

# isc N-Channel MOSFET Transistor

# FDA16N50

## FEATURES

- Drain Current :  $I_D = 16.5A @ T_C = 25^\circ C$
- Drain Source Voltage  
:  $V_{DSS} = 500V(\text{Min})$
- Static Drain-Source On-Resistance  
:  $R_{DS(on)} = 0.38 \Omega (\text{Max}) @ V_{GS} = 10V$
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## DESCRIPTION

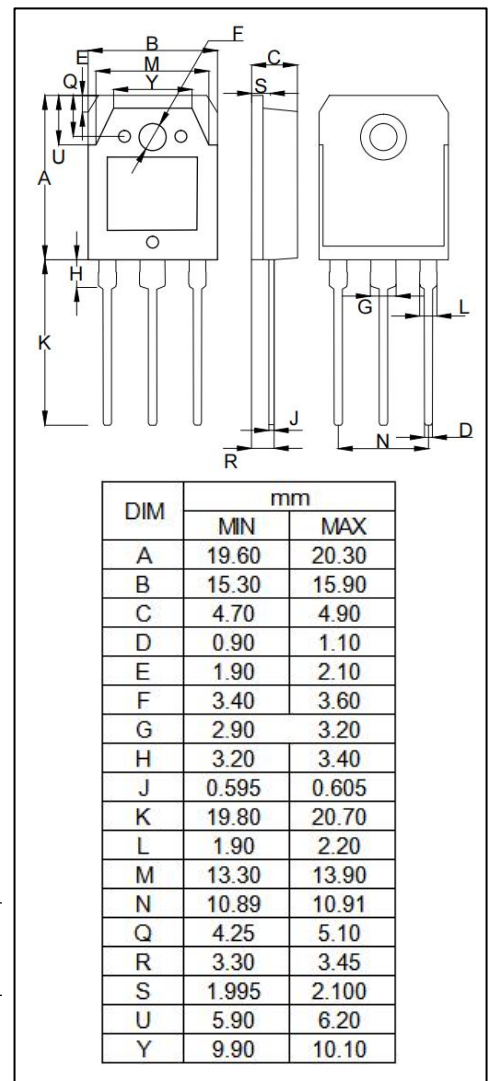
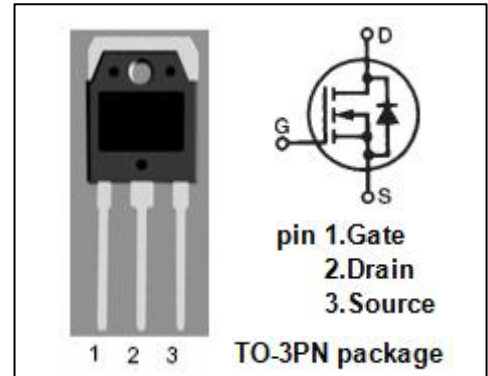
- motor drive, DC-DC converter, power switch and solenoid drive.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage	500	V
$V_{GSS}$	Gate-Source Voltage	$\pm 30$	V
$I_D$	Drain Current-Continuous; @ $T_c = 25^\circ C$	16.5	A
$I_{DM}$	Drain Current-Single Pulsed	66	A
$P_D$	Total Dissipation	205	W
$T_j$	Operating Junction Temperature	-55~150	$^\circ C$
$T_{stg}$	Storage Temperature	-55~150	$^\circ C$

### • THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th(ch-c)}$	Channel-to-case thermal resistance	0.6	$^\circ C/W$



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**ELECTRICAL CHARACTERISTICS**
**T<sub>c</sub>=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V; 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> = 0.25mA	3		5	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> = 10V; I <sub>D</sub> = 8.3A			0.38	Ω
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±30V; V <sub>DS</sub> = 0V			±100	nA
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> = 500V; V <sub>GS</sub> = 0V			1	uA
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1.0MHz	-	2670	-	pF
C <sub>oss</sub>	Output Capacitance		-	266	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	37	-	
Q <sub>g</sub>	Total Gate Charge		-	65	-	
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DD</sub> = 250V, I <sub>D</sub> = 16.5A, V <sub>GS</sub> = 10V	-	13	-	
Q <sub>gd</sub>	Gate-Drain Charge	-	24	-		
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> = 250V, I <sub>D</sub> = 16.5A, R <sub>G</sub> = 25Ω	-	30	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	75	-	
t <sub>d(off)</sub>	Turn-off Delay Time		-	165	-	
t <sub>f</sub>	Turn-off Fall Time		-	80	-	

**Drain - Source Body Diode Characteristics**

I <sub>SD</sub>	Continuous Source Current	T <sub>c</sub> = 25 °C	-	-	9.2	A
I <sub>SM</sub>	Pulsed Source Current		-	-	37	A
V <sub>SD</sub>	Diode Forward Voltage	I <sub>SD</sub> = 16.5A; V <sub>GS</sub> = 0V	-	-	1.4	V
t <sub>rr</sub>	Reverse Recovery Time	V <sub>DD</sub> = 40V, I <sub>F</sub> = 16.5A, di <sub>F</sub> /dt = 100A/μs	-	360	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge		-	3.0	-	uC

**isc N-Channel MOSFET Transistor****FDA16N50****NOTICE:**

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