

# isc N-Channel Mosfet Transistor

## BUZ42

### • FEATURES

- 4A, 500V
- SOA is Power Dissipation Limited
- Nanosecond Switching Speeds
- Linear Transfer Characteristics
- High speed switching
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### • DESCRIPTION

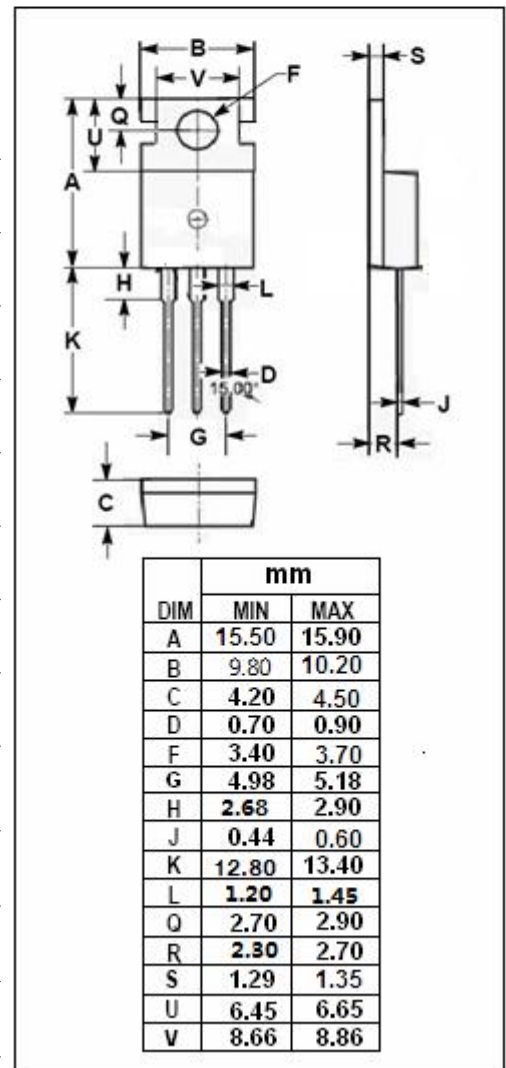
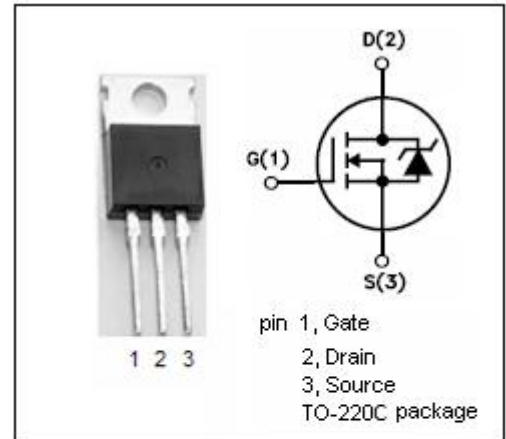
- Designed for applications such as switching regulators, switching converters, motor drivers, relay drivers and drivers for high power bipolar switching transistors requiring high speed and low gate drive power.

### • ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}\text{C}$ )

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@ $TC=55^{\circ}\text{C}$	4.0	A
$I_{DM}$	Drain Current-Single Pulsed	16	A
$P_{tot}$	Total Dissipation@ $TC=25^{\circ}\text{C}$	75	W
$T_j$	Max. Operating Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^{\circ}\text{C}$

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.67	$^{\circ}\text{C}/\text{W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	75	$^{\circ}\text{C}/\text{W}$



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**ELECTRICAL CHARACTERISTICS**

 T<sub>C</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0; I <sub>D</sub> =0.25mA	500			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> ; I <sub>D</sub> =1mA	2.1		4.0	V
V <sub>SD</sub>	Diode Forward On-voltage	I <sub>S</sub> = 8A; V <sub>GS</sub> = 0			1.5	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> = 10V; I <sub>D</sub> = 2.5A			2.0	Ω
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±20V; V <sub>DS</sub> = 0			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =500V; V <sub>GS</sub> = 0			250	μA
G <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> = 25V; I <sub>D</sub> =2.5A	1.5			S
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>GS</sub> =10V; I <sub>D</sub> =2.5A; V <sub>DD</sub> =30V; R <sub>GS</sub> =50 Ω			45	ns
t <sub>r</sub>	Rise Time				60	
t <sub>d(off)</sub>	Turn-off Delay Time				140	
t <sub>f</sub>	Fall Time				65	

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