OBSOLETE

PD - 93943

International
IOR Rectifier

IRF6150

HEXFET® Power MOSFET

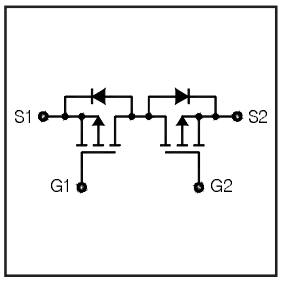
- Ultra Low $R_{SS(on)}$ per Footprint Area
- Low Thermal Resistance
- Bi-Directional P-Channel Switch
- Super Low Profile (<.8mm)
- Available Tested on Tape & Reel

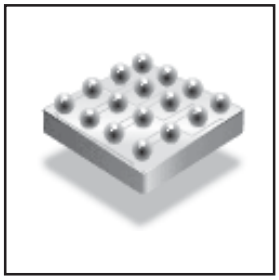
V_{SS}	$R_{SS(on)}$ max	I_S
-20V	0.036Ω@$V_{GS1,2}$ = -4.5V	-7.9A
	0.052Ω@$V_{GS1,2}$ = -2.5V	-6.3A

Description

True chip-scale packaging is available from International Rectifier. Through the use of advanced processing techniques and a unique packaging concept, extremely low on-resistance and the highest power densities in the industry have been made available for battery and load management applications. These benefits, combined with the ruggedized device design that International Rectifier is well known for, provides the designer with an extremely efficient and reliable device.

The FlipFET™ package, is one-third the footprint of a comparable SO-8 package and has a profile of less than .8mm. Combined with the low thermal resistance of the die level device, this makes the FlipFET™ the best device for applications where printed circuit board space is at a premium and in extremely thin application environments such as battery packs, cell phones and PCMCIA cards.





Absolute Maximum Ratings

	Parameter	Max.	Units
V_{SS}	Source- Source Voltage	-20	V
I_S @ T_C = 25°C	Continuous Current, V_{GS1} = V_{GS2} = -4.5V	±7.9	A
I_S @ T_C = 70°C	Continuous Current, V_{GS1} = V_{GS2} = -4.5V	±6.3	
I_{SM}	Pulsed Current ①	±40	
P_D @T_C = 25°C	Power Dissipation	3.0	W
P_D @T_C = 70°C	Power Dissipation	1.9	
	Linear Derating Factor	24	mW/°C
V_{GS}	Gate-to-Source Voltage	± 12	V
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient③		42	°C/W
$R_{\theta J\text{-}PCB}$	Junction-to-PCB mounted	17	——	

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)SSS}$	Source-to-Source Breakdown Voltage	-20	——	——	V	V_{GS} = 0V, I_D = -250µA
$\Delta V_{(BR)SSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	——	-TBD	——	V/°C	Reference to 25°C, I_D = -1mA
$R_{SS(on)}$	Static Source-to-Source On-Resistance	——	——	0.036	Ω	V_{GS1} = V_{GS2} = -4.5V, I_S = -7.9A ②
		——	——	0.052		V_{GS1} = V_{GS2} = -2.5V, I_S = -6.3A ②
$V_{GS(th)}$	Gate Threshold Voltage	-0.45	——	-1.2	V	V_{SS} = V_{GS}, I_S = -250µA
g_{fs}	Forward Transconductance	TBD	——	——	S	V_{SS} = -10V, I_S = -7.9A
I_{SSS}	Zero Gate Voltage Source Current	——	——	-1.0	µA	V_{SS} = -20V, V_{GS} = 0V
		——	——	-25		V_{SS} = -16V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	——	——	100	nA	V_{GS} = 12V
	Gate-to-Source Reverse Leakage	——	——	-100		V_{GS} = -12V
Q_g	Total Gate Charge	——	TBD	TBD	nC	I_S = -TBDA
Q_{gs}	Gate-to-Source Charge	——	TBD	TBD		V_{SS} = -16V
Q_{G1-S2}	Miller Charge	——	TBD	TBD		V_{GS} = -5.0V④
$t_{d(on)}$	Turn-On Delay Time	——	TBD	——	ns	V_{SS} = -10V
t_r	Rise Time	——	TBD	——		I_S = -1.0A
$t_{d(off)}$	Turn-Off Delay Time	——	TBD	——		R_G = 6.0Ω
t_f	Fall Time	——	TBD	——		V_{GS} = -5.0V ④
C_{iss}	Input Capacitance	——	TBD	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	TBD	——		V_{SS} = -15V
C_{rss}	Reverse Transfer Capacitance	——	TBD	——		f = 1.0MHz

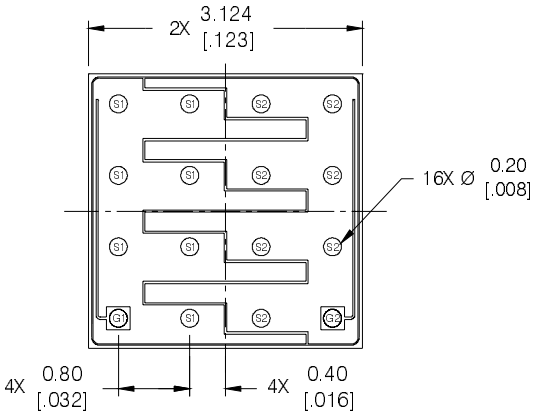
Notes:

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

② Pulse width ≤ 400µs; duty cycle ≤ 2%. Gate voltage applied to both gates.

③ When mounted on 1 inch square 2oz copper on FR-4

Bi-Directional MOSFET Outline Dimension



NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
2. CONTROLLING DIMENSION: [INCH].
3. LETTER DESIGNATION:
   S = SOURCE SK = SOURCE KELVIN E = EMITTER
   G = GATE IS = CURRENTSENSE
4. DIMENSIONAL TOLERANCES:

BONDING PADS:	< 0.635	TOLERANCE = +/- 0.013
WIDTH	< [.0250]	TOLERANCE = +/- [.0005]
&	> 0.635	TOLERANCE = +/- 0.025
LENGTH	> [.0250]	TOLERANCE = +/- [.0010]
OVERALL DIE:	< 1.270	TOLERANCE = +/- 0.102
WIDTH	< [.050]	TOLERANCE = +/- [.004]
&	> 1.270	TOLERANCE = +/- 0.203
LENGTH	> [.050]	TOLERANCE = +/- [.008]

5. UNLESS OTHERWISE NOTED ALL DIE ARE GEN III