

TO-220AB Plastic-Encapsulate MOSFETS

IRF640 MOSFET(N-Channel)

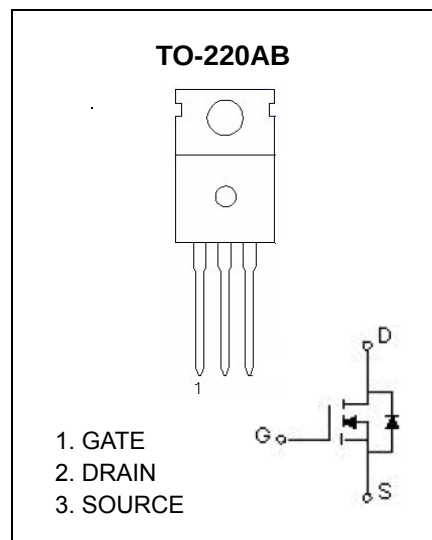
FEATURE

- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- Fast Switching
- Ease of Paralleling
- Simple Drive Requirement

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-220-3L package is universally preferred for all commercial-industrial applications at power dissipation levels to approximately 50 watts. The low thermal resistance and low package cost of the TO-220-3L contribute to its wide acceptance throughout the industry.



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

Symbol	Parameter	Value	Units
I_D	Continuous Drain Current, $V_{GS} @ 10\text{ V}$	18	A
P_D	Power Dissipation	2	W
	Linear Derating Factor	1.0	W/ $^{\circ}\text{C}$
V_{GS}	Gate-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy (note 1)	580	mJ
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	$^{\circ}\text{C}/\text{W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	200			V
Gate-threshold voltage	$V_{(GS)th}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	
Gate-body leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS}=200V, V_{GS}=0V$			25	μA
Drain-source on-resistance (note 2)	$R_{DS(on)}$	$V_{GS}=10V, I_D=11A$			0.18	Ω
Forward transconductance (note 2)	g_{fs}	$V_{DS}=50V, I_D=11A$	6.7			S
Diode forward voltage (note 2)	V_{SD}	$I_S=18A, V_{GS}=0V$			2	V
Input capacitance (note 3)	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		1300		pF
Output capacitance (note 3)	C_{oss}			430		
Reverse transfer capacitance (note 3)	C_{rss}			130		
Turn-on time(note 2,3)	$t_{d(on)}$	$V_{DD}=100V, R_D=5.4\Omega, I_D=18A, R_G=9.1\Omega$		14		ns
Rise time	t_r			51		
Turn-off time (note 2,3)	$t_{d(off)}$			45		
Fall time (note 2,3)	t_f			36		

Notes:

- $V_{DD}=50V$, starting $T_J=25^{\circ}\text{C}$, $L=2.7mH, R_G=25\Omega, I_{AS}=18A$.
- Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- These parameters have no way to verify.