Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

International Rectifier (Infineon Technologies Americas Corp.)
IRF6218PBF

For any questions, you can email us directly:
sales@integrated-circuit.com

PD-95441

International
IOR Rectifier

SMPS MOSFET IRF6218PbF

HEXFET® Power MOSFET

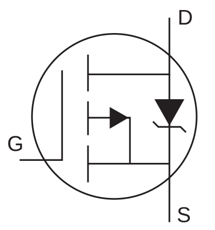
V_{DSS}	$R_{DS(on)}$ max	I_D
-150V	150mΩ@V_{GS} = -10V	-27A

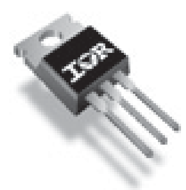
Applications

- Reset Switch for Active Clamp Reset DC-DC converters
- Lead-Free

Benefits

- Low Gate to Drain Charge to Reduce Switching Losses
- Fully Characterized Capacitance Including Effective C_{OSS} to Simplify Design (See App. Note AN1001)
- Fully Characterized Avalanche Voltage and Current





TO-220AB

Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain-to-Source Voltage	-150	V
V_{GS}	Gate-to-Source Voltage	± 20	
I_D @ T_C = 25°C	Continuous Drain Current, V_{GS} @ 10V	-27	A
I_D @ T_C = 100°C	Continuous Drain Current, V_{GS} @ 10V	-19	
I_{DM}	Pulsed Drain Current ①	-110	
P_D @T_C = 25°C	Maximum Power Dissipation	250	W
	Linear Derating Factor	1.6	W/°C
dv/dt	Peak Diode Recovery dv/dt ⑥	8.2	V/ns
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 175	°C
	Soldering Temperature, for 10 seconds	300 (1.6mm from case)	
	Mounting torque, 6-32 or M3 screw	10 lbf•in (1.1N•m)	

Thermal Resistance

	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case ⑤	——	0.61	°C/W
$R_{\theta CS}$	Case-to-Sink, Flat, Greased Surface ⑤	0.50	——	
$R_{\theta JA}$	Junction-to-Ambient ⑤	——	62	

Notes ① through ④ are on page 7

Static @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-150	——	——	V	V_{GS} = 0V, I_D = -250μA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	——	-0.17	——	V/°C	Reference to 25°C, I_D = -1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	——	120	150	mΩ	V_{GS} = -10V, I_D = -16A ④
$V_{GS(th)}$	Gate Threshold Voltage	-3.0	——	-5.0	V	V_{DS} = V_{GS}, I_D = -250μA
I_{DSS}	Drain-to-Source Leakage Current	——	——	-25	μA	V_{DS} = -120V, V_{GS} = 0V
		——	——	-250		V_{DS} = -120V, V_{GS} = 0V, T_J = 150°C
I_{GSS}	Gate-to-Source Forward Leakage	——	——	-100	nA	V_{GS} = -20V
	Gate-to-Source Reverse Leakage	——	——	100		V_{GS} = 20V

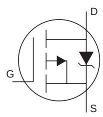
Dynamic @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
gfs	Forward Transconductance	11	——	——	S	V_{DS} = -50V, I_D = -16A
Q_g	Total Gate Charge	——	71	110	nC	I_D = -16A
Q_{gs}	Gate-to-Source Charge	——	21	——		V_{DS} = -120V
Q_{gd}	Gate-to-Drain ("Miller") Charge	——	32	——		V_{GS} = -10V ④
$t_{d(on)}$	Turn-On Delay Time	——	21	——	ns	V_{DD} = -75V
t_r	Rise Time	——	70	——		I_D = -16A
$t_{d(off)}$	Turn-Off Delay Time	——	35	——		R_G = 3.9Ω
t_f	Fall Time	——	30	——		V_{GS} = -10V ④
C_{iss}	Input Capacitance	——	2210	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	370	——		V_{DS} = -25V
C_{rss}	Reverse Transfer Capacitance	——	89	——		f = 1.0MHz
C_{oss}	Output Capacitance	——	2220	——		V_{GS} = 0V, V_{DS} = -1.0V, f = 1.0MHz
C_{oss}	Output Capacitance	——	170	——		V_{GS} = 0V, V_{DS} = -120V, f = 1.0MHz
C_{oss} eff.	Effective Output Capacitance	——	340	——		V_{GS} = 0V, V_{DS} = 0V to -120V

Avalanche Characteristics

	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy ②	——	210	mJ
I_{AR}	Avalanche Current ①	——	-16	A

Diode Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	——	——	-27	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	——	——	-110		
V_{SD}	Diode Forward Voltage	——	——	-1.6	V	T_J = 25°C, I_S = -16A, V_{GS} = 0V ④
t_{rr}	Reverse Recovery Time	——	150	——	ns	T_J = 25°C, I_F = -16A, V_{DD} = -25V
Q_{rr}	Reverse Recovery Charge	——	860	——	nC	di/dt = -100A/μs ④

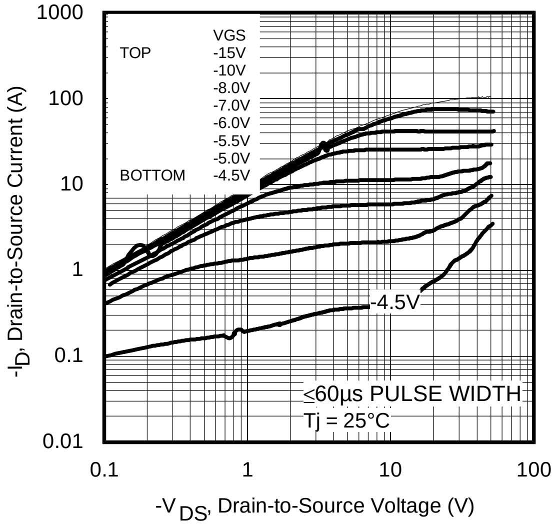


Fig 1. Typical Output Characteristics

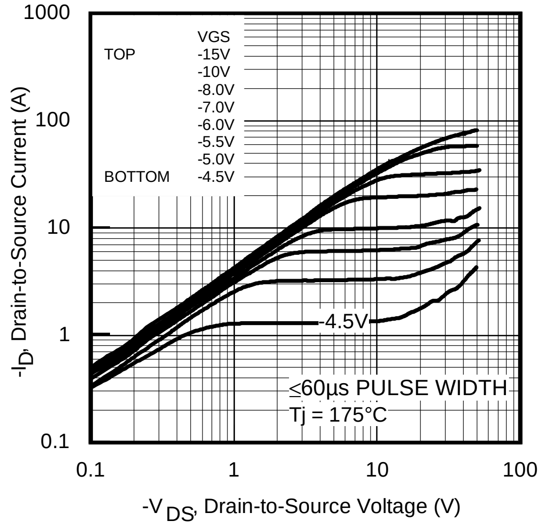


Fig 2. Typical Output Characteristics

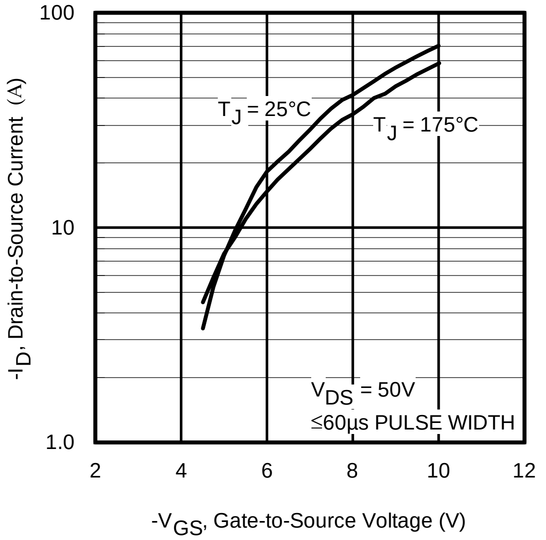


Fig 3. Typical Transfer Characteristics

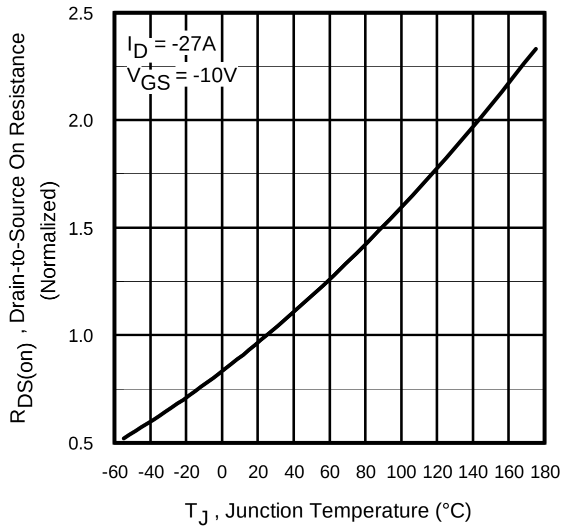


Fig 4. Normalized On-Resistance vs. Temperature

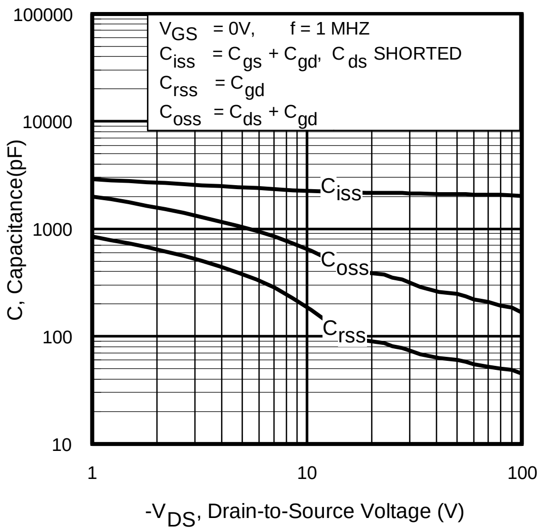


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

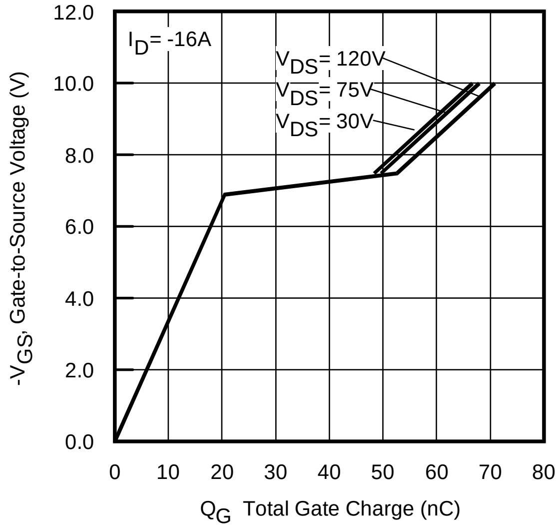


Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

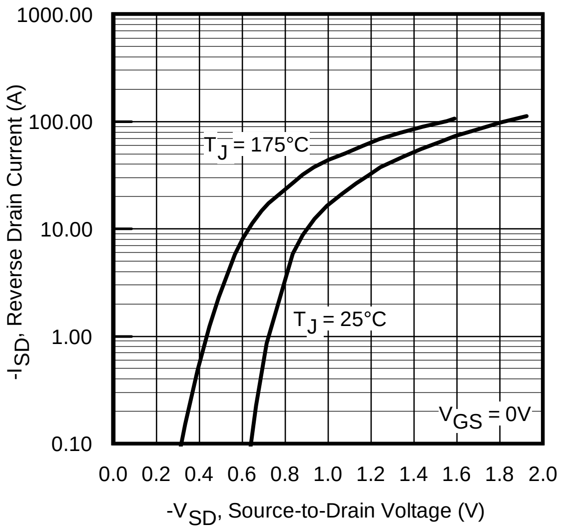


Fig 7. Typical Source-Drain Diode Forward Voltage

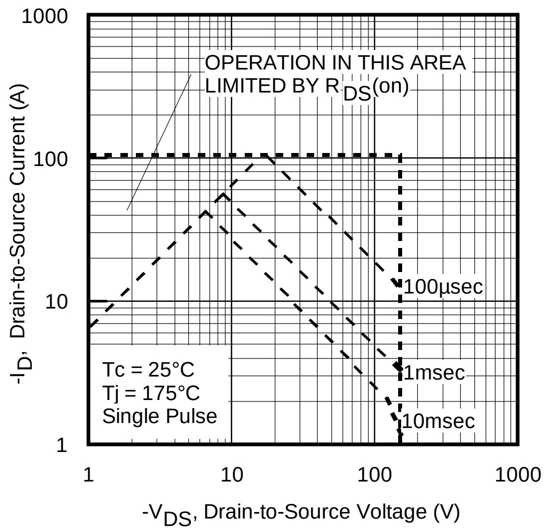


Fig 8. Maximum Safe Operating Area

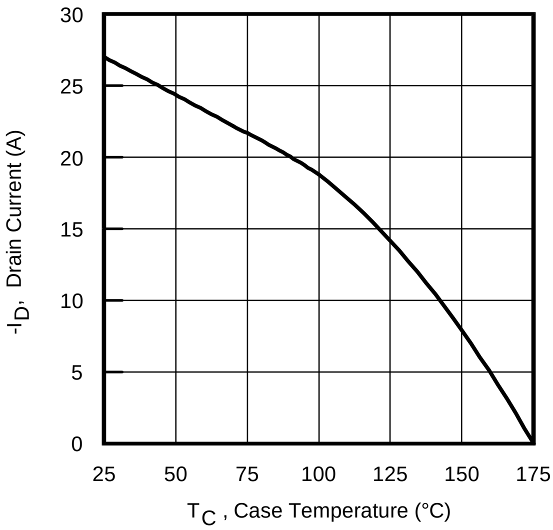


Fig 9. Maximum Drain Current vs. Ambient Temperature

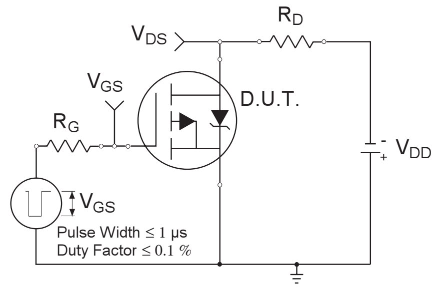


Fig 10a. Switching Time Test Circuit

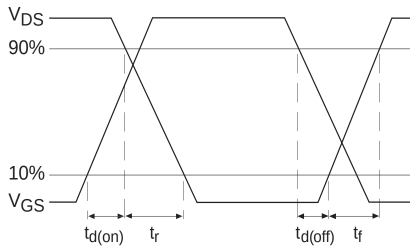


Fig 10b. Switching Time Waveforms

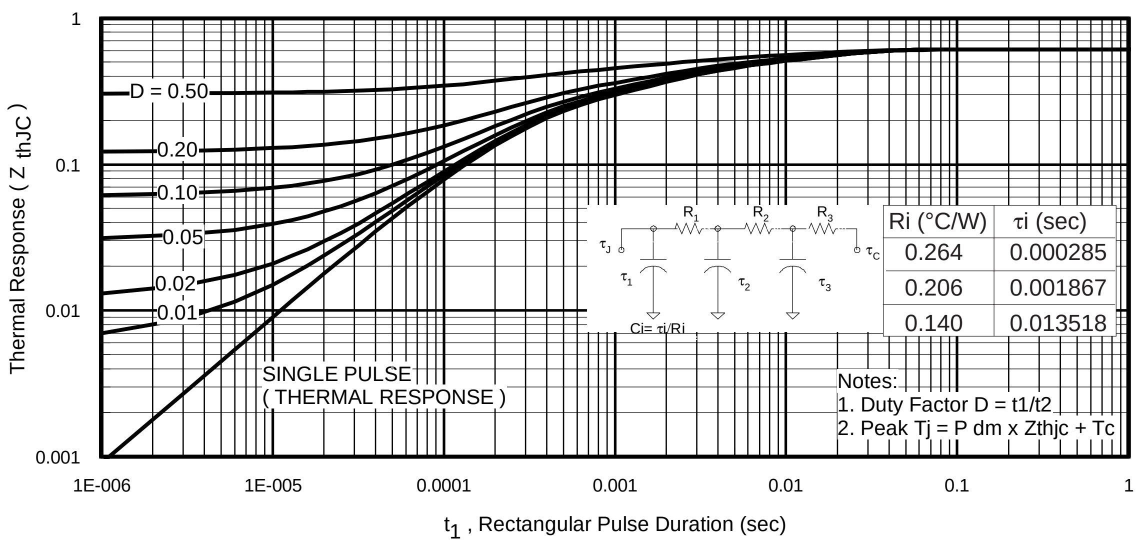


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

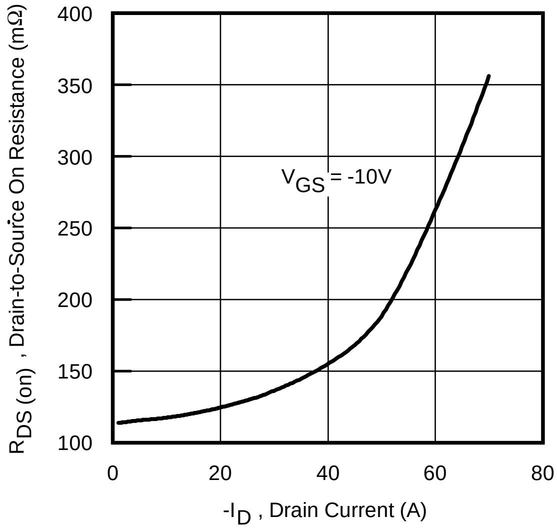


Fig 12. On-Resistance vs. Drain Current

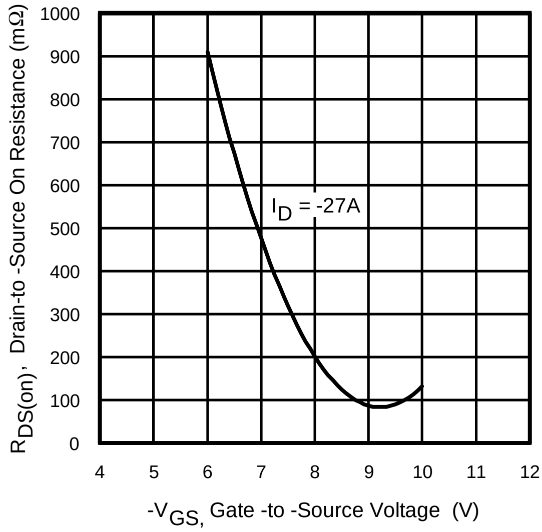


Fig 13. On-Resistance vs. Gate Voltage

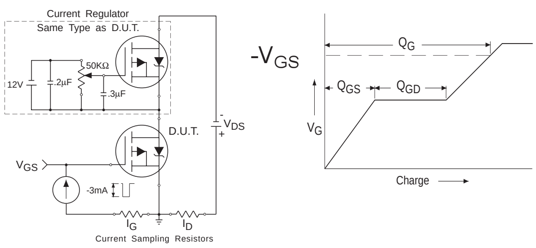


Fig 14a&b. Basic Gate Charge Test Circuit and Waveform

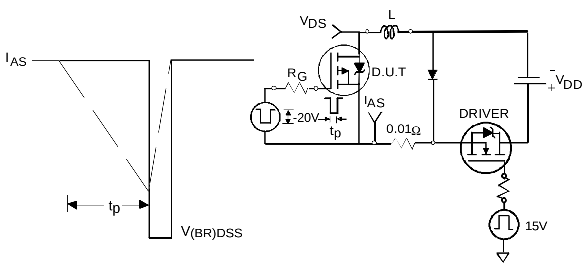


Fig 15a&b. Unclamped Inductive Test circuit and Waveforms

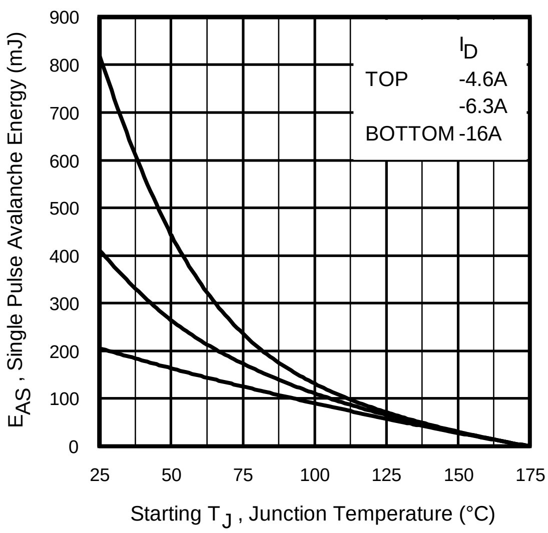
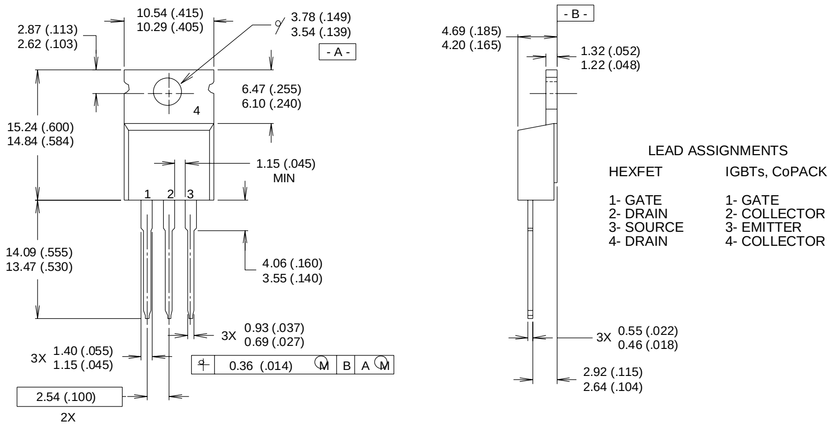


Fig 15c. Maximum Avalanche Energy vs. Drain Current

TO-220AB Package Outline

Dimensions are shown in millimeters (inches)

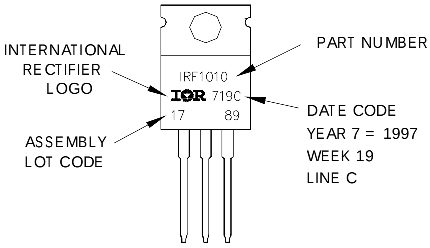


NOTES:
1 DIMENSIONING & TOLERANCING PER ANSI Y14.5M, 1982.
2 CONTROLLING DIMENSION : INCH
3 OUTLINE CONFORMS TO JEDEC OUTLINE TO-220AB.
4 HEATSINK & LEAD MEASUREMENTS DO NOT INCLUDE BURRS.

TO-220AB Part Marking Information

EXAMPLE: THIS IS AN IRF1010
LOT CODE 1789
ASSEMBLED ON WW 19, 1997
IN THE ASSEMBLY LINE "C"

Note: "P" in assembly line position indicates "Lead-Free"



Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Starting $T_J = 25°C$, L = 1.6mH, $R_G = 25\Omega$, $I_{AS} = -17A$.

③ $I_{SD} \leq -17A$, $di/dt \leq -520A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 175°C$.

④ Pulse width ≤ 300µs; duty cycle ≤ 2%.

⑤ R_θ is measured at T_J of approximately 90°C.

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

International
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7903
Visit us at www.irf.com for sales contact information.06/04

Note: For the most current drawings please refer to the IR website at:
http://www.irf.com/package/