

## 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*	$^\circ\text{C}$

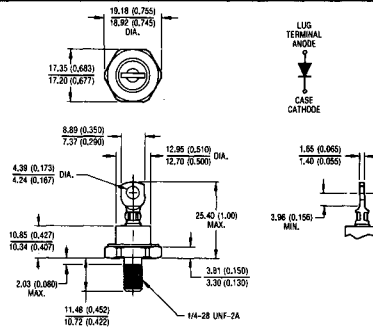
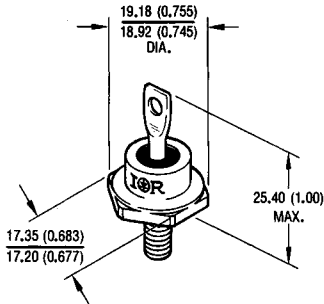
\* JEDEC Registered Values

### 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 $\mu\text{s}$ Sine or 3 $\mu\text{s}$ 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	$T_J = 25^\circ\text{C}$ , $I_{AS} = 15$ Amps, $L = 0.9$ mH
$I_{AR}$ Repetitive Avalanche Current	15	A	Current decaying linearly to zero in 1 $\mu\text{sec}$ 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) $25^\circ\text{C}$
$L_S$ 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/ $\mu\text{s}$	

(1) Pulse Width < 300 $\mu\text{s}$ , 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*	$^\circ\text{C}/\text{W}$	DC operation See Fig. 4
$R_{\theta CS}$ Typical Thermal Resistance, Case to Heatsink	0.25*	$^\circ\text{C}/\text{W}$	Mounting surface, smooth and greased
$R_{\theta CA}$ Max. Thermal Resistance, Case to Ambient	7.0*	$^\circ\text{C}/\text{W}$	$R_{\theta CA}$ 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

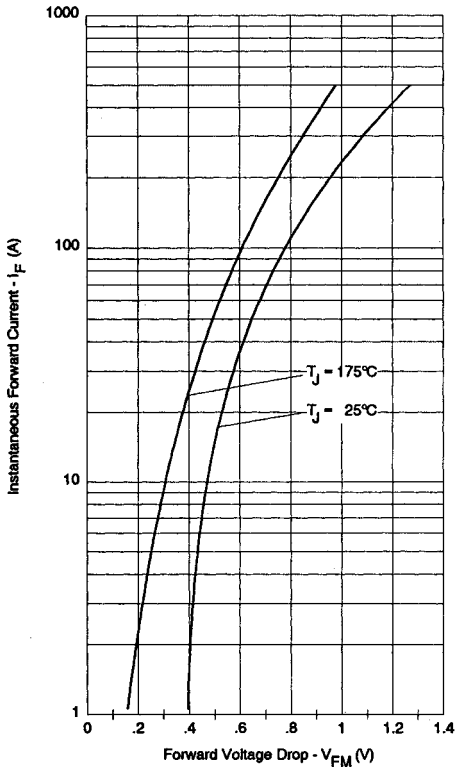


Fig. 1 - Maximum Forward Voltage Drop Characteristics

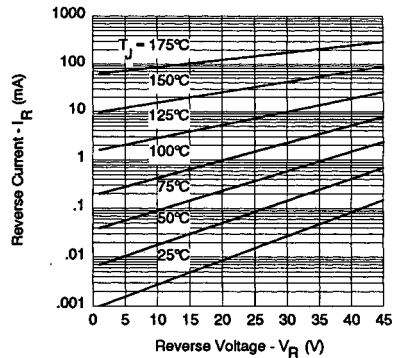


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

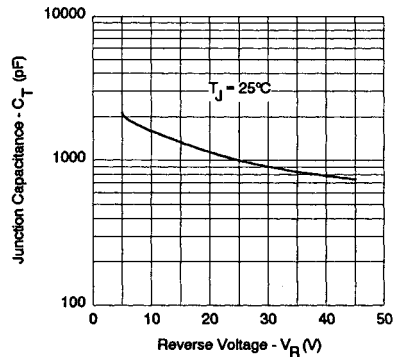
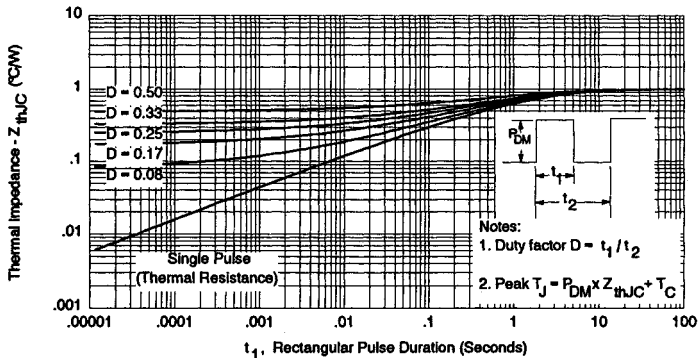


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage


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

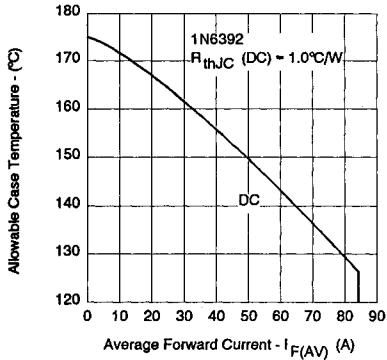


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

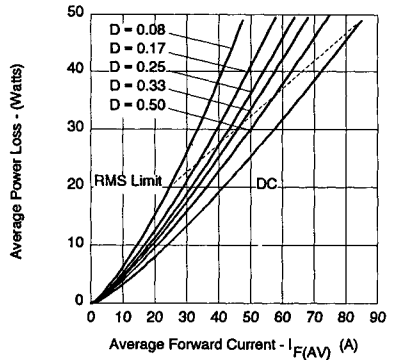


Fig. 6 - Forward Power Loss Characteristics

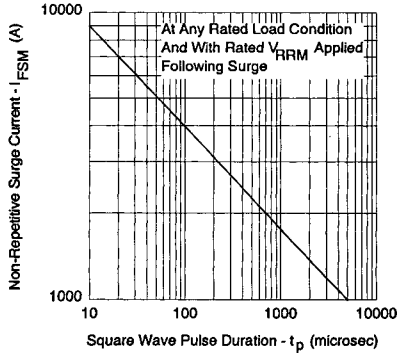


Fig. 7 - Maximum Non-Repetitive Surge Current

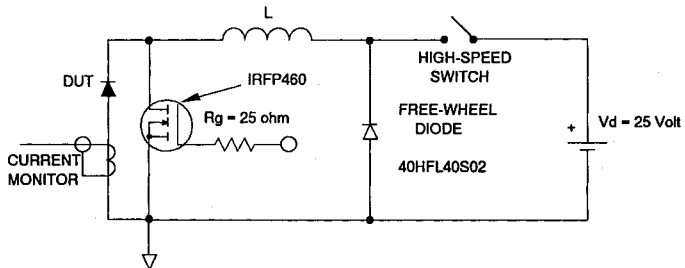


Fig. 8 - Unclamped Inductive Test Circuit