

N-Channel MOSFET Transistor

IRF520N

• FEATURES

- Low $R_{DS(on)}$
- V_{GS} Rated at $\pm 20V$
- Silicon Gate for Fast Switching Speed
- Rugged
- Low Drive Requirements
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

• DESCRIPTION

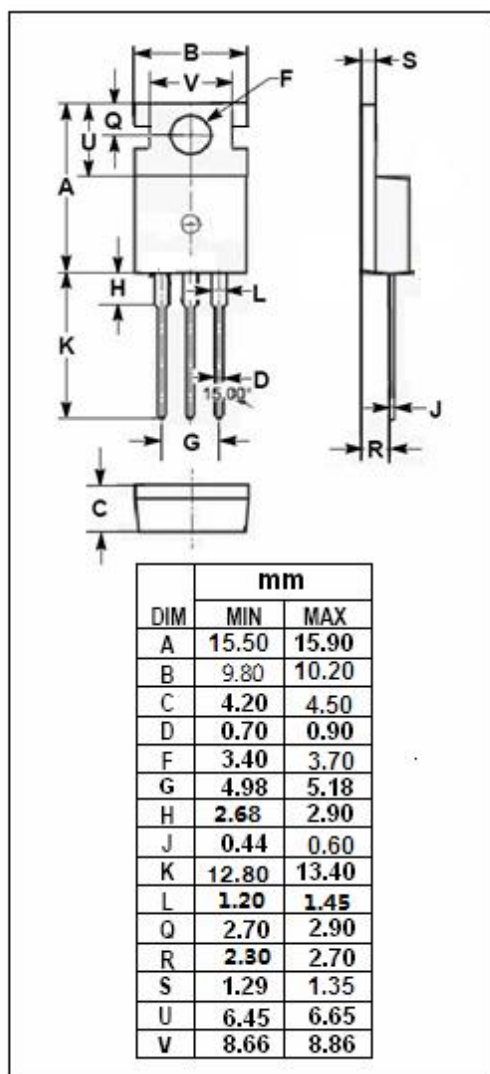
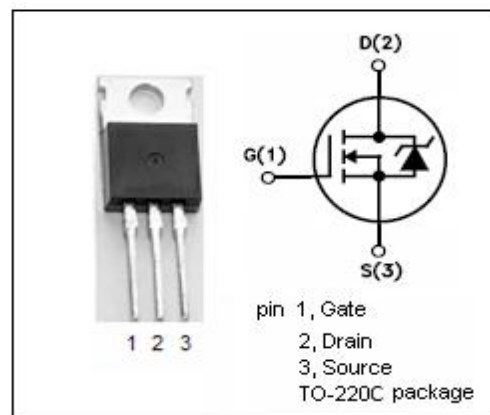
- Designed especially for high voltage,high speed applications, such as off-line switching power supplies , UPS,AC and DC motor controls,relay and solenoid drivers.

• ABSOLUTE MAXIMUM RATINGS($T_a=25^{\circ}C$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage-Continuous	± 20	V
I_D	Drain Current-Continuous	9.7	A
I_{DM}	Drain Current-Single Pulsed	38	A
P_D	Total Dissipation @ $T_C=25^{\circ}C$	48	W
T_J	Max. Operating Junction Temperature	-55~175	$^{\circ}C$
T_{stg}	Storage Temperature	-55~175	$^{\circ}C$

• THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th(j-c)}$	Thermal Resistance,Junction to Case	3.125	$^{\circ}C/W$
$R_{th(j-a)}$	Thermal Resistance,Junction to Ambient	62	$^{\circ}C/W$



N-Channel MOSFET Transistor**IRF520N****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0$; $I_D=0.25\text{mA}$	100			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$; $I_D=0.25\text{mA}$	2		4	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10\text{V}$; $I_D=5.7\text{A}$			0.2	Ω
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20\text{V}$; $V_{DS}=0$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100\text{V}$; $V_{GS}=0$			25	μA
V_{SD}	Forward On-Voltage	$I_S=5.7\text{A}$; $V_{GS}=0$			1.3	V
G_{fs}	Forward Transconductance	$V_{DS}\geq 50\text{V}$; $I_D=5.7\text{A}$	2.7			S
C_{iss}^*	Input capacitance	$V_{GS}=0\text{V}$ $V_{DS}=25\text{V}$ $f=1\text{MHz}$		3400		pF
C_{oss}^*	Output capacitance			260		pF
C_{rss}^*	Reverse transfer capacitance			210		pF
$t_{d(on)}^*$	Turn-on delay time	$V_{DD}=30\text{V}$ $V_{GS}=10\text{V}$ $I_D=2\text{A}$ $R_G=2.5\Omega$ $R_L=15\Omega$		15		ns
T_r^*	Rise time			11		ns
$t_{d(off)}^*$	Turn-off delay time			52		ns
T_f^*	Fall time			13		ns
Q_g^*	Total Gate Charge	$I_D=30\text{A}$ $V_{DS}=30\text{V}$ $V_{GS}=10\text{V}$			94	nC
Q_{gs}^*	Gate-Source Charge				16	nC
Q_{gd}^*	Gate-Drain Charge				24	nC