

SCHOTTKY RECTIFIER

60 Amp

Major Ratings and Characteristics

Characteristics	1N6392	Units
$I_{F(AV)}$ Rectangular waveform	60*	A
V_{RWM}	45*	V
I_{FSM} @ 60Hz	1000*	A
V_F @ 60Apk, $T_J = 25^\circ\text{C}$	0.68*	V
T_J	-55 to 175*	$^\circ\text{C}$

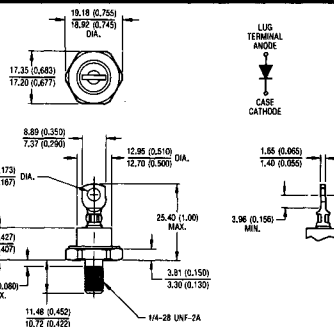
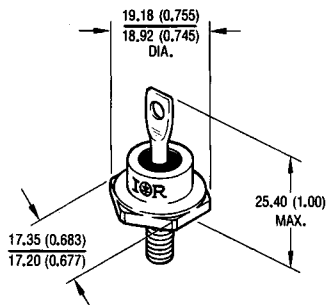
* JEDEC Registered Values

Description/Features

The 1N6392 Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 175°C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 175°C T_J operation
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Hermetic packaging
- Military qualified versions also available

CASE STYLE AND DIMENSIONS



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

Dimensions in millimeters and inches

Voltage Ratings

Part number	1N6392
V_R Max. DC Reverse Voltage (V)	45*
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	1N6392	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current See Fig. 5	60*	A	50% duty cycle @ $T_C = 115^\circ\text{C}$, rectangular wave form
	54*		50% duty cycle @ $T_C = 115^\circ\text{C}$, sinusoidal wave form
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current See Fig. 7	9000	A	5 μs Sine or 3 μs Rect. pulse. Following any rated load condition and with rated V_{RWM} applied
	1000*		60Hz half cycle sine wave or 5ms rectangular pulse
E_{AS} Non-Repetitive Avalanche Energy	101	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 15\text{ Amps}$, $L = 0.9\text{ mH}$
I_{AR} Repetitive Avalanche Current	15	A	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	1N6392	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1) See Fig. 1	0.51*	V	@ 10A
	0.68*	V	@ 60A
	0.82*	V	@ 120A
	0.69*	V	@ 10A
I_{RM} Max. Reverse Leakage Current (1) See Fig. 2	20*	mA	$T_J = 25^\circ\text{C}$
	60*	mA	$T_J = 125^\circ\text{C}$
	600*	mA	$T_J = 175^\circ\text{C}$
C_T Max. Junction Capacitance	3000	pF	$V_R = 5V_{DC}$, (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 < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	1N6392	Units	Conditions
T_J Max. Junction Temperature Range	-55 to 175*	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-55 to 175*	$^\circ\text{C}$	
$R_{\theta JC}$ Max. Thermal Resistance Junction to Case	1.0*	$^\circ\text{C/W}$	DC operation See Fig. 4
$R_{\theta CS}$ Typical Thermal Resistance, Case to Heatsink	0.25*	$^\circ\text{C/W}$	Mounting surface, smooth and greased
$R_{\theta CA}$ Max. Thermal Resistance, Case to Ambient	7.0*	$^\circ\text{C/W}$	$R_{\theta CA}$ is the value for which device blocking stability with rated V_R or V_{RWM} applied assured, when $T_A = 25^\circ\text{C}$ and $T_C = 148^\circ\text{C}$ (DC) or $T_C = 163^\circ\text{C}$ (AC operation)
wt Approximate Weight	15.6(0.55)	g (oz.)	
T Mounting Torque	Min. 2.26 (20)	N-m (lbf-in)	Non-lubricated threads
	Max. 3.39 (30)		
Case Style	DO-203AB(DO-5)		JEDEC

* JEDEC Registered Values

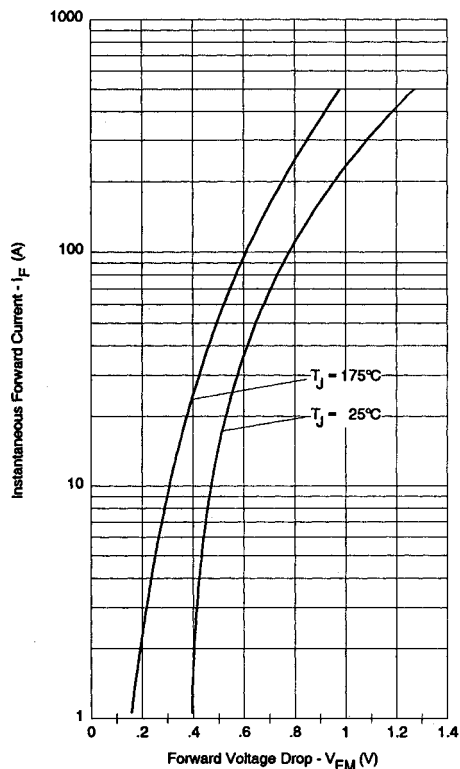


Fig. 1 - Maximum Forward Voltage Drop Characteristics

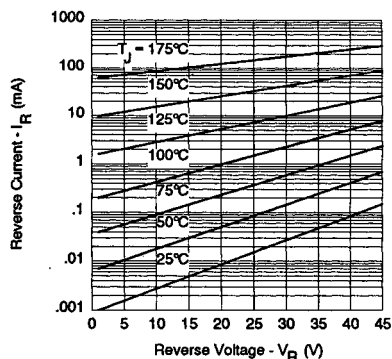


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

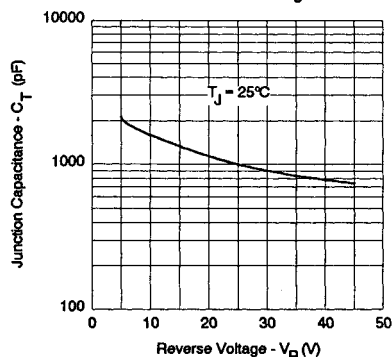
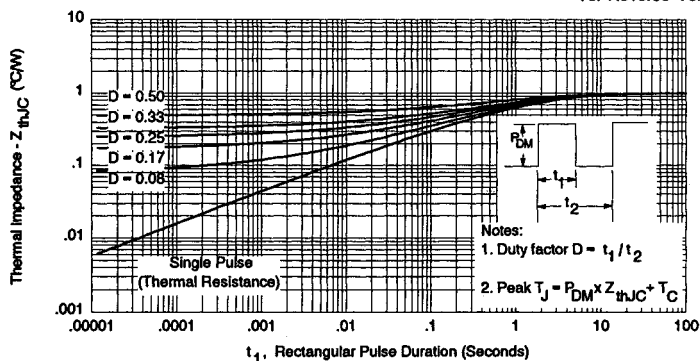


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage


Fig. 4 - Maximum Thermal Impedance $Z_{\theta JC}$ Characteristics

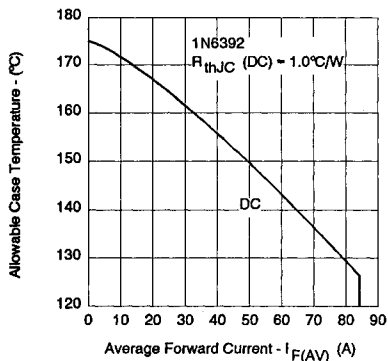


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

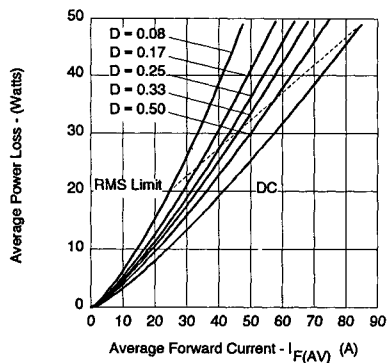


Fig. 6 - Forward Power Loss Characteristics

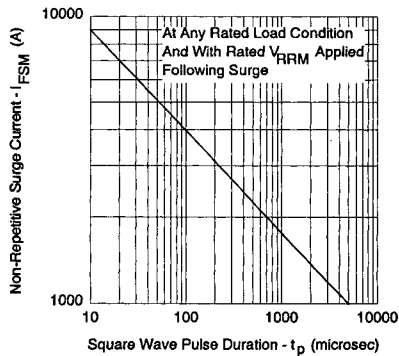


Fig. 7 - Maximum Non-Repulsive Surge Current

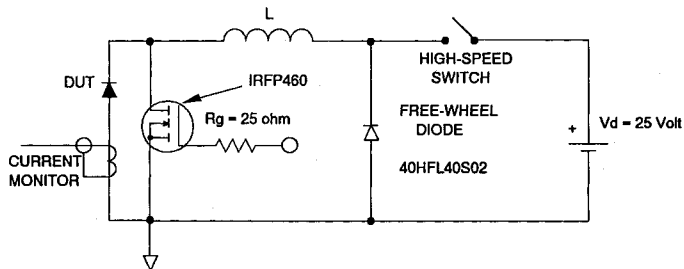


Fig. 8 - Unclamped Inductive Test Circuit