

isc N-Channel Mosfet Transistor

IRF643

• FEATURES

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

• DESCRIPTION

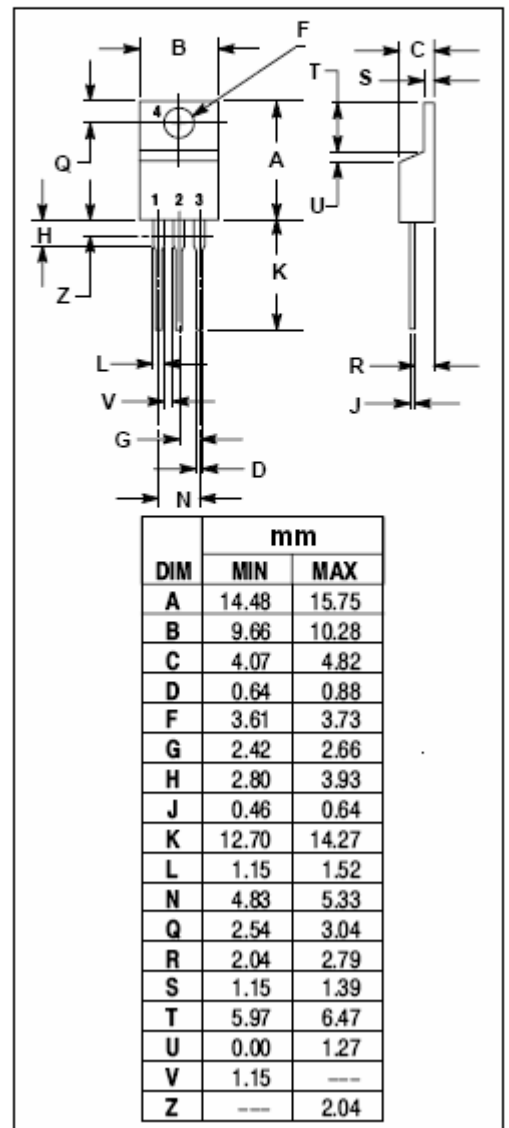
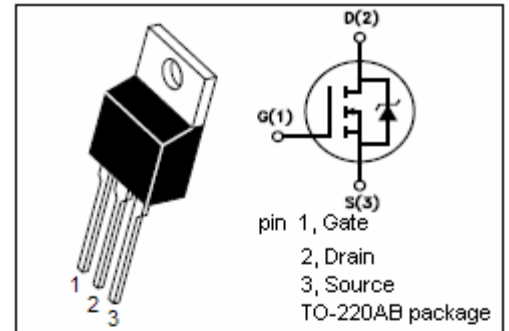
- Designed especially for high voltage, high speed applications, such as off-line switching power supplies, UPS, AC and DC motor controls, relay and solenoid drivers.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{DSS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage-Continuous	± 20	V
I_D	Drain Current-Continuous	16	A
I_{DM}	Drain Current-Single Plused	64	A
P_D	Total Dissipation @ $T_C=25^\circ C$	125	W
T_j	Max. Operating Junction Temperature	-55~150	$^\circ C$
T_{stg}	Storage Temperature	-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	80	$^\circ C/W$



isc N-Channel Mosfet Transistor**IRF643****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0$; $I_D=0.25\text{mA}$	150		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	$V_{GS}=10\text{V}$; $I_D=10\text{A}$		0.22	Ω
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20\text{V}$; $V_{DS}=0$		± 500	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=150\text{V}$; $V_{GS}=0$		250	μA
V_{SD}	Forward On-Voltage	$I_S=18\text{A}$; $V_{GS}=0$		2.0	V
C_{iss}	Input Capacitance	$V_{DS}=25\text{V}$, $V_{GS}=0\text{V}$, $F=1.0\text{MHz}$		1600	pF
C_{oss}	Output Capacitance			750	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	$V_{DD}=100\text{V}$, $I_D=18\text{A}$ $R_G=9.1\Omega$		13	21	ns
T_r	Rise Time			50	77	ns
$T_d(off)$	Turn-off Delay Time			46	68	ns
T_f	Fall Time			35	54	ns