



TO-220F Plastic-Encapsulate MOSFETS

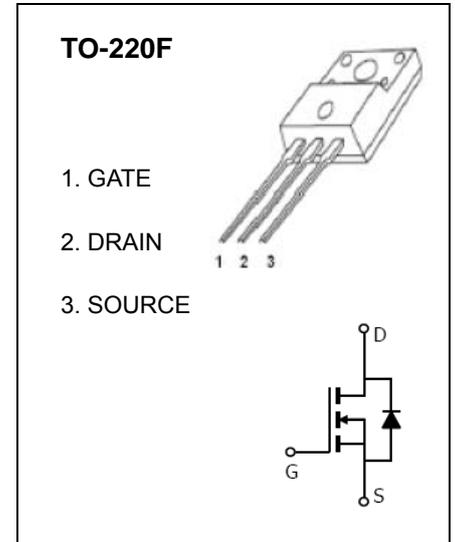
IRFF640 N-Channel Power MOSFET

DESCRIPTION

This advanced high voltage MOSFET is designed to stand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode fast recovery time. Designed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

FEATURE

- Repetitive Avalanche Rated
- Fast Switching
- Ease of Paralleling
- Lower Capacitance
- Simple Drive Requirement



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	18	A
Pulsed Drain Current	I_{DM}	72	A
Single Pulsed Avalanche Energy (note1)	E_{AS}	580	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	T_L	260	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	200			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 200V, V _{GS} = 0V			25	μA
Gate-body leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Gate-threshold voltage(note2)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2		4	V
Drain-source diode forward voltage (note2)	V _{SD}	V _{GS} = 0V, I _S = 18A			2	V
Static drain-source on-resistance (note2)	R _{DS(on)}	V _{GS} = 10V, I _D = 11A			0.18	Ω
Forward transconductance (note2)	g _{fs}	V _{DS} = 50V, I _D = 11A	6.7			S
Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz		1300		pF
Output capacitance	C _{oss}			430		
Reverse transfer capacitance	C _{rss}			130		
Switching characteristics (note 3)						
Turn-on delay time	t _{d(on)}	V _{DD} = 100V, I _D = 18A, R _G = 9.1Ω, R _D = 5.4Ω		14		ns
Turn-on rise time	t _r			51		
Turn-off delay time	t _{d(off)}			45		
Turn-off fall time	t _f			36		

Notes :

1. L=2.7mH, V_{DD}=50V, R_G=25Ω, Starting T_J=25°C.
2. Pulse test: Pulse width≤300μs, duty cycle ≤2%.
3. These parameters have no way to verify.