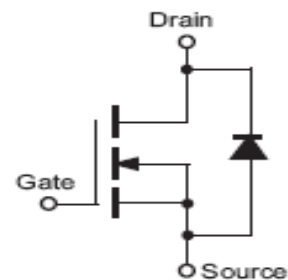


## IRF830

### 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 $T_C= 37^\circ\text{C}$	4.5	A
$I_{DM}$	Pulsed Drain Current $T_C= 25^\circ\text{C}$	18	
$I_{AR}$	Avalanche Current, Limited by $T_{imax}$	4.5	
$E_{AS}$	Avalanche Energy, Single pulse	280	mJ
$E_{AR}$	Avalanche Energy, Periodic Limited by $T_{imax}$	7.4	
$V_{GS}$	Gate-Source Voltage	20	V
$R_{DS(on)}$	Drain-Source on Resistance	1.5	$\Omega$
$P_T$	Power Dissipation at Case Temperature $T_C= 25^\circ\text{C}$	74	W
$t_J$	Operating Temperature	150	$^\circ\text{C}$
$t_{stg}$	Storage Temperature range	-55 to +150	

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJC}$	Thermal Resistance, junction-case	1.7	$^\circ\text{C}/\text{W}$
$R_{thJA}$	Thermal Resistance, junction-ambient	62	

## IRF830

### 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	$V_{GS} = 20 V, V_{DS} = 0 V$	-	-	100	nA
$R_{DS(on)}$	Drain-Source on Resistance	$I_D = 2.7 A, V_{GS} = 10 V$	-	-	1.5	$\Omega$

### DYNAMIC CHARACTERISTICS

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$g_{fs}$	Transconductance	$V_{DS} > I_{D(on)} * R_{DS(on)max}$ $I_D = 2.5 A$	2.5	-	-	S
$C_{ISS}$	Input Capacitance	$V_{GS} = 0 V, V_{DS} = 25 V$ $f = 1 MHz$	-	-	800	$\mu F$
$C_{OSS}$	Output Capacitance		-	-	200	
$C_{RSS}$	Reverse transfer Capacitance		-	-	60	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = 225 V,$ $I_D = 2.5 A, R_{GS} = 15 \Omega$	-	-	30	ns
$t_r$	Rise time		-	-	30	
$t_{d(off)}$	Turn-off Delay Time		-	-	55	
$t_f$	Fall Time		-	-	30	

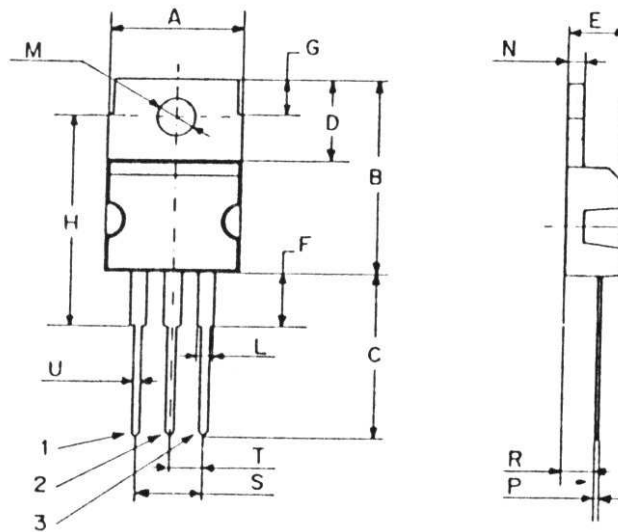
### REVERSE DIODE

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$I_S$	Inverse Diode Continuous Forward Current.	$T_C = 25^\circ C$	-	-	4.5	A
$I_{SM}$	Inverse diode direct current, pulsed.	$T_C = 25^\circ C$	-	-	18	
$V_{SD}$	Inverse Diode Forward voltage	$V_{GS} = 0 V, I_F = 4.5 A$	-	-	1.6	V
$T_{rr}$	Reverse Recovery Time	$I_F = 3.1 A$	-	320	640	ns
$Q_{rr}$	Reverse Recovery Charge	$di/dt = 100 A/\mu s$	-	1	2	$\mu C$

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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

Revised August 2012

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