	30
80SQ035	35	42	35
80SQ040	40	48	40
80SQ045	45	54	45

ELECTRICAL SPECIFICATIONS

	80SQ	Units	Conditions
I _{F(AV)} Max. average forward current	8	A	180° conduction @ T _L = -65 to 92° rectangular waveform ④
	7.2		180° conduction @ T _L = -65 to 97°C sinusoidal waveform ④
I _{FSM} Max. peak one cycle, non-repetitive surge current	380	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse
	400		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
	455		Half cycle 50 Hz sine wave or 6 ms rectangular pulse
	475		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
I ² t Maximum I ² t (for fusing)	730	A ² s	t = 10 ms With rated V _{RWM} following surge, initial T _J ≤ 175°C.
	885		t = 8.3 ms
Maximum I ² t for individual device fusing	1033		t = 10 ms With V _{RWM} = 0 following surge, initial T _J ≤ 175°C.
	940		t = 8.3 ms
I ² √t Maximum I ² √t for individual device fusing ⑤	10330	A ² √s	t = 0.1 to 10 ms, initial T _J ≤ 175°C. V _{RRM} = 0 following surge.
V _{FM} Max. peak forward voltage	0.70	V	T _J = 25°C Rated I _{F(AV)} (16A peak)
	0.58		T _J = 150°C 180° conduction,
	0.58		T _J = 175°C rectangular waveform
	0.62		T _J = 25°C, I _{FM} = 8A
I _{RM} Max. peak reverse current	5.0	mA	T _J = 25°C
	13		T _J = 125°C V _{RWM} = rated value
I _{RRM} Max. repetitive peak reverse current	1.0	A	T _C = 25°C, f = 1 kHz, see fig. 9 for test circuit
C _t Max. capacitance	1000	pF	T _C = 25°C, V _R = 5 Vdc (Test signal in the range of 100 kHz to 1 MHz)
dv/dt Max. rate of reverse voltage application	1000	V/μs	T _C = 25°C, V _{RM} = rated V _{RWM}

THERMAL-MECHANICAL SPECIFICATIONS

T _J Max. operating junction temperature range	-65 to 175	°C	
T _{stg} Max. storage temperature range	-65 to 175	°C	
R _{thJA} Maximum thermal resistance, junction-to-leads, double side cooling (composite values)		deg C/W	
Lead length ①			
ℓ = 3.2mm (1/8 in.)	11.0		
ℓ = 9.5mm (3/8 in.)	14.7		
ℓ = 19.0mm (3/4 in.)	20.0		
wt Approximate weight	1.5 (0.053)	g (oz)	
Case style	C-24		

① T_C = -65°C to 158°C, 180° conduction② T_C = 0°C to 158°C, 180° conduction③ T_L = -65 to 111°C for lead length (ℓ) = 1/8 in. (3.2 mm)T_L = -65 to 89°C for lead length (ℓ) = 3/8 in. (9.5 mm)T_L = -65 to 59°C for lead length (ℓ) = 3/4 in. (19 mm)

(see note 5).

④ ℓ = 9.5 mm (3/8 in.)

⑤ Length of leads to temperature measurement points (heat sinks).

⑥ I²t for time t_x = I²√t_x √t_x.

4855452 INTERNATIONAL RECTIFIER

IR INTERNATIONAL RECTIFIER

55C 05057 D

80SQ Series

T-03-17

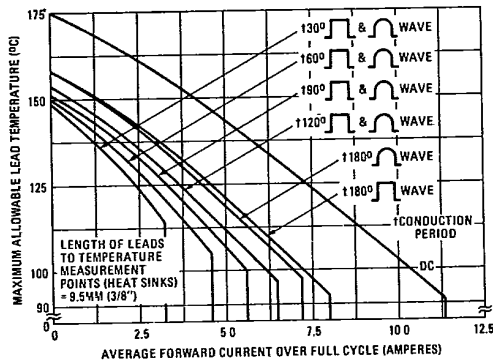


Fig. 1 - Maximum Allowable Lead Temperature Vs. Average Forward Current (50 Hz to 100 kHz)

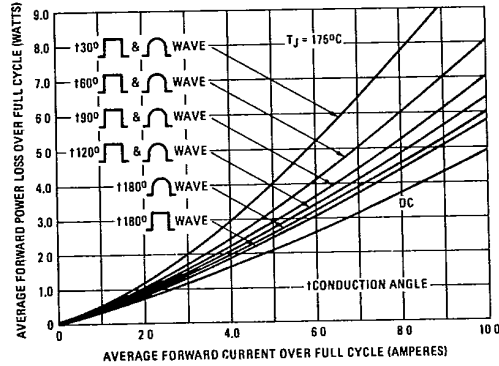


Fig. 2 - Maximum Forward Power Loss Vs. Forward Current (50 Hz to 100 kHz)

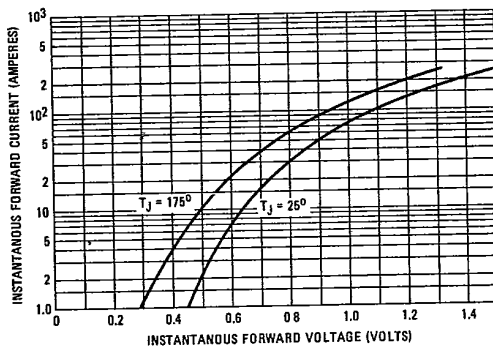


Fig. 3 - Maximum Forward Voltage Vs. Forward Current

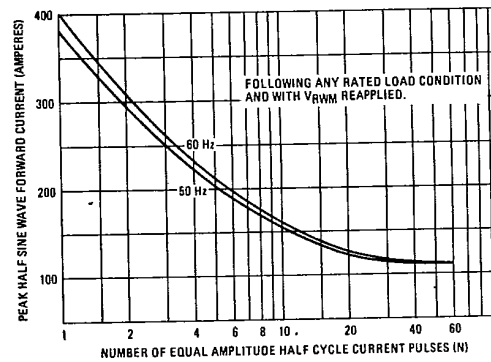


Fig. 4 - Maximum Non-Repetitive Surge Current Vs. Number of Cycles

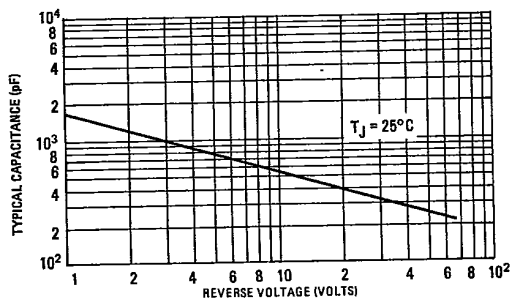


Fig. 5 - Typical Capacitance Vs. Reverse Voltage

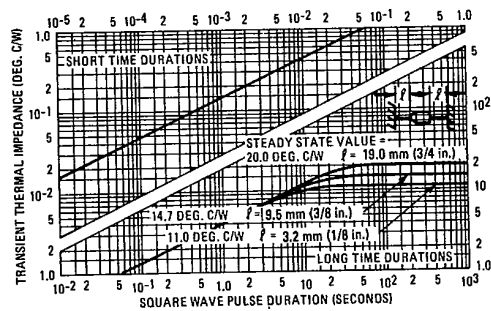


Fig. 6 - Maximum Transient Thermal Impedance, Junction-to-Lead Vs. Pulse Duration

4855452 INTERNATIONAL RECTIFIER

55C 05058 D

80SQ Series

INTERNATIONAL RECTIFIER **IR**

T-03-17

Mounting Details

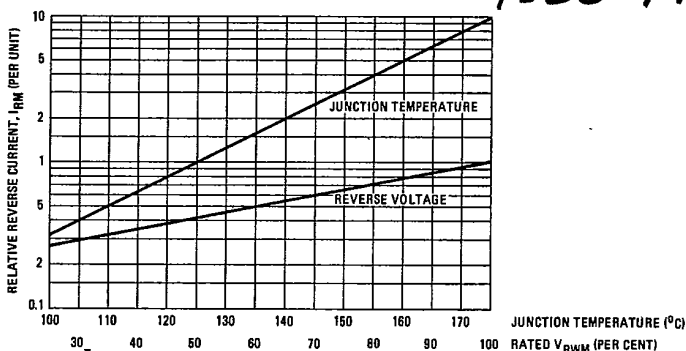
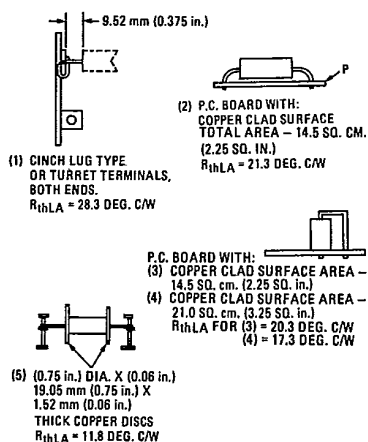
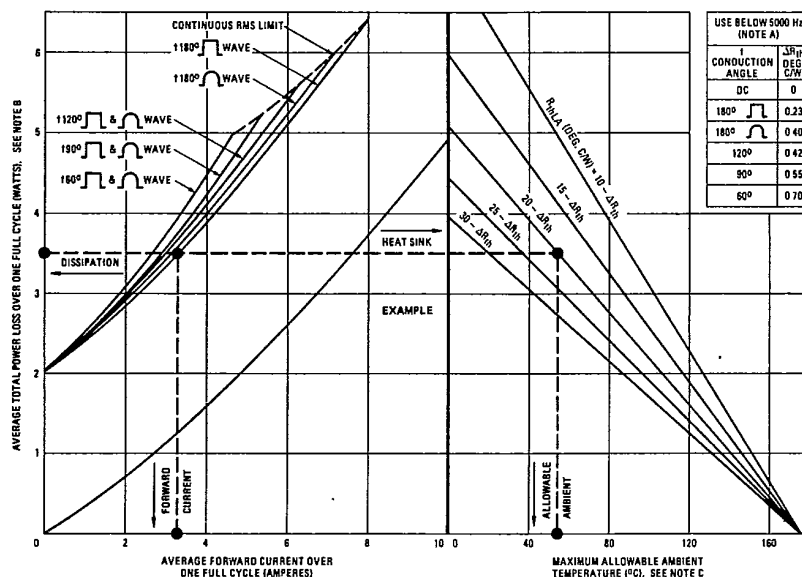


Fig. 7 - Typical Variation of Reverse Current Vs. Junction Temperature and Reverse Voltage



Copyright © Each Manufacturing Company.

All Datasheets cannot be modified without permission.

This datasheet has been download from :

www.AllDataSheet.com

100% Free DataSheet Search Site.

Free Download.

No Register.

Fast Search System.

www.AllDataSheet.com