

isc N-Channel Mosfet Transistor

IRF542

• FEATURES

- Low  $R_{DS(on)}$
- $V_{GS}$  Rated at  $\pm 20V$
- Silicon Gate for Fast Switching Speed
- Rugged
- Low Drive Requirements

• DESCRIPTION

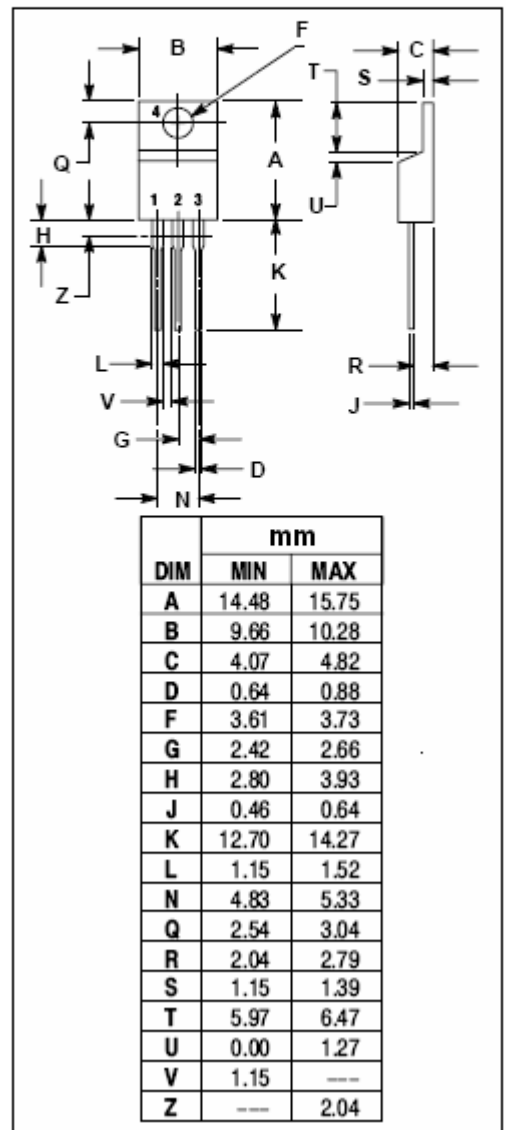
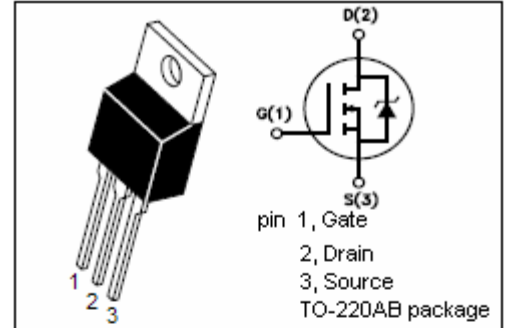
- Designed especially for high voltage,high speed applications, such as off-line switching power supplies , UPS,AC and DC motor controls,relay and solenoid drivers.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage	100	V
$V_{GS}$	Gate-Source Voltage-Continuous	$\pm 20$	V
$I_D$	Drain Current-Continuous	25	A
$I_{DM}$	Drain Current-Single Plused	100	A
$P_D$	Total Dissipation @ $T_C=25^\circ C$	150	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	1.0	$^\circ C/W$
$R_{th\ j-a}$	Thermal Resistance,Junction to Ambient	80	$^\circ C/W$



**isc N-Channel Mosfet Transistor****IRF542****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	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	$V_{GS}=10\text{V}; I_D=17\text{A}$		0.1	$\Omega$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS}=\pm 20\text{V}; V_{DS}=0$		$\pm 500$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=100\text{V}; V_{GS}=0$		250	$\mu\text{A}$
$V_{SD}$	Forward On-Voltage	$I_S=27\text{A}; V_{GS}=0$		2.5	V
$C_{iss}$	Input Capacitance	$V_{DS}=25\text{V}, V_{GS}=0\text{V},$ $F=1.0\text{MHz}$		1600	pF
$C_{oss}$	Output Capacitance			800	pF
$C_{rss}$	Reverse Transfer Capacitance			300	pF

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$T_d(on)$	Turn-on Delay Time	$V_{DD}=50\text{V}, I_D=28\text{A}$ $V_{GS}=10\text{V}, R_{GEN}=9.1\Omega$ $R_{GS}=9.1\Omega$		15	23	ns
$T_r$	Rise Time			70	110	ns
$T_d(off)$	Turn-off Delay Time			40	60	ns
$T_f$	Fall Time			50	75	ns