

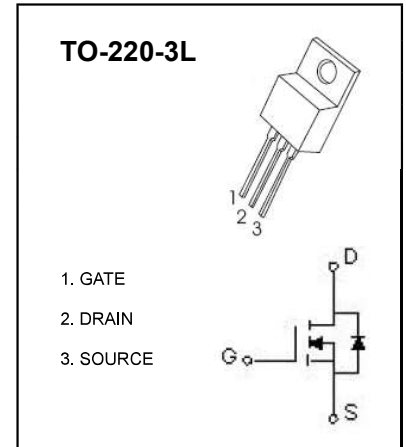
**TO-220-3L Plastic-Encapsulate MOSFETS****IRF840** MOSFET(N-Channel)**FEATURES**

- 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 package is universally preferred for all commercial-industrial applications. The low thermal resistance and low package cost of the TO-220 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 V $T_C=25^{\circ}\text{C}$ $T_C=100^{\circ}\text{C}$	8	A
		5.1	A
I_{DM}	Pulsed Drain Current (note 1)	32	A
P_D	Power Dissipation	2	W
V_{GS}	Gate-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy (note 2)	510	mJ
I_{AR}	Avalanche Current (note 1)	8	A
E_{AR}	Repetitive Avalanche Energy (note 1)	13	mJ
dv/dt	Peak Diode Recovery dv/dt (note 3)	3.5	V/ns
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

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

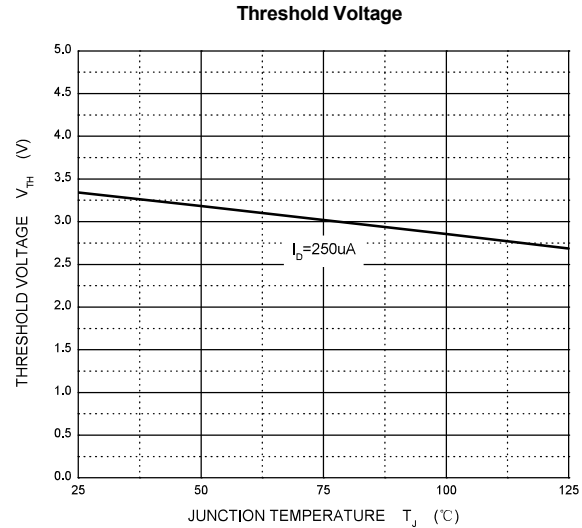
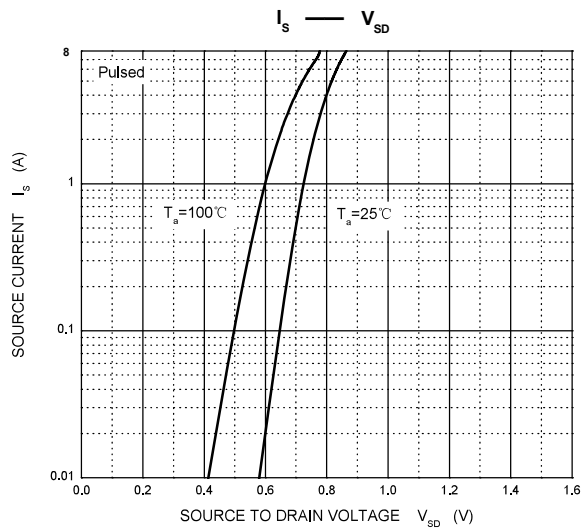
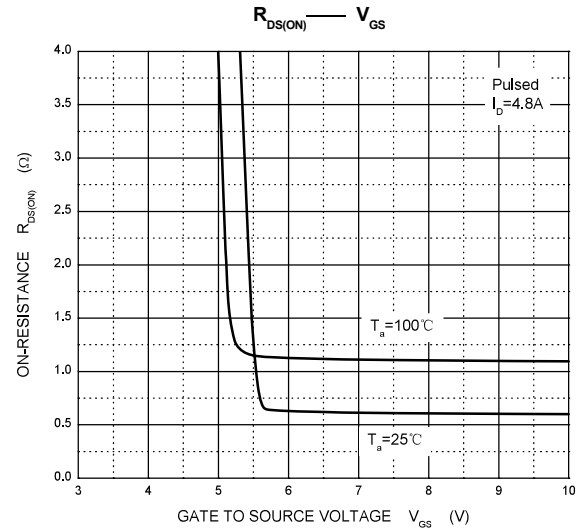
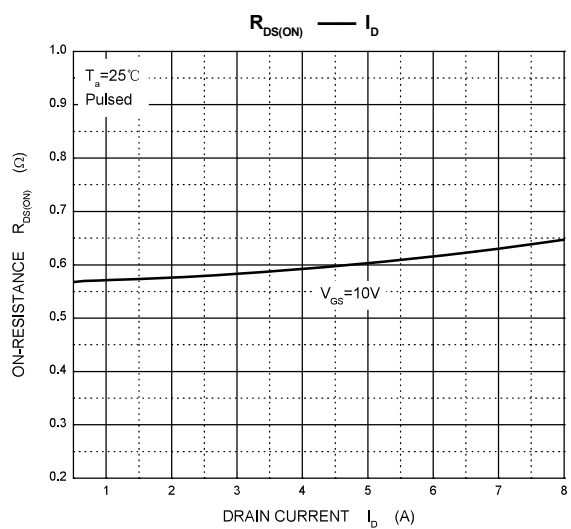
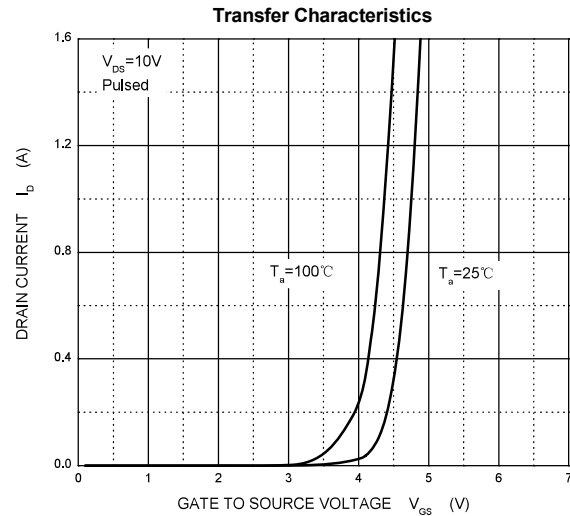
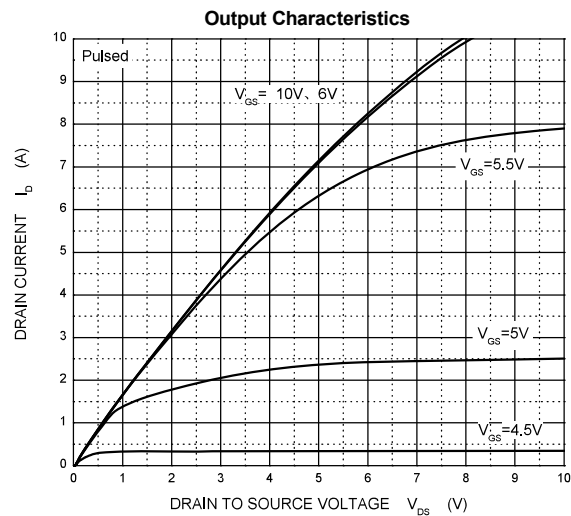
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	500			V
Gate-threshold voltage	V _{th(GS)}	V _{DS} =V _{GS} , I _D =250μA	2		4	
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =500V, V _{GS} =0V			25	μA
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.8A			0.85	Ω
Forward transconductance	g _{fs}	V _{DS} =50V, I _D =4.8A	4.9			S
Diode forward voltage	V _{SD}	I _S =8A, V _{GS} =0V			2	V
Total gate charge	Q _g	V _{DS} =400V, V _{GS} =10V, I _D =8A			63	nC
Gate-source charge	Q _{gs}				9.3	
Gate-drain charge	Q _{gd}				32	
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		1300		pF
Output capacitance	C _{oss}			310		
Reverse transfer capacitance	C _{rss}			120		
Turn-on time	t _{d(on)}	V _{DD} =250V, R _D =31Ω, I _D =8A, R _G =9.1Ω		14		ns
Rise time	t _r			23		
Turn-off time	t _{d(off)}			49		
Fall time	t _f			20		

Notes:

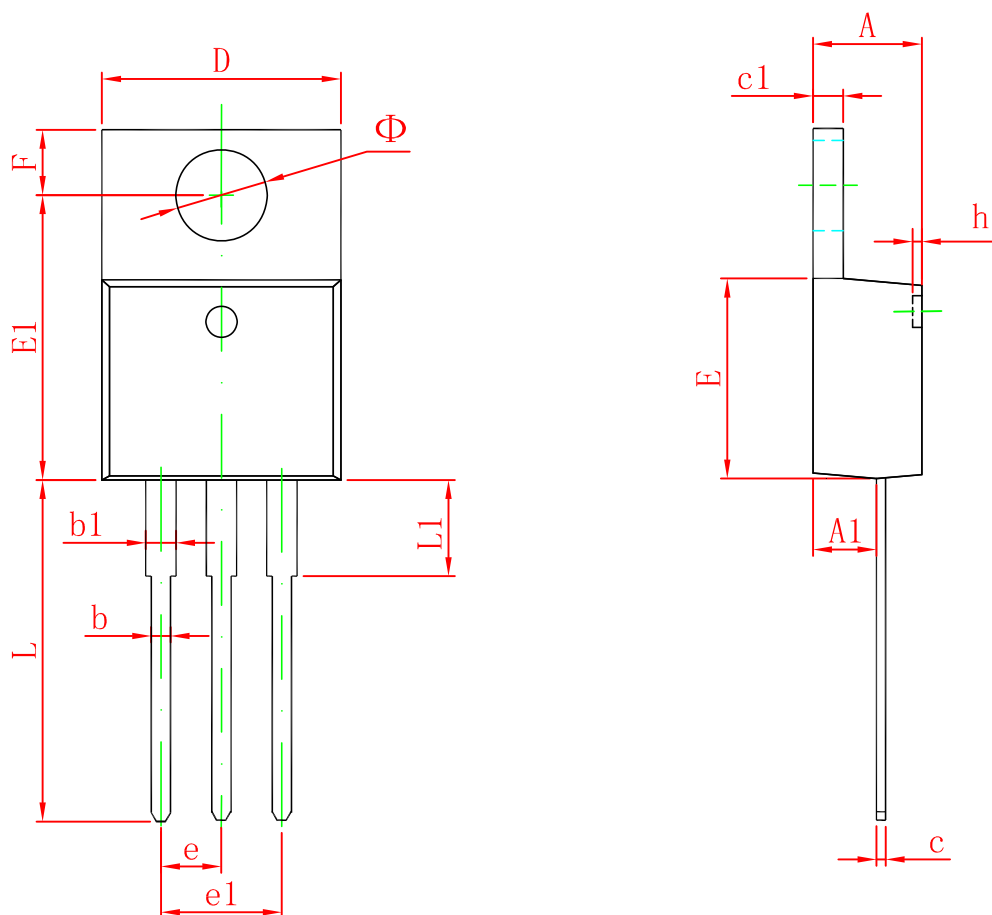
- 1.Repetitive Rating ; Pulse width limited by maximum junction temperature
- 2.L=14mH, I_{AS} =8.0A, V_{DD}=50V, R_G=25Ω, starting T_J = 25°C
- 3.I_{SD}≤8.0A, di/dt≤100A/μs, V_{DD}≤V_{(BR)DSS}, T_J≤150°C
4. Pulse width ≤300μs, Duty cycle≤2%

Typical Characteristics

IRF840



TO-220-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155