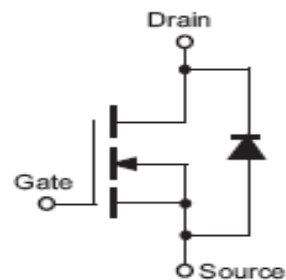


# IRF840

## N CHANNEL ENHANCEMENT MODE POWER MOS TRANSISTORS

### FEATURE

N channel in a plastic TO220 package.  
 They are intended for use in off-line switched mode power supplies, T.V. and computer monitor power supplies.  
 DC-DC converters, motor control circuits and general purpose switching applications  
 Compliance to RoHS.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
$V_{DS}$	Drain-Source Voltage	500	V
$I_{DS}$	Continuous Drain Current $T_C= 37^\circ C$	8	A
$I_{DM}$	Pulsed Drain Current $T_C= 25^\circ C$	32	
$I_{AR}$	Avalanche Current, Limited by $T_{imax}$	8	
$E_{AS}$	Avalanche Energy, Single pulse	510	mJ
$E_{AR}$	Avalanche Energy, Periodic Limited by $T_{imax}$	13	
$V_{GS}$	Gate-Source Voltage	20	V
$R_{DS(on)}$	Drain-Source on Resistance	0.85	$\Omega$
$P_T$	Power Dissipation at Case Temperature $T_C= 25^\circ C$	125	W
$t_J$	Operating Temperature	150	$^\circ C$
$t_{stg}$	Storage Temperature range	-55 to +150	

### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJC}$	Thermal Resistance, junction-case	1	$^\circ C/W$
$R_{thJA}$	Thermal Resistance, junction-ambient	62.5	

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$V_{DSS}$	Drain-Source Breakdown Voltage	$I_D = 250 \mu A, V_{GS} = 0 V$	500	-	-	V
$V_{GS(th)}$	Gate-threshold Voltage	$I_D = 250 \mu A, V_{GS} = V_{DS}$	2	3	4	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 500 V, V_{GS} = 0 V$ $T_J = 25^\circ C$	-	-	25	$\mu A$
		$V_{DS} = 500 V, V_{GS} = 0 V$ $T_J = 125^\circ C$	-	-	250	
$I_{GSS}$	Gate-Source leakage Current	$V_{GS} = 20 V, V_{DS} = 0 V$	-	-	500	nA
$R_{DS(on)}$	Drain-Source on Resistance	$I_D = 4 A, V_{GS} = 10 V$	-	-	0.85	$\Omega$

### DYNAMIC CHARACTERISTICS

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$g_{fs}$	Transconductance	$V_{DS} > I_{D(on)} * R_{DS(on)max}$ $I_D = 4.4 A$	4.9	-	-	S
$C_{ISS}$	Input Capacitance	$V_{GS} = 0 V, V_{DS} = 25 V$ $f = 1 MHz$	-	-	1600	$\mu F$
$C_{OSS}$	Output Capacitance		-	-	350	
$C_{RSS}$	Reverse transfer Capacitance		-	-	150	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = 200 V,$ $I_D = 4 A, R_{GS} = 4.7 \Omega$	-	-	35	ns
$t_r$	Rise time		-	-	15	
$t_{d(off)}$	Turn-off Delay Time		-	-	90	
$t_f$	Fall Time		-	-	30	

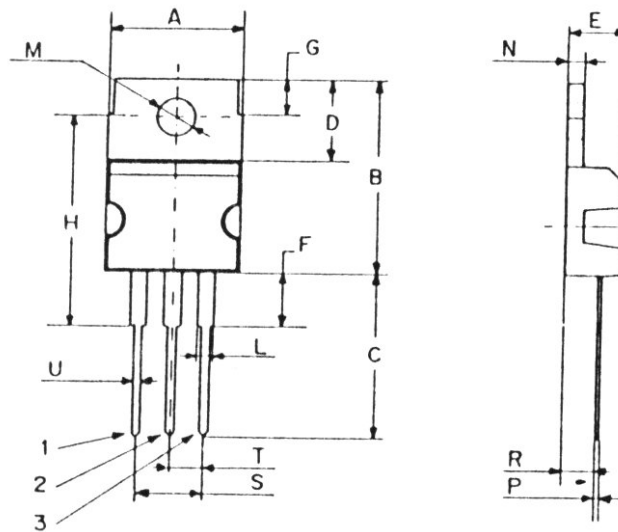
### REVERSE DIODE

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$I_S$	Inverse Diode Continuous Forward Current.	$T_C = 25^\circ C$	-	-	8	A
$I_{SM}$	Inverse diode direct current, pulsed.	$T_C = 25^\circ C$	-	-	32	
$V_{SD}$	Inverse Diode Forward voltage	$V_{GS} = 0 V, I_F = 8 A$	-	-	2	V
$T_{rr}$	Reverse Recovery Time	$I_F = 8 A$	-	460	970	ns
$Q_{rr}$	Reverse Recovery Charge	$di/dt = 100 A/\mu s$	-	4.2	8.9	$\mu C$

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## MECHANICAL DATA CASE TO-220

DIMENSIONS (mm)		
	Min.	Max.
A	9,90	10,30
B	15,65	15,90
C	13,20	13,40
D	6,45	6,65
E	4,30	4,50
F	2,70	3,15
G	2,60	3,00
H	15,75	17,15
L	1,15	1,40
M	3,50	3,70
N	-	1,37
P	0,46	0,55
R	2,50	2,70
S	4,98	5,08
T	2,49	2,54
U	0,70	0,90



Pin 1 :	Gate
Pin 2 :	Drain
Pin 3 :	Source

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