

Silicon N-Channel Power MOSFET

Description

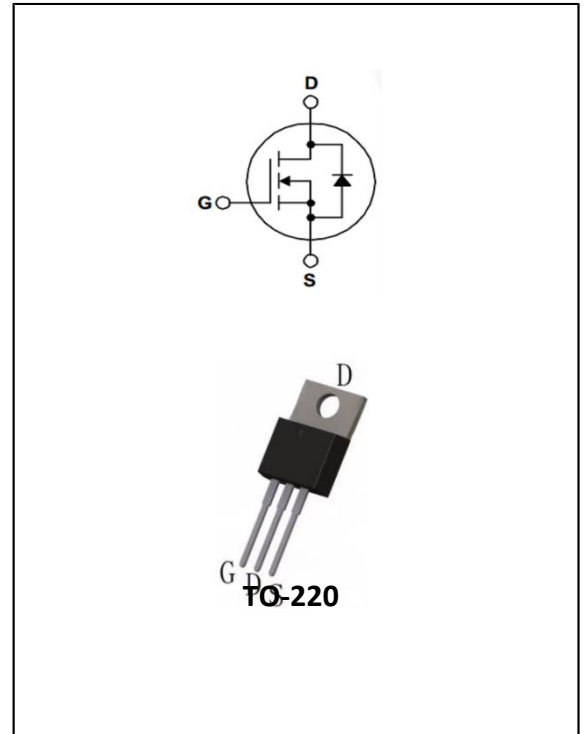
The IRF830 uses advanced technology and design to provide excellent  $R_{DS(ON)}$ . It can be used in a wide variety of applications.

General Features

- ①  $V_{DS}=500V, R_{dson}<1.5\Omega @V_{GS}=10V, I_D=5A$  (Typ:1.25 $\Omega$ )
- ② Low ON Resistance
- ③ Low Reverse transfer capacitances
- ④ 100% Single Pulse avalanche energy Test

Application

- ① Power Switching application
- ② Adapter and charger



Package Marking And Ordering Information:

Ordering Codes	Package	Product Code	Packing
IRF830	TO-220	IRF830	Tube

Electrical Characteristics @  $T_a=25^\circ C$  (unless otherwise specified)

Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
$V_{DSS}$	Drain-to-Source Breakdown Voltage	500	V
$I_D$	Drain Current (continuous) at $T_c=25^\circ C$	5	A
$I_{DM}$	Drain Current (pulsed)	20	A
$V_{GS}$	Gate to Source Voltage	+/-30	V
$P_{tot}$	Total Dissipation at $T_c=25^\circ C$	38	W
$T_j$	Max. Operating Junction Temperature	-55~150	$^\circ C$
$E_{AS}$	Single Pulse Avalanche Energy	88	mJ

**Electrical Parameters:**

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V <sub>DS</sub>	Drain-source Voltage	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	500			V
R <sub>DS(on)</sub>	Static Drain-to-Source on-Resistance	V <sub>GS</sub> = 10V, I <sub>D</sub> = 2.5A		1.25	1.50	Ω
V <sub>GS(th)</sub>	Gated Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2.0	3.3	4.0	V
I <sub>DSS</sub>	Drain to Source leakage Current	V <sub>DS</sub> = 500V, V <sub>GS</sub> = 0V			1.0	μA
I <sub>GSS(F)</sub>	Gated Body Forward Leakage	V <sub>GS</sub> = +30V			100	nA
I <sub>GSS(R)</sub>	Gated Body Reverse Leakage	V <sub>GS</sub> = -30V			-100	nA
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1.0MHz		657		pF
C <sub>oss</sub>	Output Capacitance			57		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			13		pF

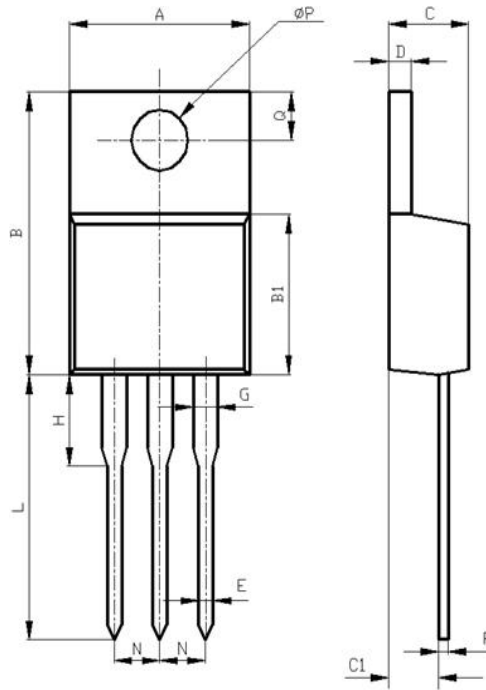
**Switching Characteristics:**

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
t <sub>d(off)</sub>	Turn-on Delay Time	V <sub>DD</sub> = 250V, I <sub>D</sub> = 5A, R <sub>G</sub> = 25 Ω		20		nS
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = 400V I <sub>D</sub> = 5A V <sub>GS</sub> = 10V		26		nC
Q <sub>gs</sub>	Gate-Source Charge			4		nC
Q <sub>gd</sub>	Gate-Drain Charge			15		nC

**Source-Drain Diode Characteristics:**

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I <sub>SD</sub>	S-D Current(Body Diode)				5	A
t <sub>rr</sub>	Reverse Recovery Time	T <sub>J</sub> = 25°C, I <sub>F</sub> = 5A di/dt = 100A/us		220		nS
Q <sub>rr</sub>	Reverse Recovery Charge			1		μC

Package Description:



Items	Values(mm)	
	MIN	MAX
A	9.60	10.6
B	15.0	16.0
B1	8.90	9.50
C	4.30	4.80
C1	2.30	3.10
D	1.20	1.40
E	0.70	0.90
F	0.30	0.60
G	1.17	1.37
H	2.70	3.80
L	12.6	14.8
N	2.34	2.74
Q	2.40	3.00
φp	3.50	3.90

TO-220 Package

**NOTE:**

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change without prior notice.

**CONTACT:**

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