

isc N-Channel MOSFET Transistor

IRF054

DESCRIPTION

- Drain Current  $I_D=45A@ T_C=25^\circ C$
- Drain Source Voltage-  
:  $V_{DSS}= 60V(\text{Min})$
- Static Drain-Source On-Resistance  
:  $R_{DS(on)} = 0.05 \Omega (\text{Max})$
- Simple Drive Requirements

APPLICATIONS

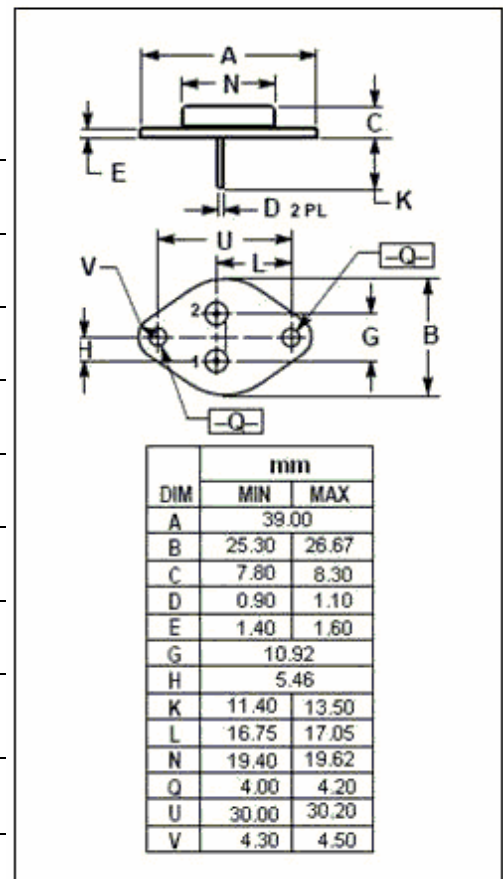
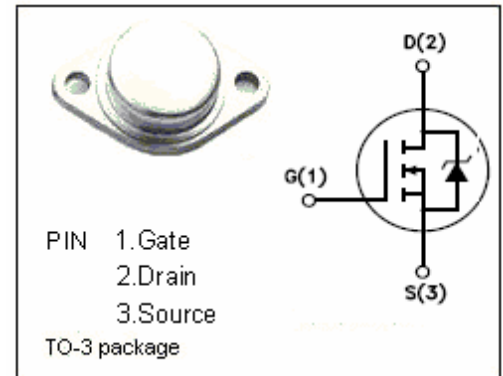
- Switching power supplies
- Motor controls, Inverters and Choppers
- Audio amplifiers and high energy pulse circuits.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage ( $V_{GS}=0$ )	60	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current-continuous@ $T_C=25^\circ C$	45	A
$P_{tot}$	Total Dissipation@ $T_C=25^\circ C$	150	W
$T_j$	Max. Operating Junction Temperature	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	0.83	$^\circ C/W$
$R_{th j-a}$	Thermal Resistance, Junction to Ambient	30	$^\circ C/W$



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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0$ ; $I_D=1\text{mA}$	60			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	$V_{GS}=10\text{V}$ ; $I_D=31\text{A}$			0.022	$\Omega$
$I_{GSS}$	Gate Source Leakage Current	$V_{GS}=\pm 20\text{V}$ ; $V_{DS}=0$			$\pm 100$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=48\text{V}$ ; $V_{GS}=0$			25	$\mu\text{A}$
$V_{SD}$	Diode Forward Voltage	$I_S=45\text{A}$ ; $V_{GS}=0$			2.5	V
$C_{iss}$	Input Capacitance	$V_{DS}=25\text{V}$ ; $V_{GS}=0\text{V}$ ; $f_T=1\text{MHz}$		4600		pF
$C_{rss}$	Reverse Transfer Capacitance			340		
$C_{oss}$	Output Capacitance			2000		
$t_r$	Rise Time	$I_D=45\text{A}$ ; $V_{DD}=30\text{V}$ ; $R_L=2.35\ \Omega$			180	ns
$t_{d(on)}$	Turn-on Delay Time				33	
$t_f$	Fall Time				100	
$t_{d(off)}$	Turn-off Delay Time				100	