

N-Channel MOSFET

FEATURES

- Drain Current $-I_D = 11.5A @ T_C = 25^\circ C$
- Drain Source Voltage $-V_{DSS} = 500V(\text{Min})$
- Static Drain-Source On-Resistance
 $-R_{DS(on)} = 0.52\Omega(\text{Max}) @ V_{GS} = 10V$

APPLICATIONS

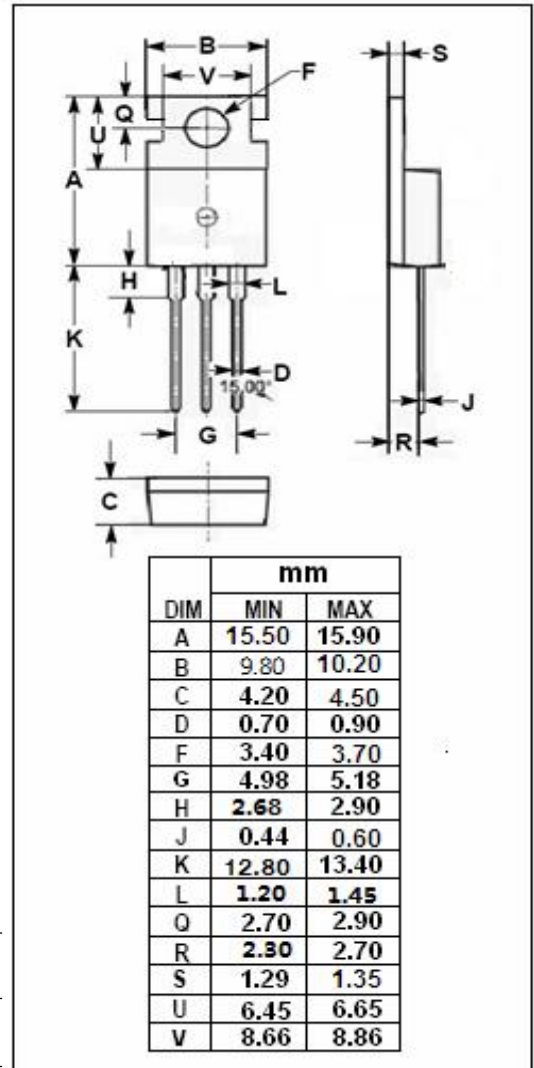
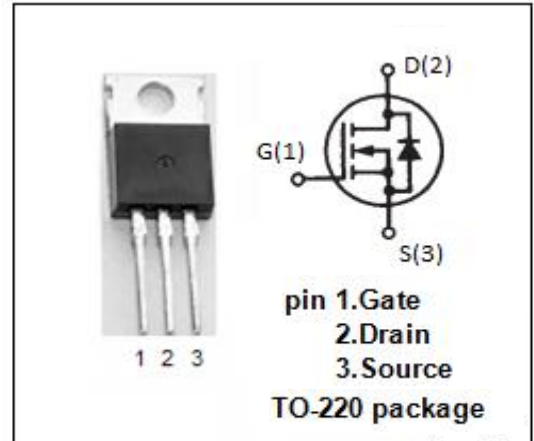
- Motor Drive
- DC-DC converter
- Power Switch And Solenoid Drive

Absolute Maximum Ratings($T_C = 25^\circ C$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{DSS}	Drain-Source Voltage	500	V
V_{GS}	Gate-Source Voltage-Continuous	± 25	V
I_D	Drain Current-Continuous	11.5	A
I_{DM}	Drain Current-Single Pulse	46	A
P_D	Total Dissipation @ $T_C = 25^\circ C$	170	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	0.73	$^\circ C/W$



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ELECTRICAL CHARACTERISTICS (T_c=25°C)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0; I _D = 0.25mA	500	--	--	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} ; I _D = 0.25mA	3.0	--	5.0	V
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V; I _D = 5.75A	-	--	0.52	Ω
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±25V; V _{DS} = 0	-	--	±10	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =500V; V _{GS} = 0	-	--	1	uA
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V, f = 1.0MHz	-	1841	-	pF
C _{oss}	Output Capacitance		-	159	-	
C _{rss}	Reverse Transfer Capacitance		-	10	-	
Q _g	Total Gate Charge	V _{DD} = 400V, I _D = 11.5A, V _{GS} = 10V	-	43	-	nC
Q _{gs}	Gate-Source Charge		-	6.8	-	
Q _{gd}	Gate-Drain Charge		-	18.3	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} = 250V, I _D = 11.5A, R _G = 25Ω, V _{GS} = 10V	-	23	-	ns
t _r	Turn-on Rise Time		-	55	-	
t _{d(off)}	Turn-off Delay Time		-	60	-	
t _f	Turn-off Fall Time		-	47	-	

Drain - Source Body Diode Characteristics

I _{SD}	Continuous Source Current	T _c = 25 °C	-	-	11.5	A
I _{SM}	Pulsed Source Current		-	-	46	
V _{SD}	Diode Forward Voltage	I _{SD} = 11.5A; V _{GS} = 0V	-	-	1.4	V
t _{rr}	Reverse Recovery Time	V _{GS} = 0V, I _F = I _S , di _F /dt = 100A/μs	-	421	-	ns
Q _{rr}	Reverse Recovery Charge		-	4.3	-	uC

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TYPICAL CHARACTERISTICS $T_J = 25^\circ\text{C}$, unless otherwise noted

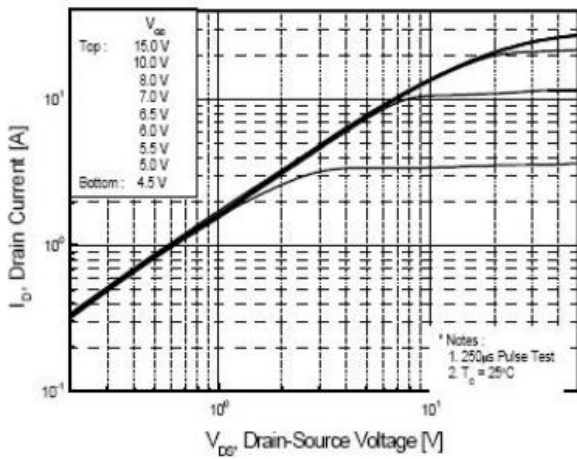


Fig1 Typical Output Characteristics, $T_c=25^\circ\text{C}$

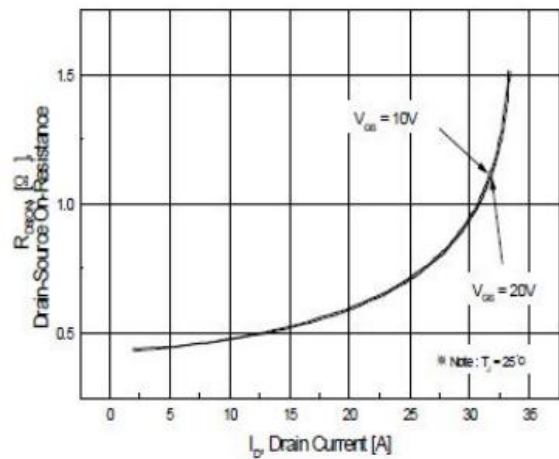


Fig2 On-Resistance Vs. Drain Current and Gate Voltage

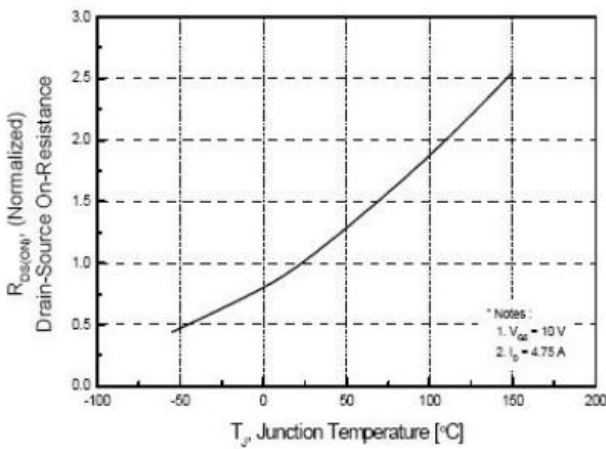


Fig3 Normalized On-Resistance Vs. Temperature

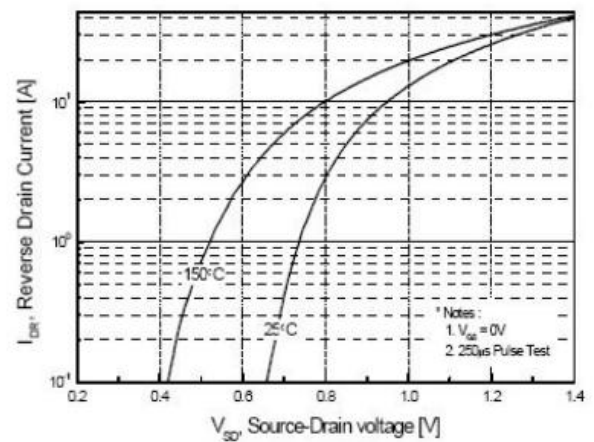


Fig4 Typical Source-Drain Diode Forward Voltage

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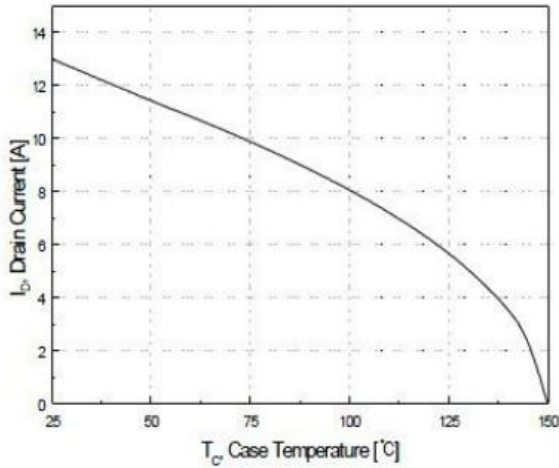


Fig5 Maximum Drain Current Vs. Case Temperature

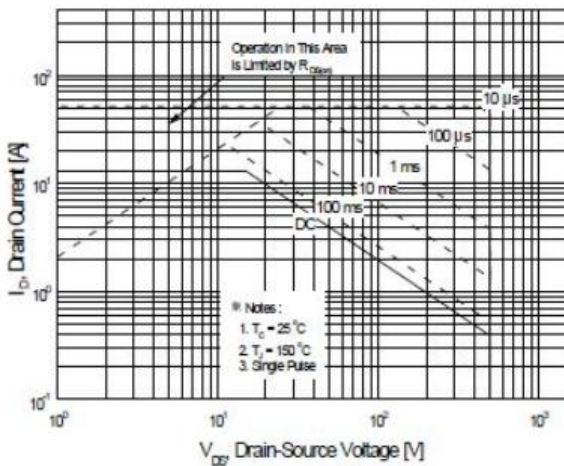


Fig6-1 Maximum Safe Operating Area

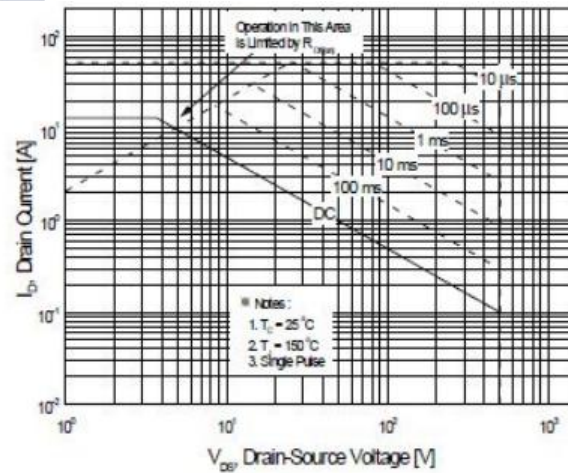


Fig6-2 Maximum Safe Operating Area



ISF1041

eq FDP12N50NZ

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