

isc N-Channel MOSFET Transistor

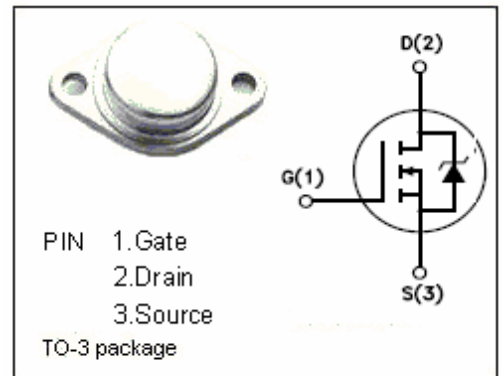
IRF431

DESCRIPTION

- silicon Gate for fast switching at elevate
- rugged
- low drive requirements
- ease of paralleling

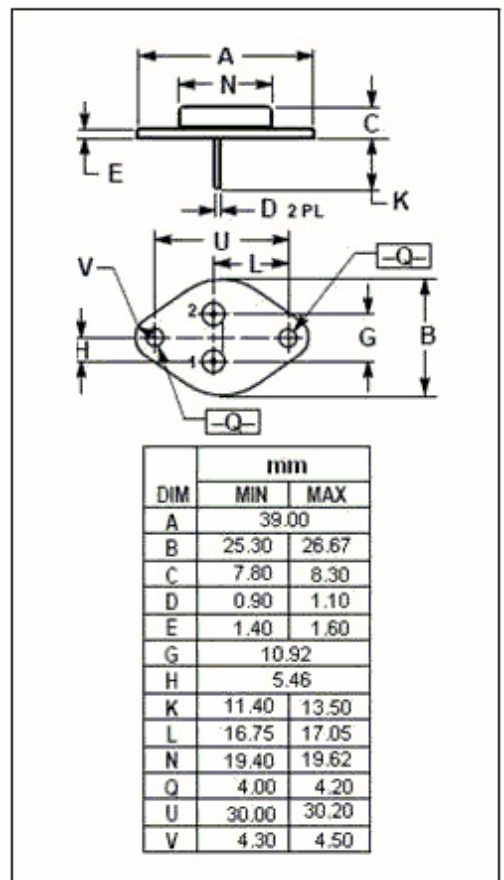
APPLICATIONS

- high speed applications such as  
Switching power supplies, AC and DC motor controls  
relay and solenoid driver.



ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)

SYMBOL	ARAMETER	VALUE	UNIT
V <sub>DSS</sub>	Drain-Source Voltage (V <sub>GS</sub> =0)	450	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Drain Current-continuous@ TC=25°C	4.5	A
P <sub>tot</sub>	Total Dissipation@TC=25°C	75	W
T <sub>j</sub>	Max. Operating Junction Temperature	-55~150	°C
T <sub>stg</sub>	Storage Temperature Range	-55~150	°C



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	0.83	°C/W
R <sub>th j-a</sub>	Thermal Resistance, Junction to Ambient	30	°C/W

## isc N-Channel Mosfet Transistor

IRF431

• ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ )

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0$ ; $I_D=0.25\text{mA}$	450			V
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$ ; $I_D=250\mu\text{A}$	2		4	V
$R_{DS(ON)}$	Drain-Source On-stage Resistance	$V_{GS}=10\text{V}$ ; $I_D=2.5\text{A}$			2.0	$\Omega$
$I_{GSS}$	Gate Source Leakage Current	$V_{GS}=\pm 20\text{V}$ ; $V_{DS}=0$			$\pm 100$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=450\text{V}$ ; $V_{GS}=0$			250	$\mu\text{A}$
$V_{SD}$	Diode Forward Voltage	$I_F=4.5\text{A}$ ; $V_{GS}=0$			1.4	V
$C_{iss}$	Input Capacitance	$V_{DS}=25\text{V}$ ; $V_{GS}=0\text{V}$ ; $f_T=1\text{MHz}$		600		pF
$C_{rss}$	Reverse Transfer Capacitance			100		
$C_{oss}$	Output Capacitance			30		
$t_r$	Rise Time	$I_D=4.5\text{A}$ ; $V_{DD}=250\text{V}$ ; $R_G=12\Omega$		11	17	ns
$t_{d(on)}$	Turn-on Telay Time			15	23	
$t_f$	Fall Time			35	53	
$t_{d(off)}$	Turn-off Delay Time			15	23	