

isc N-Channel MOSFET Transistor

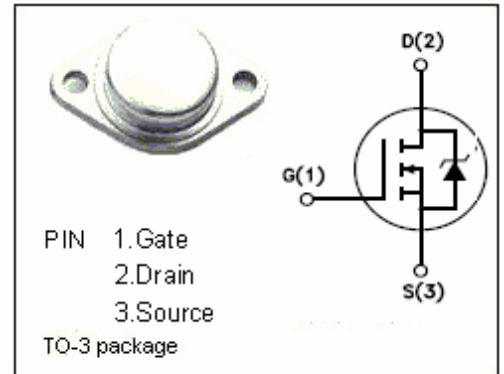
IRF440

DESCRIPTION

- $V_{GS}$  Rated at  $\pm 20V$
- Silicon Gate for Fast Switching Speeds
- $I_{DSS}, V_{DS(on)}, SOA$  and  $V_{GS(th)}$  specified at Elevated temperature
- Rugged

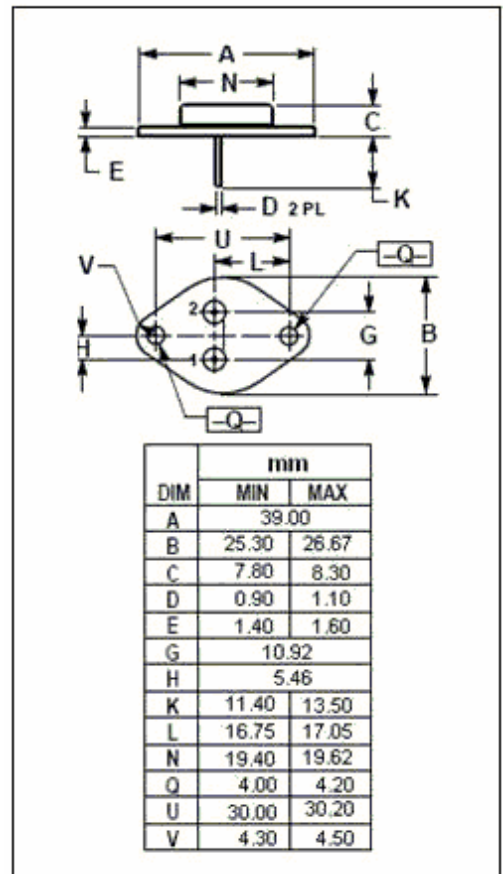
APPLICATIONS

- 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
$V_{DSS}$	Drain-Source Voltage ( $V_{GS}=0$ )	500	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current-continuous@ $TC=25^{\circ}C$	8	A
$P_{tot}$	Total Dissipation@ $TC=25^{\circ}C$	125	W
$T_j$	Max. Operating Junction Temperature	-55~150	$^{\circ}C$
$T_{stg}$	Storage Temperature Range	-55~150	$^{\circ}C$



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.0	$^{\circ}C/W$
$R_{th j-A}$	Thermal Resistance, Junction to Ambient	30	$^{\circ}C/W$

## isc N-Channel Mosfet Transistor

## IRF440

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0; I_D=0.25\text{mA}$	500			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-stage Resistance	$V_{GS}=10\text{V}; I_D=4.4\text{A}$			0.85	$\Omega$
$I_{GSS}$	Gate Source Leakage Current	$V_{GS}=\pm 20\text{V}; V_{DS}=0$			$\pm 100$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=500\text{V}; V_{GS}=0$			250	$\mu\text{A}$
$V_{SD}$	Diode Forward Voltage	$I_F=8\text{A}; V_{GS}=0$			2.0	V
$C_{iss}$	Input Capacitance	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, F=1.0\text{MHz}$		1225	1600	pF
$C_{oss}$	Output Capacitance			200	350	pF
$C_{rss}$	Reverse Transfer Capacitance			85	150	pF

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$T_d(\text{on})$	Turn-on Delay Time	$V_{DD}=250\text{V}, I_D=8\text{A}$ $V_{GS}=10\text{V}, R_{GEN}=9.1\Omega$ $R_{GS}=9.1\Omega$		15	21	ns
$T_r$	Rise Time			22	35	ns
$T_d(\text{off})$	Turn-off Delay Time			49	74	ns
$T_f$	Fall Time			20	30	ns