查询IRFP044N供应商 捷多邦，专业PCB打样工厂，24小时加急出货

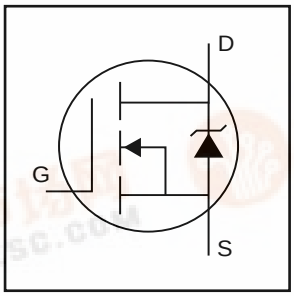
PD - 9.1410A

International
IOR Rectifier

IRFP044N

HEXFET® Power MOSFET

- Advanced Process Technology
- Dynamic dv/dt Rating
- 175°C Operating Temperature
- Fast Switching
- Fully Avalanche Rated



V_{DSS} = 55V

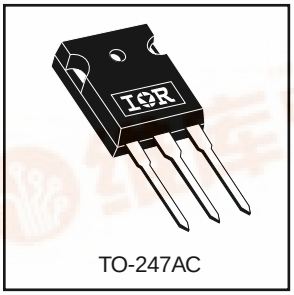
$R_{DS(on)}$ = 0.020Ω

I_D = 53A

Description

Fifth Generation HEXFETs from International Rectifier utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the fast switching speed and ruggedized device design that HEXFET Power MOSFETs are well known for, provides the designer with an extremely efficient and reliable device for use in a wide variety of applications.

The TO-247 package is preferred for commercial-industrial applications where higher power levels preclude the use of TO-220 devices. The TO-247 is similar but superior to the earlier TO-218 package because of its isolated mounting hole.



TO-247AC

Absolute Maximum Ratings

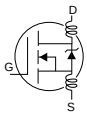
	Parameter	Max.	Units
I_D @ T_C = 25°C	Continuous Drain Current, V_{GS} @ 10V	53	A
I_D @ T_C = 100°C	Continuous Drain Current, V_{GS} @ 10V	37	
I_{DM}	Pulsed Drain Current ①⑤	180	
P_D @T_C = 25°C	Power Dissipation	120	W
	Linear Derating Factor	0.77	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy②⑤	230	mJ
I_{AR}	Avalanche Current①	28	A
E_{AR}	Repetitive Avalanche Energy①	12	mJ
dv/dt	Peak Diode Recovery dv/dt ③⑤	5.0	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

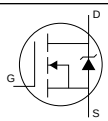
	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	——	1.3	°C/W
$R_{\theta CS}$	Case-to-Sink, Flat, Greased Surface	0.24	——	
$R_{\theta JA}$	Junction-to-Ambient	——	40	

找PDF 维库一下 pdf.dzsc.com

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	55	——	——	V	V_{GS} = 0V, I_D = 250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	——	0.017	——	V/°C	Reference to 25°C, I_D = 1mA⑤
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	——	——	0.020	Ω	V_{GS} = 10V, I_D = 29A ④
$V_{GS(th)}$	Gate Threshold Voltage	2.0	——	4.0	V	V_{DS} = V_{GS}, I_D = 250µA
g_{fs}	Forward Transconductance	16	——	——	S	V_{DS} = 25V, I_D = 28A⑤
I_{DSS}	Drain-to-Source Leakage Current	——	——	25	µA	V_{DS} = 55V, V_{GS} = 0V
		——	——	250		V_{DS} = 44V, 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
Q_g	Total Gate Charge	——	——	61	nC	I_D = 28A
Q_{gs}	Gate-to-Source Charge	——	——	13		V_{DS} = 44V
Q_{gd}	Gate-to-Drain ("Miller") Charge	——	——	24		V_{GS} = 10V, See Fig. 6 and 13 ④⑤
$t_{d(on)}$	Turn-On Delay Time	——	12	——	ns	V_{DD} = 28V
t_r	Rise Time	——	80	——		I_D = 28A
$t_{d(off)}$	Turn-Off Delay Time	——	43	——		R_G = 12Ω
t_f	Fall Time	——	52	——		R_D = 0.98Ω, See Fig. 10 ④⑤
L_D	Internal Drain Inductance	——	5.0	——	nH	Between lead, 6mm (0.25in.) from package and center of die contact 
L_S	Internal Source Inductance	——	13	——		
C_{iss}	Input Capacitance	——	1500	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	450	——		V_{DS} = 25V
C_{rss}	Reverse Transfer Capacitance	——	160	——		f = 1.0MHz, See Fig. 5⑤

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	——	——	53	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	——	——	180		
V_{SD}	Diode Forward Voltage	——	——	1.3	V	T_J = 25°C, I_S = 29A, V_{GS} = 0V ④
t_{rr}	Reverse Recovery Time	——	72	110	ns	T_J = 25°C, I_F = 28A
Q_{rr}	Reverse Recovery Charge	——	210	310	µC	di/dt = -100A/µs ④⑤
t_{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible (turn-on is dominated by L_S+L_D)				

Notes:

① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)

② V_{DD} = 25V, starting T_J = 25°C, L = 410µH R_G = 25Ω, I_{AS} = 28A. (See Figure 12)

③ $I_{SD} \leq$ 28A, di/dt $\leq$ 240A/µs, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq$ 175°C

④ Pulse width $\leq$ 300µs; duty cycle $\leq$ 2%.

⑤ Uses IRFZ46N data and test conditions

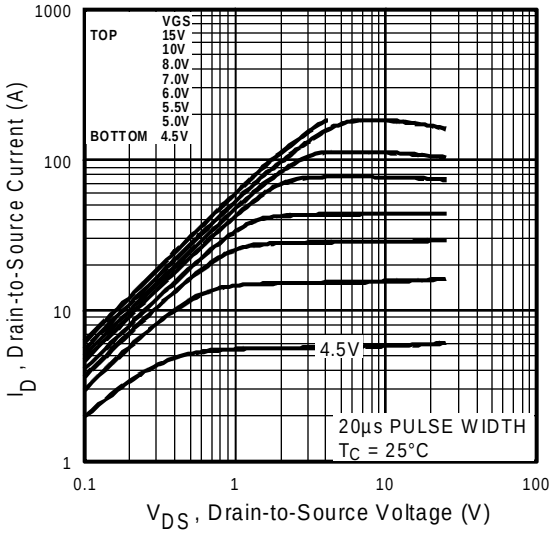


Fig 1. Typical Output Characteristics

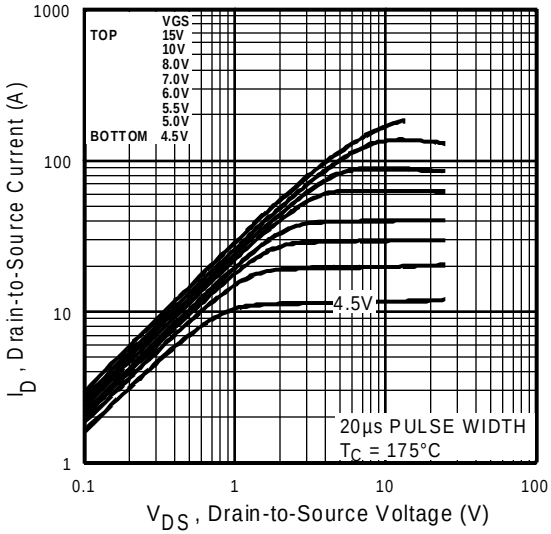


Fig 2. Typical Output Characteristics

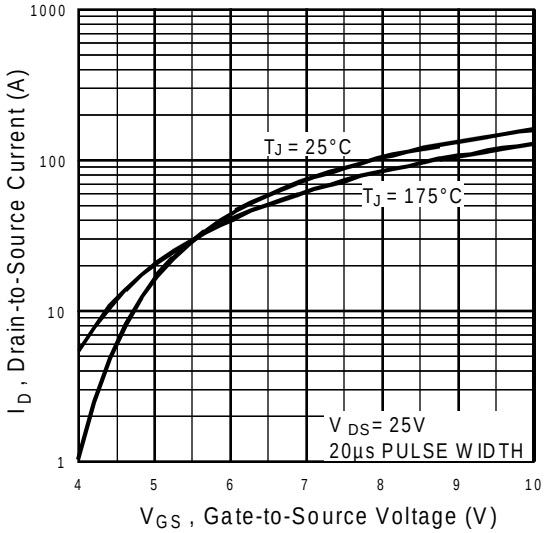


Fig 3. Typical Transfer Characteristics

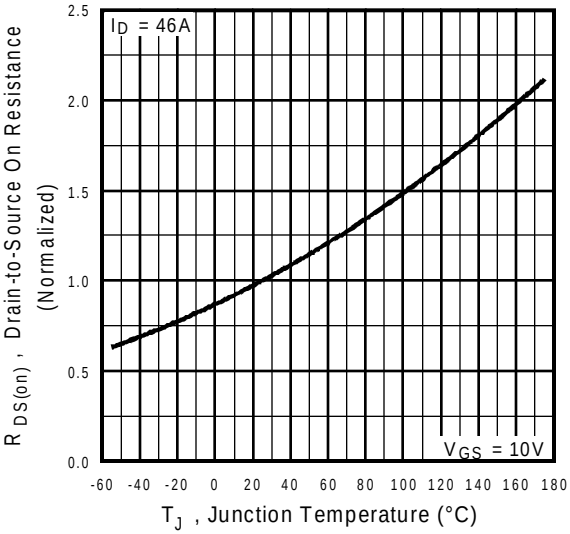


Fig 4. Normalized On-Resistance Vs. Temperature

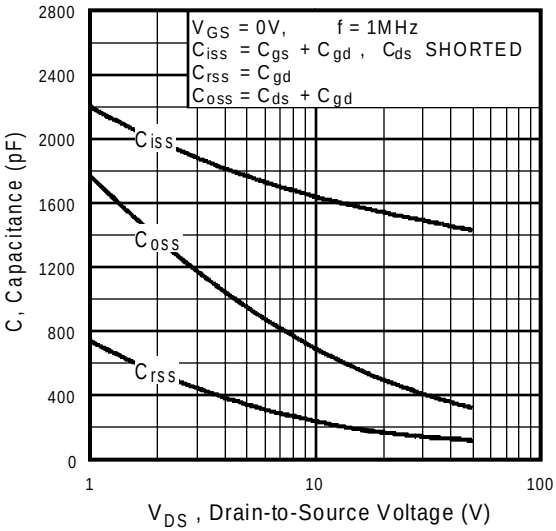


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

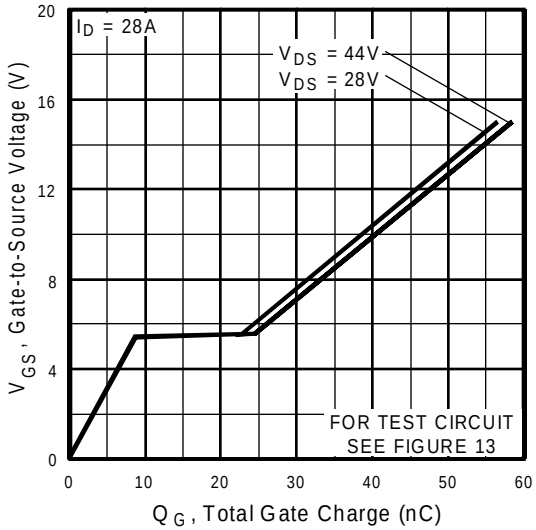


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

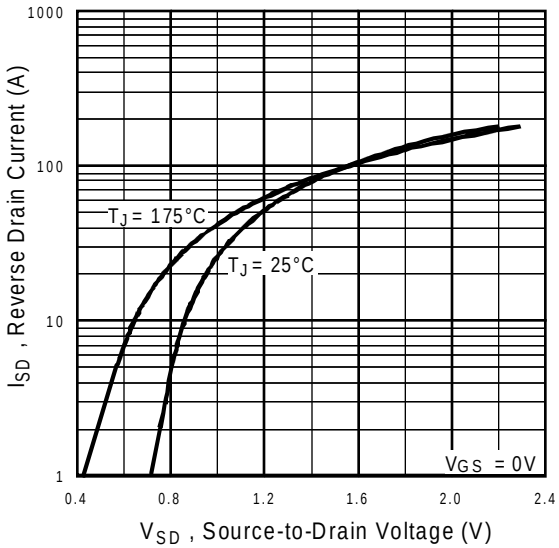


Fig 7. Typical Source-Drain Diode Forward Voltage

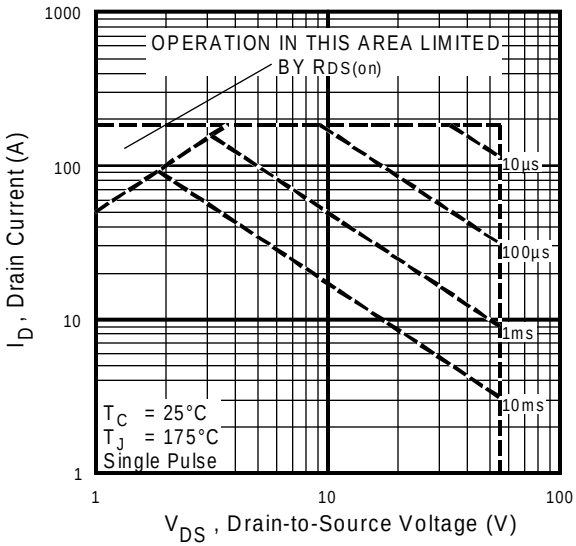


Fig 8. Maximum Safe Operating Area

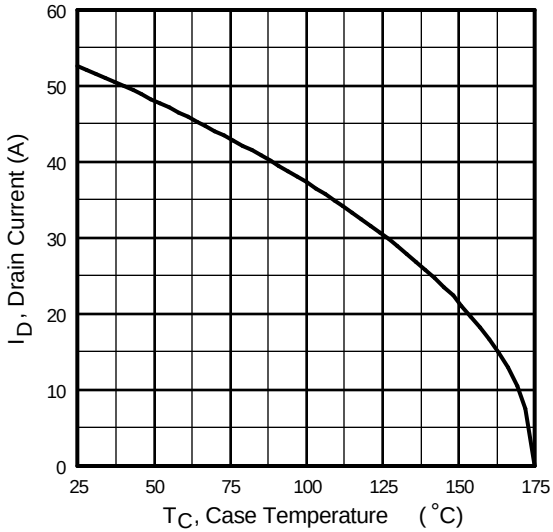


Fig 9. Maximum Drain Current Vs. Case Temperature

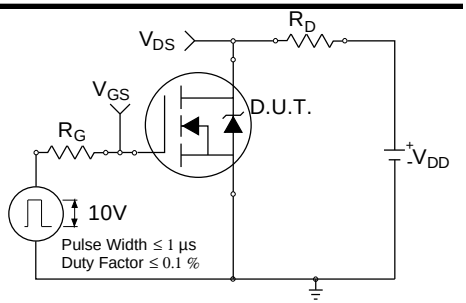


Fig 10a. Switching Time Test Circuit

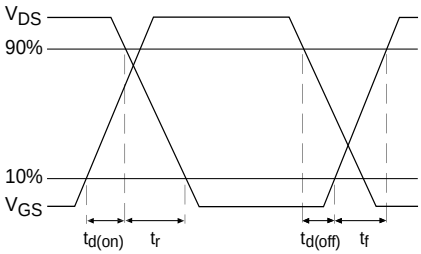


Fig 10b. Switching Time Waveforms

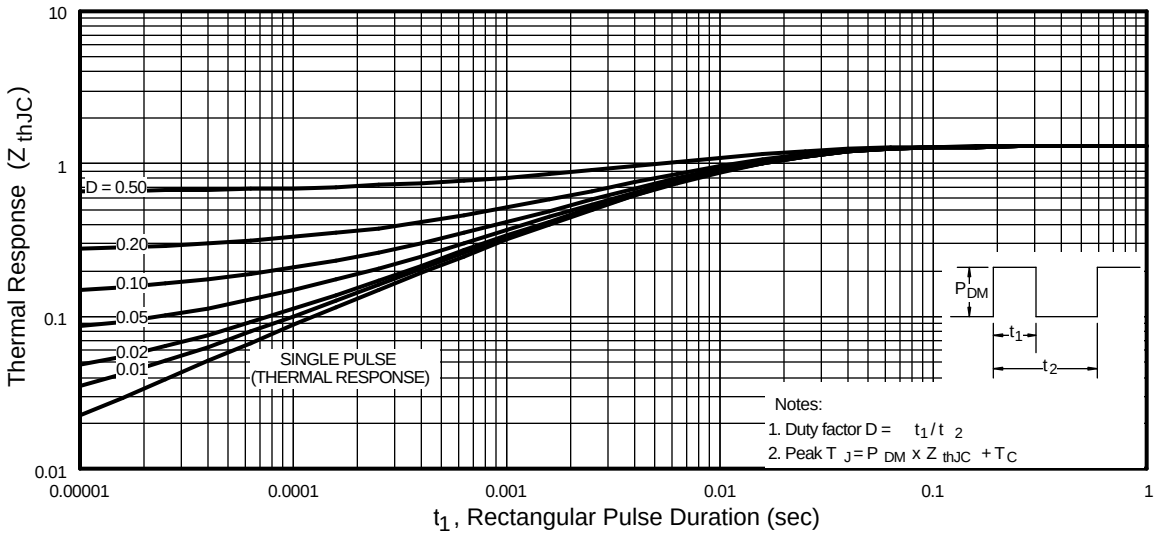


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case

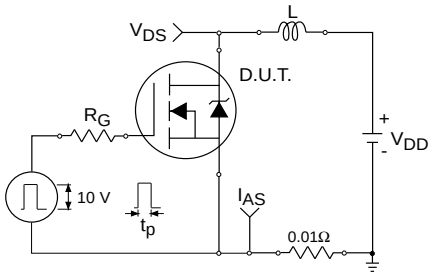


Fig 12a. Unclamped Inductive Test Circuit

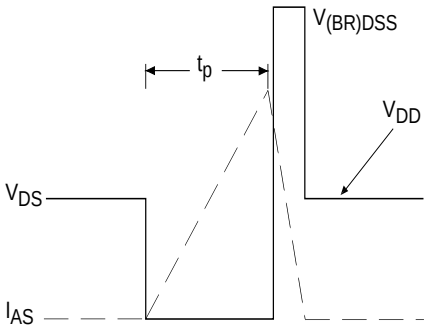


Fig 12b. Unclamped Inductive Waveforms

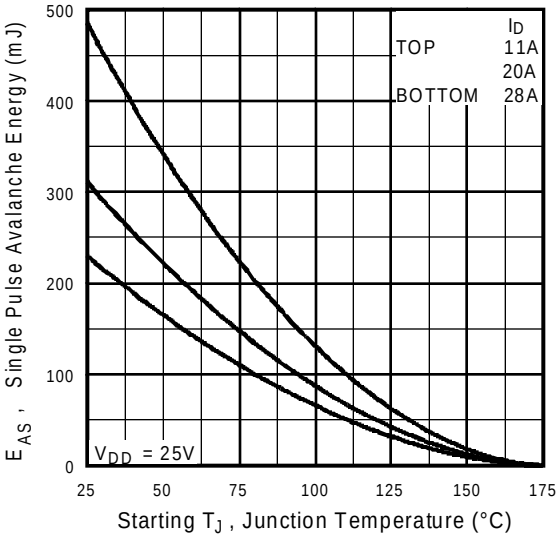


Fig 12c. Maximum Avalanche Energy Vs. Drain Current

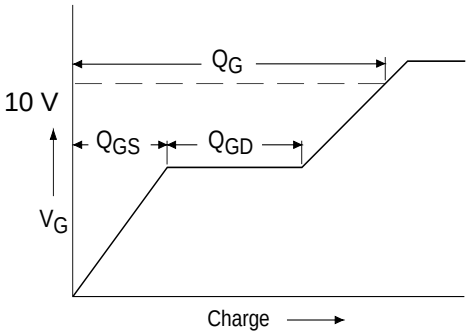


Fig 13a. Basic Gate Charge Waveform

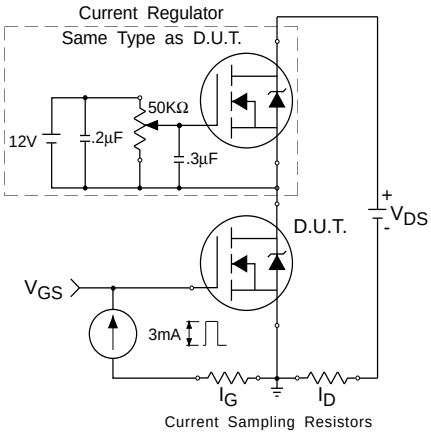
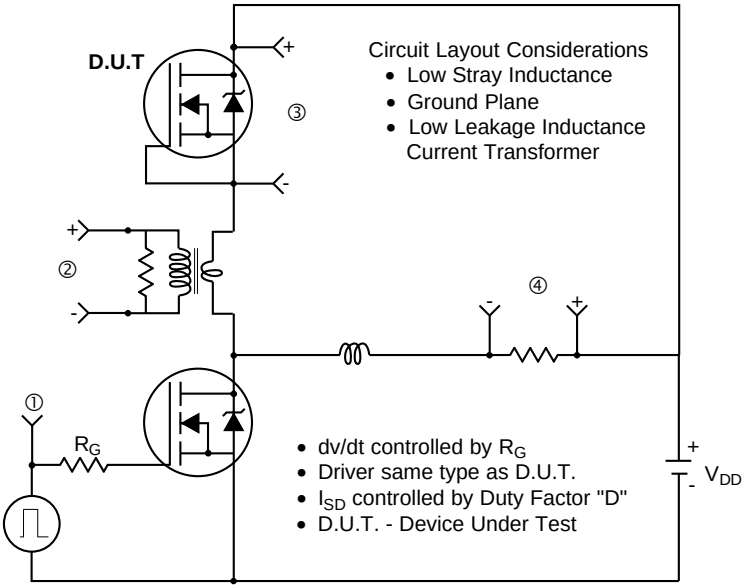
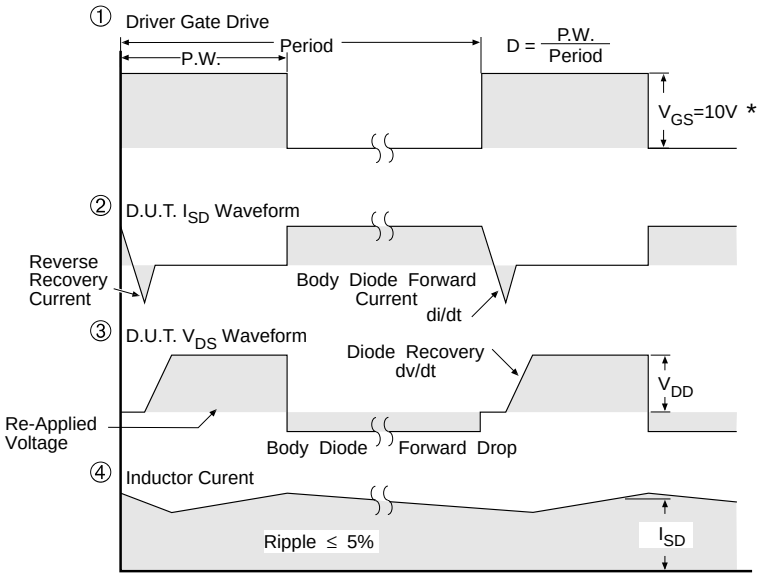


Fig 13b. Gate Charge Test Circuit

Peak Diode Recovery dv/dt Test Circuit





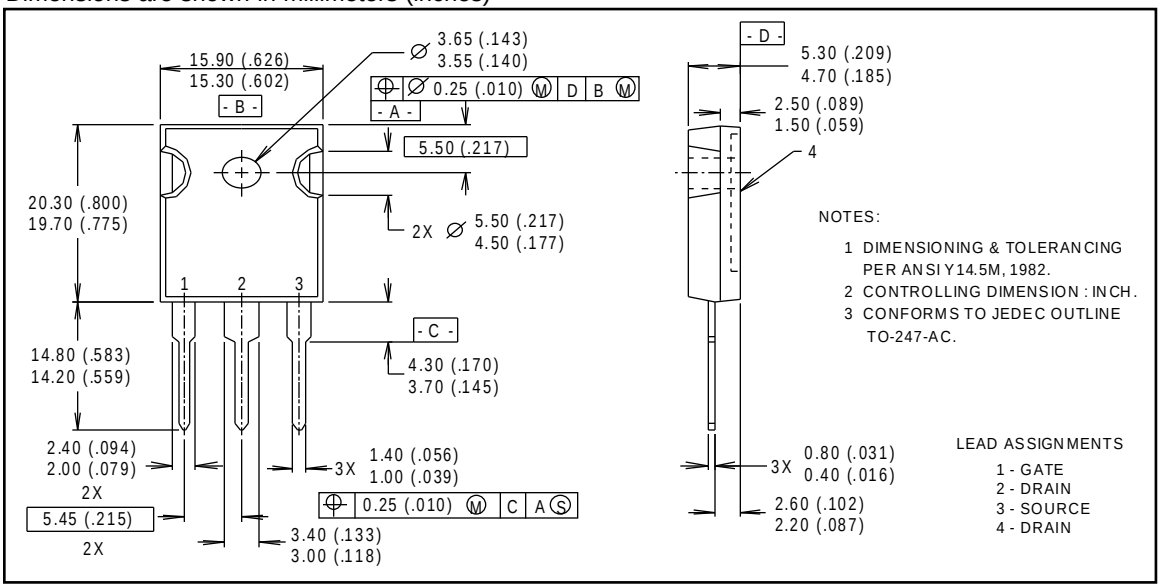
* V_{GS} = 5V for Logic Level Devices

Fig 14. For N-Channel HEXFETS

Package Outline

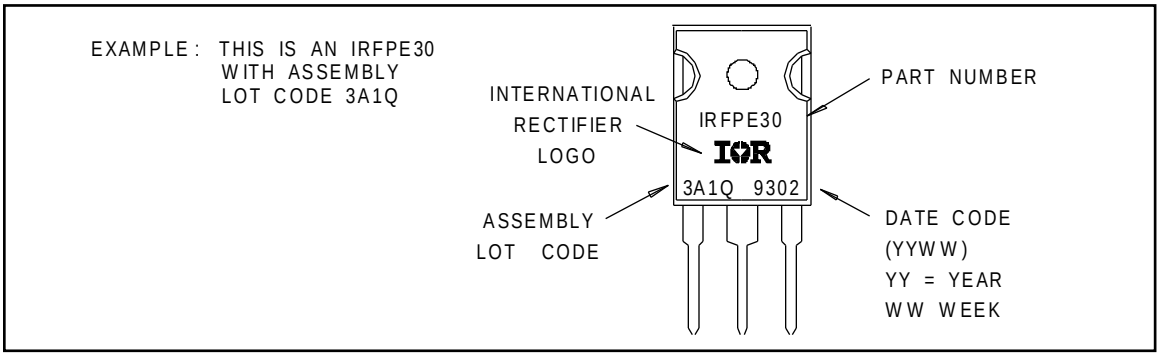
TO-247AC Outline

Dimensions are shown in millimeters (inches)



Part Marking Information

TO-247AC



International
IOR Rectifier

WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, Tel: (310) 322 3331
EUROPEAN HEADQUARTERS: Hurst Green, Oxted, Surrey RH8 9BB, UK Tel: ++ 44 1883 732020
IR CANADA: 7321 Victoria Park Ave., Suite 201, Markham, Ontario L3R 2Z8, Tel: (905) 475 1897
IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg Tel: ++ 49 6172 96590
IR ITALY: Via Liguria 49, 10071 Borgaro, Torino Tel: ++ 39 11 451 0111
IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo Japan 171 Tel: 81 3 3983 0086
IR SOUTHEAST ASIA: 315 Outram Road, #10-02 Tan Boon Liat Building, Singapore 0316 Tel: 65 221 8371