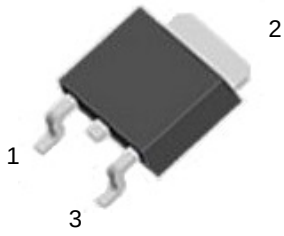
WGD60P02

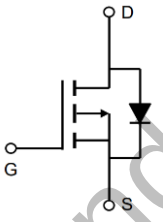
Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 44 nC (Typ.).
- ☐ BVDSS=-20V,I_D=-60A
- ☐ R_{DS}(on) : 6.5mΩ (Max) @V_G=4.5V
- ☐ 100% Avalanche Tested

TO-252

RoHS COMPLIANT





1.Gate (G)
2.Drain (D)
3.Source (S)

Absolute Maximum Ratings (T_C=25℃ Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current*	T_C=25℃	I_D	-60	A
	T_C=70℃		-30	
Pulsed Drain Current		I_{DM}	-150	A
Maximum Power Dissipation*	T_C=25℃	P_D	45	W
	T_C=70℃		36	
Operating Junction Temperature		T_J	-55 to 150	℃
Thermal Resistance-Junction to Case*		$R_{\theta JC}$	2.8	℃/W

*The device mounted on 1in^2 FR4 board with 2 oz copper

WildGoose Semiconductor

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-20	-24	---	V
△BVDSS/△TJ	BVDSS Temperature Coefficient	Reference to 25℃ , I_D=-1mA	---	-0.0232	---	V/℃
RDS(ON)	Static Drain-Source On-Resistance[2]	V_{GS}=-4.5V , I_D=-15A	---	5.9	6.5	mΩ
		V_{GS}=-2.5V , I_D=-12A	---	8.4	10	
VGS(th)	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-0.4	-0.8	-1.5	V
△$V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	4.6	---	mV/℃
IDSS	Drain-Source Leakage Current	V_{DS}=-20V , V_{GS}=0V , T_J=25℃	---	---	-1	uA
		V_{DS}=-20V , V_{GS}=0V , T_J=55℃	---	---	-5	
IGSS	Gate-Source Leakage Current	V_{GS}=±25V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-5V , I_D=-30A	---	30	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	9	---	Ω
Q_g	Total Gate Charge (-4.5V)	V_{DS}=-15V , V_{GS}=-4.5V , I_D=-15A	---	44	---	nC
Qgs	Gate-Source Charge		---	8.7	---	
Qgd	Gate-Drain Charge		---	7.2	---	
Td(on)	Turn-On Delay Time	V_{DD}=-15V , V_{GS}=-10V , R_G=3.3Ω I_D=-15A	---	8	---	ns
T_r	Rise Time		---	73.7	---	
Td(off)	Turn-Off Delay Time		---	61.8	---	
T_f	Fall Time		---	24.4	---	
Ciss	Input Capacitance	V_{DS}=-15V , V_{GS}=0V , f=1MHz	---	2215	---	pF
Coss	Output Capacitance		---	310	---	
Crss	Reverse Transfer Capacitance		---	237	---	
IS	Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	---	---	-45	A
ISM	Pulsed Source Current[2,5]		---	---	-150	A
VSD	Diode Forward Voltage[2]	V_{GS}=0V , I_S=-1A , T_J=25℃	---	---	-1	V
trr	Reverse Recovery Time	IF=-15A , dI/dt=100A/μs , T_J=25℃	---	19	---	nS
Q_{rr}	Reverse Recovery Charge		---	9	---	nC

Note :

1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.

2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3、The EAS data shows Max. rating . The test condition is VDD=-20V,VGS=-10V,L=0.1mH,IAS=-50A

4、The power dissipation is limited by 150℃ junction temperature

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

WildGoose Semiconductor

Typical Characteristics

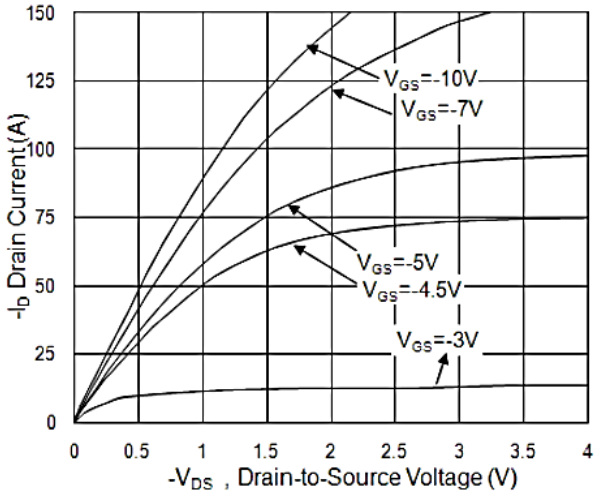


Fig.1 Typical Output Characteristics

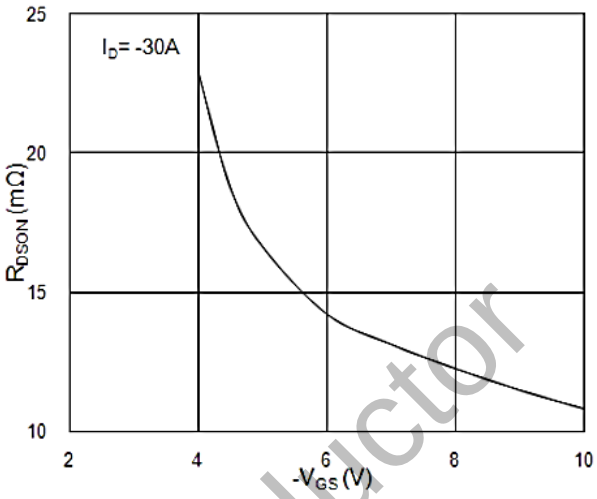


Fig.2 On-Resistance vs. G-S Voltage

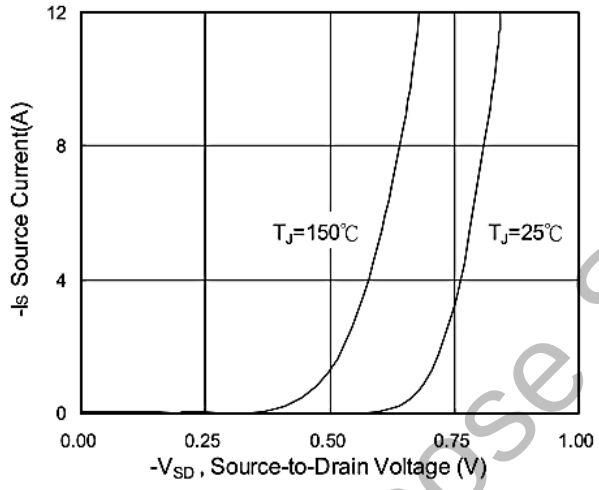


Fig.3 Forward Characteristics of Reverse

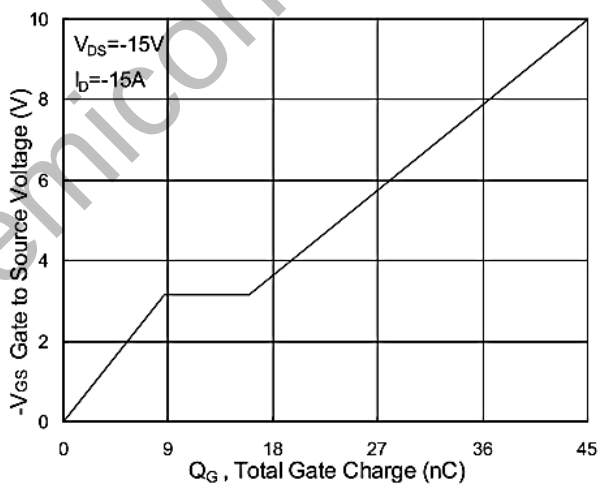


Fig.4 Gate-charge Characteristics

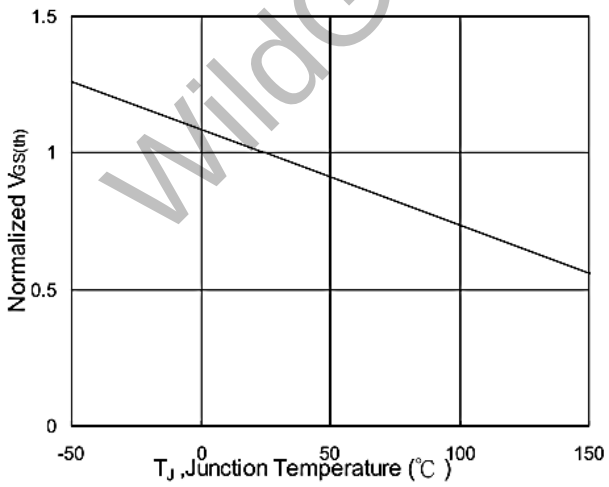


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

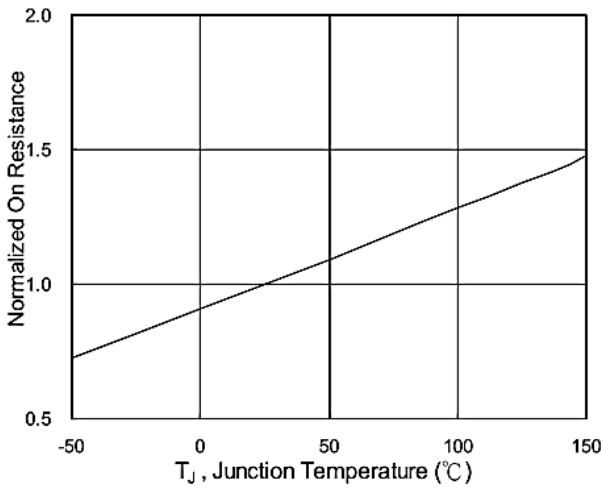


Fig.6 Normalized R_{DSON} vs. T_J

WildGoose Semiconductor

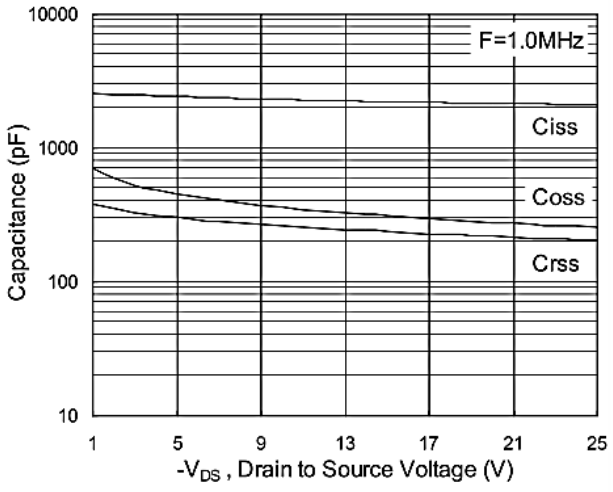


Fig.7 Capacitance

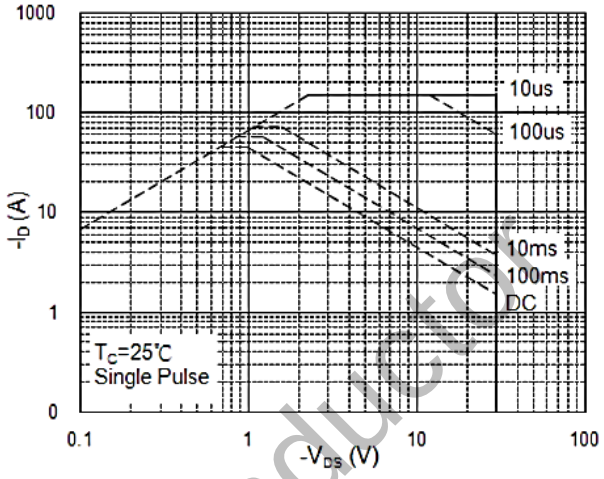


Fig.8 Safe Operating Area

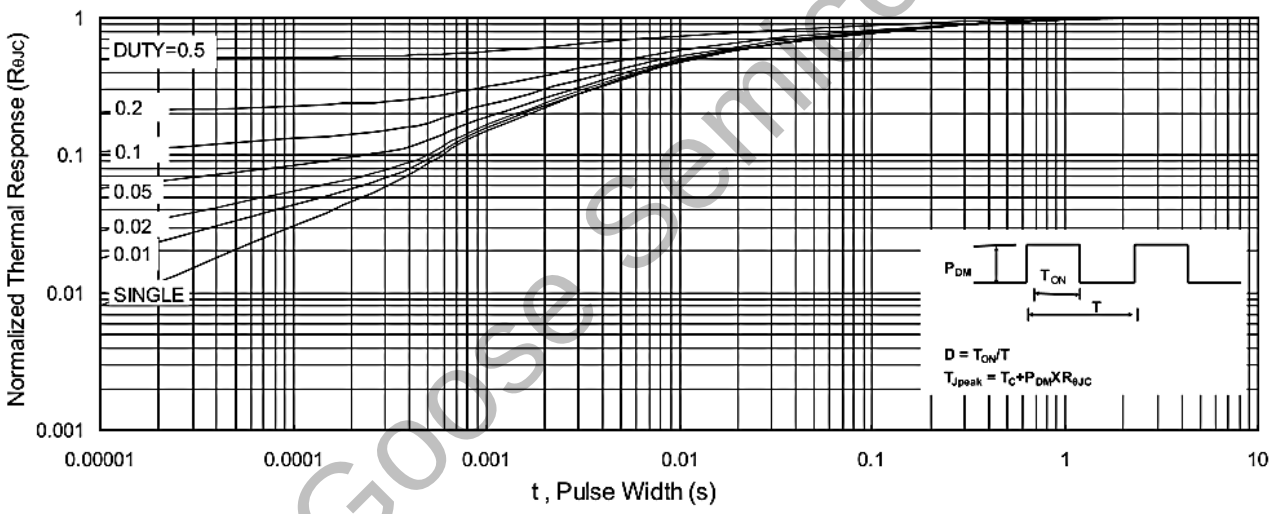


Fig.9 Normalized Maximum Transient Thermal Impedance

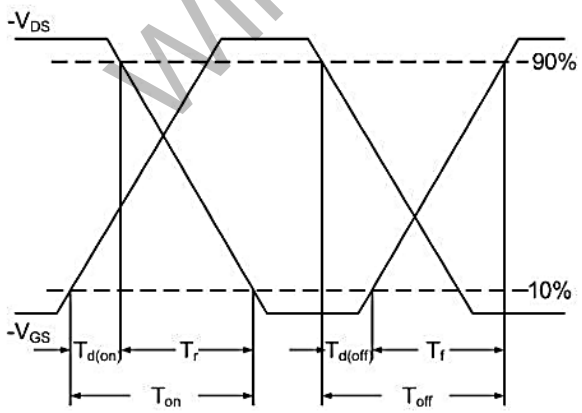


Fig.10 Switching Time Waveform

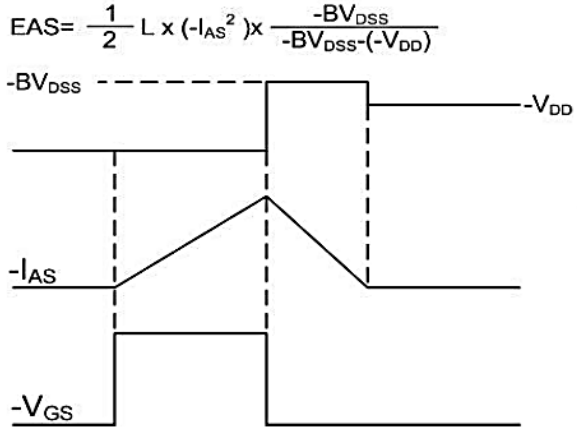


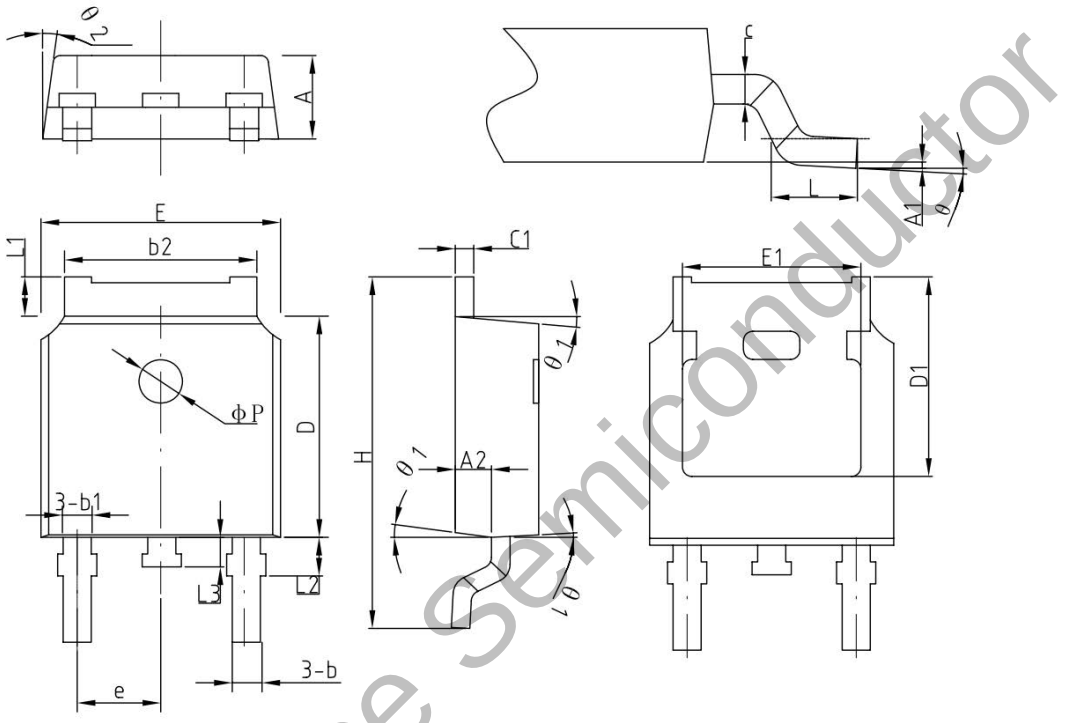
Fig.11 Unclamped Inductive Switching Waveform

WildGoose Semiconductor

Package Dimension

TO-252

Units：mm



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.2	2.30	2.38
A1	0	–	0.10
A2	0.90	1.01	1.10
b	0.71	0.76	0.86
b1		0.76	
b2	5.13	5.33	5.46
c	0.47	0.50	0.60
c1	0.47	0.50	0.60
D	6.0	6.10	6.20
D1	–	5.30	–
E	6.50	6.60	6.70
E1	–	4.80	–
e		2.286BSC	
H	9.70	10.10	10.40
L	1.40	1.50	1.70
L1	0.90	–	1.25
L2		1.05	
L3		0.8	
ΦP		1.2	
θ	0°	–	8°
θ 1	5°	7°	9°
θ 2	5°	7°	9°

WildGoose Semiconductor