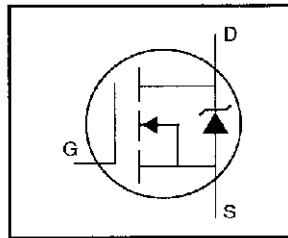


IRFI620GPbF

HEXFET® Power MOSFET

- Isolated Package
- High Voltage Isolation= 2.5KVRMS Ⓢ
- Sink to Lead Creepage Dist.= 4.8mm
- Dynamic dv/dt Rating
- Low Thermal Resistance
- Lead-Free



$$V_{DSS} = 200V$$

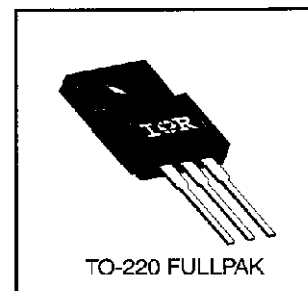
$$R_{DS(on)} = 0.80\Omega$$

$$I_D = 4.1A$$

Description

Third Generation HEXFETs from International Rectifier provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The TO-220 Fullpak eliminates the need for additional insulating hardware in commercial-industrial applications. The moulding compound used provides a high isolation capability and a low thermal resistance between the tab and external heatsink. This isolation is equivalent to using a 100 micron mica barrier with standard TO-220 product. The Fullpak is mounted to a heatsink using a single clip or by a single screw fixing.



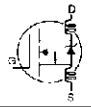
Absolute Maximum Ratings

	Parameter	Max.	Units
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	4.1	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	2.6	
I_{DM}	Pulsed Drain Current ①	16	
$P_D @ T_C = 25^\circ C$	Power Dissipation	30	W
	Linear Derating Factor	0.24	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy ②	100	mJ
I_{AR}	Avalanche Current ①	4.1	A
E_{AR}	Repetitive Avalanche Energy ①	3.0	mJ
dv/dt	Peak Diode Recovery dv/dt ③	5.0	V/ns
T_J	Operating Junction and Storage Temperature Range	-55 to +150	
T_{STG}			
	Mounting Torque, 6-32 or M3 screw	10 lbf·in (1.1 N·m)	

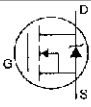
Thermal Resistance

	Parameter	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	—	—	4.1	°C/W
$R_{\theta JA}$	Junction-to-Ambient	—	—	65	

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

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
V _{(BR)DSS}	Drain-to-Source Breakdown Voltage	200	—	—	V	V _{GS} =0V, I _D = 250μA
ΔV _{(BR)DSS} /ΔT _J	Breakdown Voltage Temp. Coefficient	—	0.29	—	V/°C	Reference to 25°C, I _D = 1mA
R _{DS(on)}	Static Drain-to-Source On-Resistance	—	—	0.80	Ω	V _{GS} =10V, I _D =2.5A ④
V _{GS(th)}	Gate Threshold Voltage	2.0	—	4.0	V	V _{DS} =V _{GS} , I _D = 250μA
g _{fs}	Forward Transconductance	1.5	—	—	S	V _{DS} =50V, I _D =2.5A ④
I _{DSS}	Drain-to-Source Leakage Current	—	—	25	μA	V _{DS} =200V, V _{GS} =0V
		—	—	250		V _{DS} =160V, V _{GS} =0V, T _J =125°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	—	—	14	nC	I _D =4.8A
Q _{gs}	Gate-to-Source Charge	—	—	3.0		V _{DS} =160V
Q _{gd}	Gate-to-Drain ("Miller") Charge	—	—	7.9		V _{GS} =10V See Fig. 6 and 13 ④
t _{d(on)}	Turn-On Delay Time	—	7.2	—		ns
t _r	Rise Time	—	22	—	I _D =4.8A	
t _{d(off)}	Turn-Off Delay Time	—	19	—	R _G =18Ω	
t _f	Fall Time	—	13	—	R _D =20Ω See Figure 10 ④	
L _D	Internal Drain Inductance	—	4.5	—	nH	Between lead, 6 mm (0.25in.) from package and center of die contact
L _S	Internal Source Inductance	—	7.5	—		
C _{iss}	Input Capacitance	—	260	—	pF	V _{GS} =0V
C _{oss}	Output Capacitance	—	100	—		V _{DS} = 25V
C _{rss}	Reverse Transfer Capacitance	—	30	—		f=1.0MHz See Figure 5
C	Drain to Sink Capacitance	—	12	—		f=1.0MHz

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
I _S	Continuous Source Current (Body Diode)	—	—	4.1	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	16		
V _{SD}	Diode Forward Voltage	—	—	1.8	V	T _J =25°C, I _S =4.1A, V _{GS} =0V ②
t _{rr}	Reverse Recovery Time	—	150	300	ns	T _J =25°C, I _F =4.8A
Q _{rr}	Reverse Recovery Charge	—	0.91	1.8	μC	di/dt=100A/μs ③
t _{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible (turn-on is dominated by L _S +L _D)				

Notes:

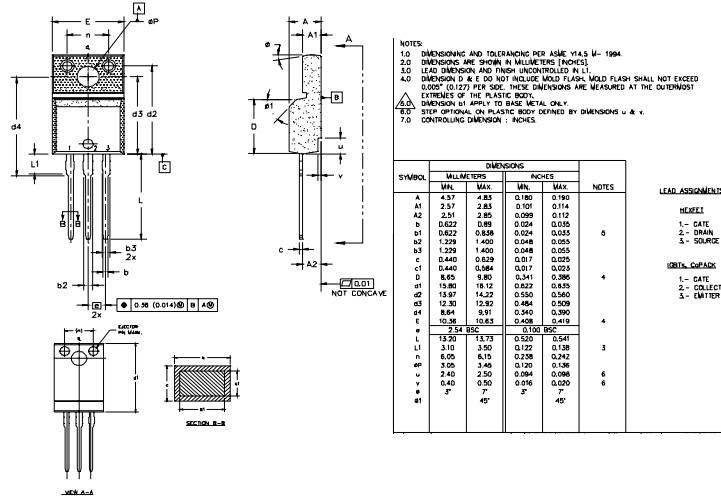
- ① Repetitive rating; pulse width limited by max. junction temperature (See Figure 11)
- ② V_{DD}=50V, starting T_J=25°C, L=8.9mH, R_G=25Ω, I_{AS}=4.1A (See Figure 12)
- ③ I_{SD}≤5.2A, di/dt≤95A/μs, V_{DD}≤V_{(BR)DSS}, T_J≤150°C
- ④ Pulse width ≤ 300 μs; duty cycle ≤2%
- ⑤ t=60s, f=60Hz

IRFI620GPbF

International
IOR Rectifier

TO-220 Full-Pak Package Outline

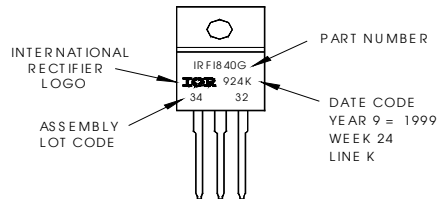
Dimensions are shown in millimeters (inches)



TO-220 Full-Pak Part Marking Information

EXAMPLE: THIS IS AN IRF1840G
WITH ASSEMBLY
LOT CODE 3432
ASSEMBLED ON WW 24 1999
IN THE ASSEMBLY LINE "K"

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



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