PD-2.329 rev. A 12/97

International
IOR Rectifier

1N6097
1N6098

SCHOTTKY RECTIFIER 50 Amp

Major Ratings and Characteristics

Characteristics		1N609.	Units
$I_{F(AV)}$	Rectangular waveform	50*	A
V_{RRM}		30/40*	V
I_{FSM}	@60Hz	800*	A
V_F	@160Apk, T_J= 70°C	0.86*	V
T_J	range	-65 to 125*	°C

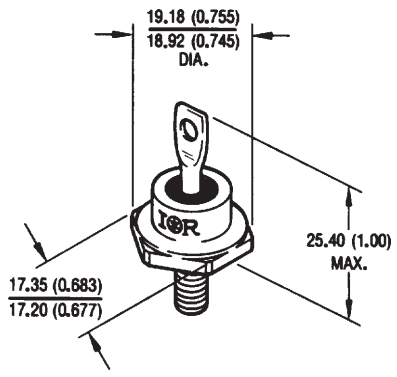
* JEDEC Registered Values

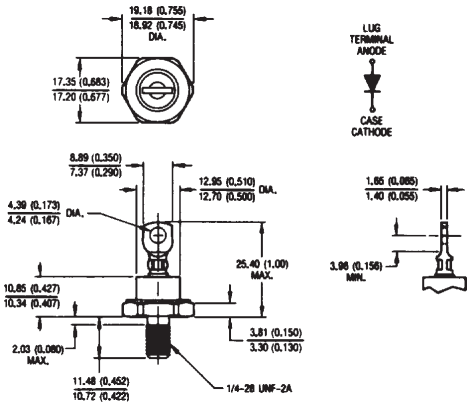
Description/Features

The 1N609. Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 125° C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 125° C T_J operation
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Hermetic packaging

CASE STYLE AND DIMENSIONS





Conforms to JEDEC Outline DO-203AB (DO-5)

Dimensions in millimeters and inches

Voltage Ratings

Part number		1N6097	1N6098
V_R	Max. DC Reverse Voltage (V)	30*	40*
V_{RWM}	Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters		1N609.	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current See Fig. 5	50*	A	50% duty cycle @ T_C = 70 °C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current See Fig. 7	10,800	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		800*		60Hz halfwave, single phase	
E_{AS}	Non-Repetitive Avalanche Energy	81	mJ	T_J = 25 °C, I_{AS} = 12 Amps, L = 1.12 mH	
I_{AR}	Repetitive Avalanche Current	12	A	Current decaying linearly to zero in 1 µsec Frequency limited by T_J max. V_A = 1.5 x V_R typical	

Electrical Specifications

Parameters		1N609.	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1) See Fig. 1	0.60*	V	@ 10A	T_J = 25 °C
		0.86*	V	@ 160A	T_J = 70 °C
I_{RM}	Max. Reverse Leakage Current (1) See Fig. 2	75	mA	T_J = 25 °C	V_R = rated V_R
		250*	mA	T_J = 125 °C	
C_T	Max. Junction Capacitance	7000*	pF	V_R = 1V_{DC}, (test signal range 100Khz to 1Mhz) 25 °C	
L_S	Typical Series Inductance	7.5	nH	Measured from top of terminal to mounting plane	
dv/dt	Max. Voltage Rate of Change (Rated V_R)	10,000	V/ µs		

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

Thermal-Mechanical Specifications

Parameters			1N609.	Units	Conditions
T_J	Max. Junction Temperature Range		-65 to 125*	°C	
T_{stg}	Max. Storage Temperature Range		-65 to 125*	°C	
R_{thJC}	Max. Thermal Resistance Junction to Case		1.0*	°C/W	DC operation See Fig. 4
R_{thCS}	Typical Thermal Resistance, Case to Heatsink		0.25	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight		15 (0.53)	g (oz.)	
T	Mounting Torque	Min.	23 (20)	Kg-cm (Ibf-in)	Non-lubricated threads
		Max.	46 (40)		
	Case Style		DO-203AB (DO-5)		JEDEC

* JEDEC Registered Values

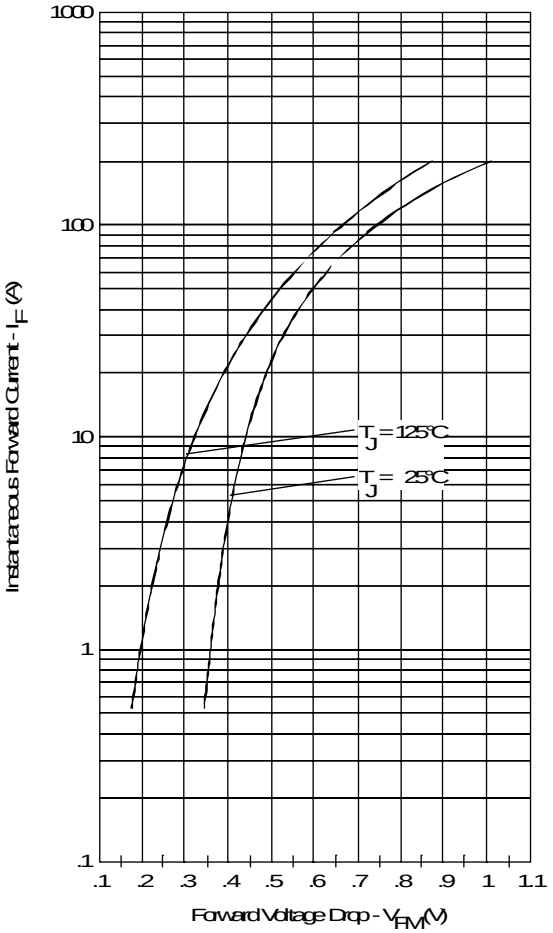


Fig. 1 - Maximum Forward Voltage Drop Characteristics

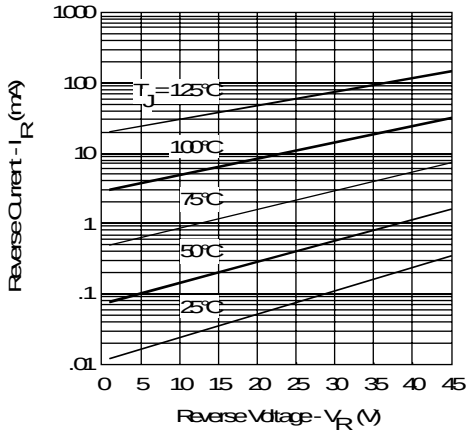


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

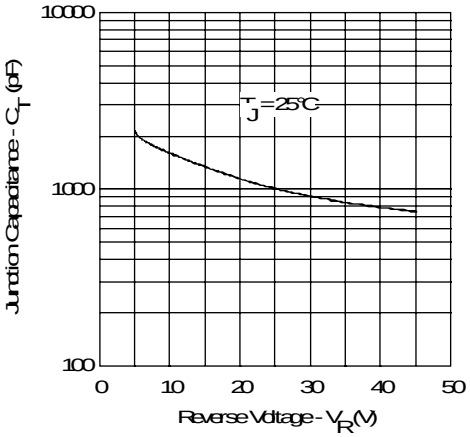


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

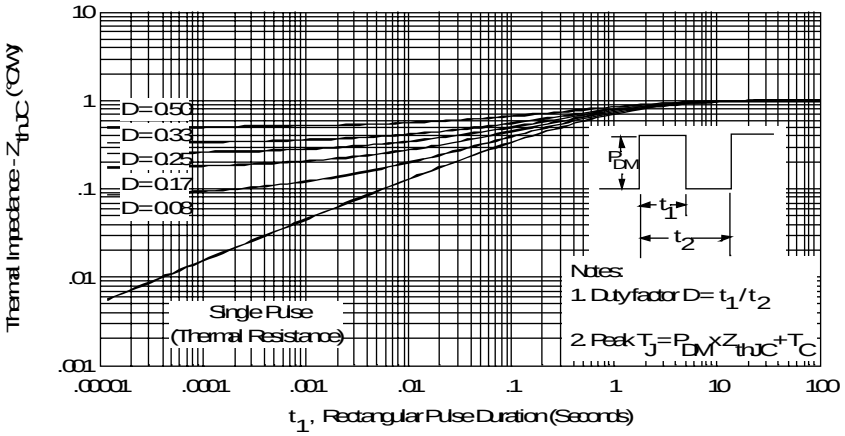


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

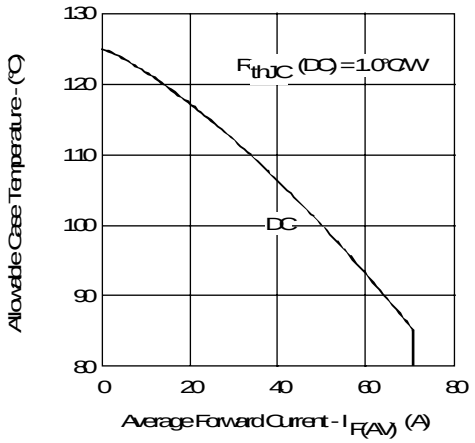


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

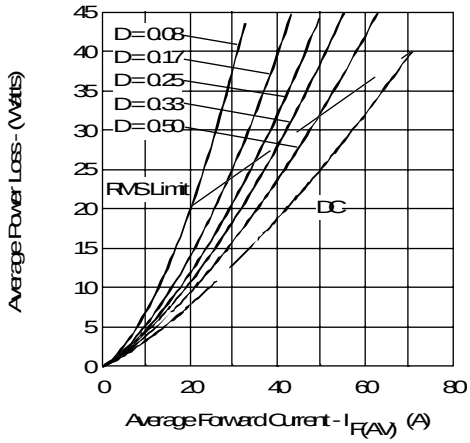


Fig. 6 - Forward Power Loss Characteristics

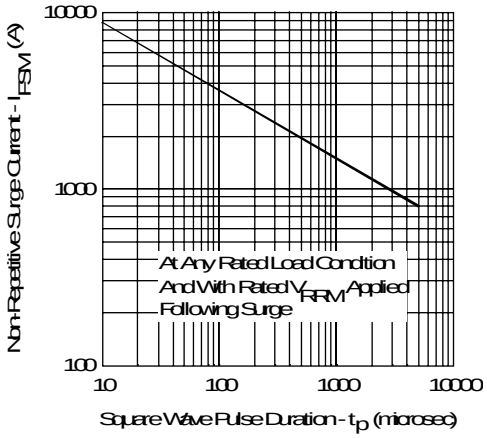


Fig. 7 - Maximum Non-Repetitive Surge Current

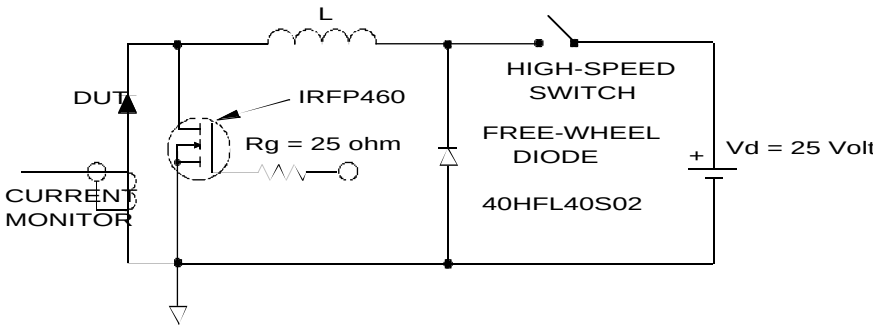


Fig. 8 - Unclamped Inductive Test Circuit