Bulletin PD-2.080 rev. C 11/02

International
IOR Rectifier

1N6392

SCHOTTKY RECTIFIER

60 Amp

TO-203AB (DO-5)

Major Ratings and Characteristics

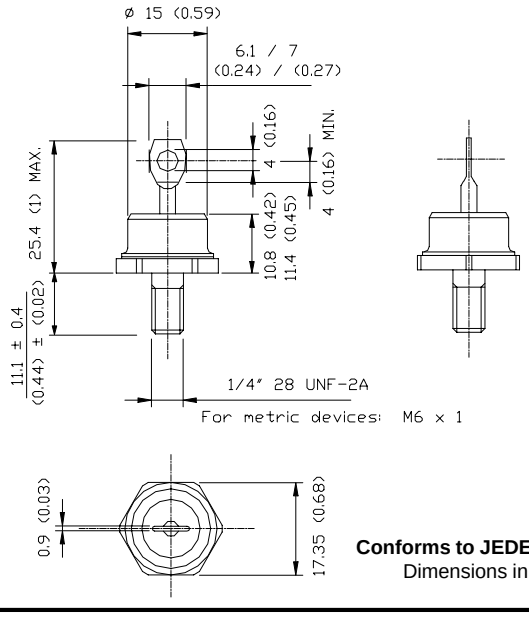
Characteristics		1N6392	Units
$I_{F(AV)}$	Rectangular waveform	60*	A
V_{RWM}		45*	V
I_{FSM}	@ 60Hz	1000*	A
V_F	@ 60 Apk, T_J = 25 °C	0.68*	V
T_J	range	- 55 to 175*	°C

* 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



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 °C, rectangular wave form
		54*		50% duty cycle @ T_C = 115 °C, sinusoidal wave form
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current See Fig. 7	9000	A	5µs Sine or 3µs Rect. pulse. Following any rated load condition and with rated V_{RRM} applied
		1000*		60Hz half cycle sine wave or 5ms rectangular pulse
E_{AS}	Non-Repetitive Avalanche Energy	101	mJ	T_J = 25 °C, I_{AS} = 15 Amps, L = 0.9 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 x V_R typical

Electrical Specifications

	Parameters	1N6392	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop (1) See Fig. 1	0.47*	V	@ 10A	T_J = 25 °C
		0.68*	V	@ 60A	
		0.82*	V	@ 120A	
		0.59*	V	@ 10A	T_J = - 55 °C
I_{RM}	Max. Reverse Leakage Current (1) See Fig. 2	20*	mA	T_J = 25 °C	V_R = rated V_R
		60*	mA	T_J = 125 °C	
		600*	mA	T_J = 175°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	10000	V/ µs	(Rated V_R)	

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

Thermal-Mechanical Specifications

	Parameters		1N6392	Units	Conditions
T_J	Max. Junction Temperature Range		-55 to 175*	°C	
T_{stg}	Max. Storage Temperature Range		-55 to 175*	°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
R_{thCA}	Max. Thermal Resistance, Case to Ambient		7.0*	°C/W	R_{thCA} is the value for which device blocking stability with rated V_R or V_{RWM} applied assured, when T_A = 25°C and T_C = 148°C (DC) or T_C = 163°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

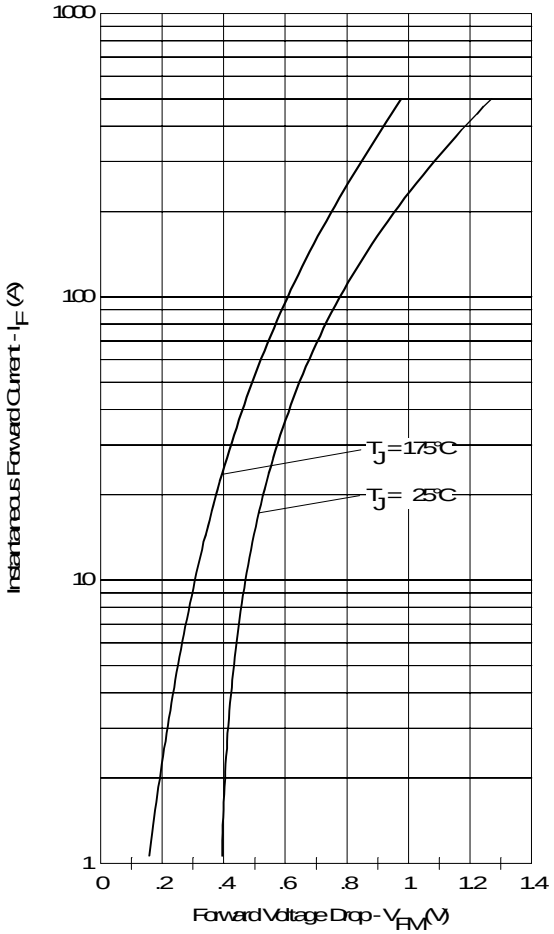


Fig. 1 - Maximum Forward Voltage Drop Characteristics

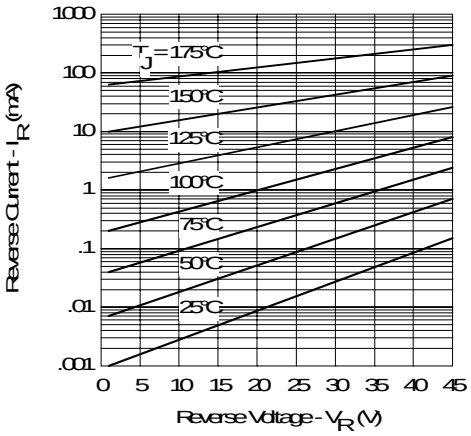


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

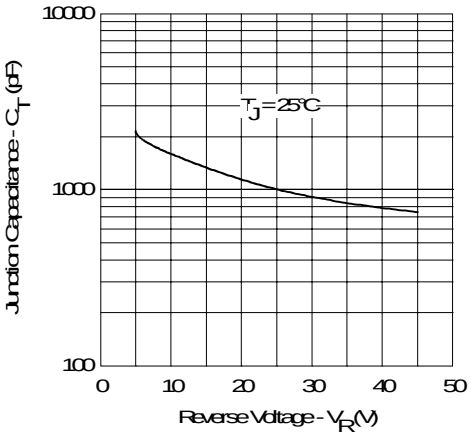


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

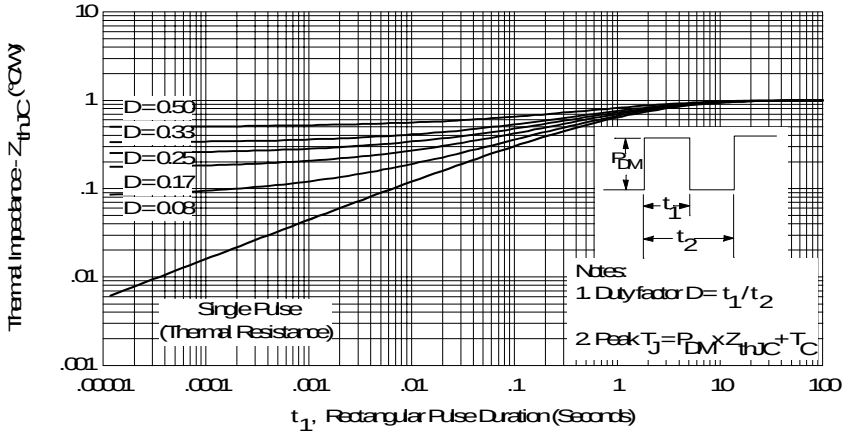


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

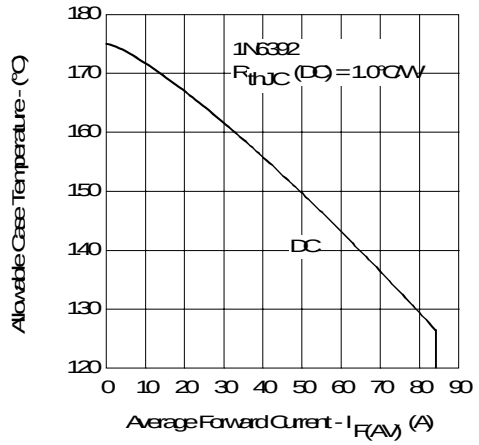


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

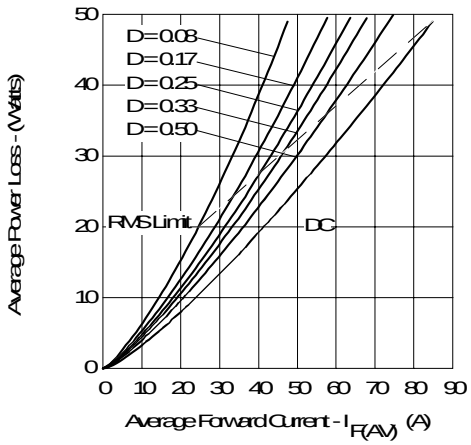


Fig. 6 - Forward Power Loss Characteristics

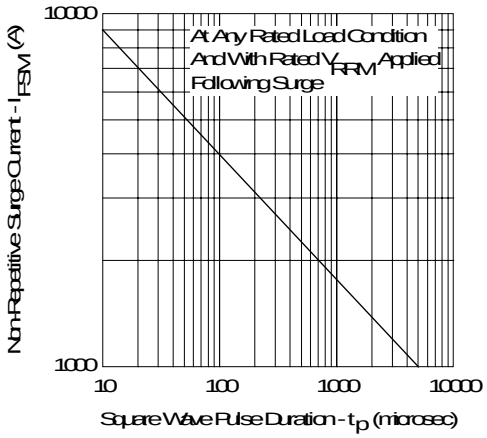


Fig. 7 - Maximum Non-Repetitive Surge Current

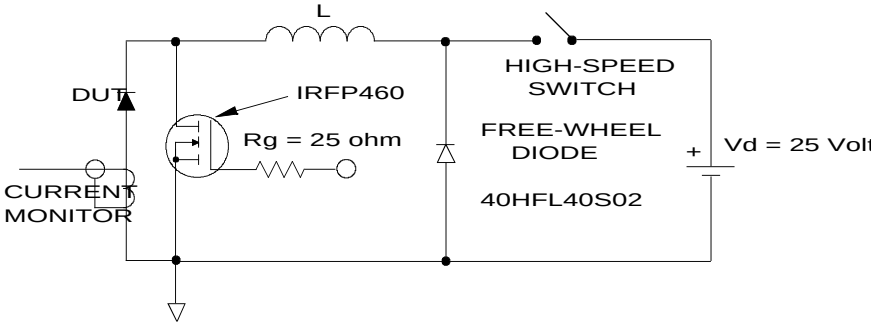


Fig. 8 - Unclamped Inductive Test Circuit

Data and specifications subject to change without notice.
This product has been designed for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
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