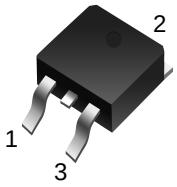
WGD15N10L

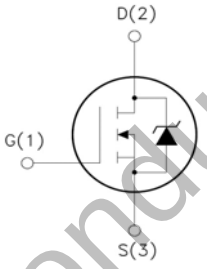
Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg=20.2 nC (Typ.).
- ☐ BVDSS=100 V,I_D=15A
- ☐ R_{DS}(on) : 94mΩ (Max) @V_G=10V
- ☐ 100% Avalanche Tested

TO-252

RoHS COMPLIANT





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

Wildgoose Semiconductor

Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	100	V
V_{GS}	Gate-Source Voltage (V_{DS}=0V)	±20	V
I_D	Drain Current-Continuous(T_C=25℃)	15	A
	Drain Current-Continuous(T_C=100℃)	8.3	A
$I_{DM\ (pluse)}$	Drain Current-Continuous@ Current-Pulsed (Note 1)	52	A
P_D	Maximum Power Dissipation(T_C=25℃)	30	W
	Maximum Power Dissipation(T_C=100℃)	12	W
E_{AS}	Avalanche energy (Note 2)	25	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃

Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		4.2	℃/W

Electrical Characteristics (T_J=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V, V_{GS}=0V T_J=25℃			1	μA
		V_{DS}=100V, V_{GS}=0V T_J=125℃			100	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V, V_{DS}=0V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1		2.5	V
g_{FS}	Forward Transconductance	V_{DS}=10V, I_D=2A		6		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V, I_D=6A T_J=25℃		63	94	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=6A T_J=25℃		81.4	120	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=50V,V_{GS}=0V, f=1.0MHz		951		pF
C_{oss}	Output Capacitance			32.3		pF
C_{rss}	Reverse Transfer Capacitance			27.3		pF
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1.0MHz		1.3		Ω
0Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=10V, V_{DS}=50V, R_L=5Ω, R_{GEN}=3Ω		6.6		nS
t_r	Turn-on Rise Time			46		nS
$t_{d(off)}$	Turn-Off Delay Time			31		nS
t_f	Turn-Off Fall Time			4		nS
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=2A		20.2		nC
Q_{gs}	Gate-Source Charge			2.1		nC
Q_{gd}	Gate-Drain Charge			4.2		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				15	A
V_{SD}	Forward on Voltage (Note 3)	V_{GS}=0V, I_S=2A			1.2	V
t_{rr}	Reverse Recovery Time	I_F=2A, dI/dt=100A/μs		26		ns
Q_{rr}	Reverse Recovery Charge	I_F=2A, dI/dt=100A/μs		35		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
Notes 2.E_{AS} condition: T_J=25℃,V_{DD}=40V,V_G=10V, Rg=25Ω, L=0.5mH.
Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

WildGoose Semiconductor

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Figure 1. Output Characteristics

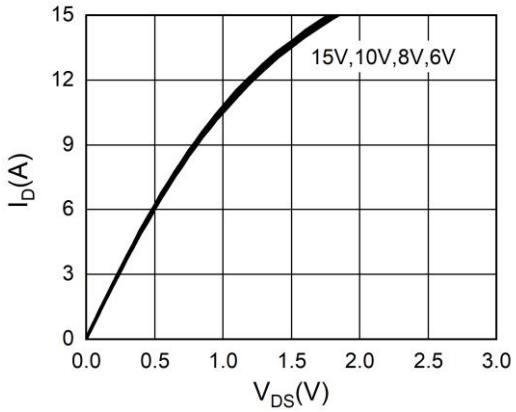


Figure 2. Transfer Characteristics

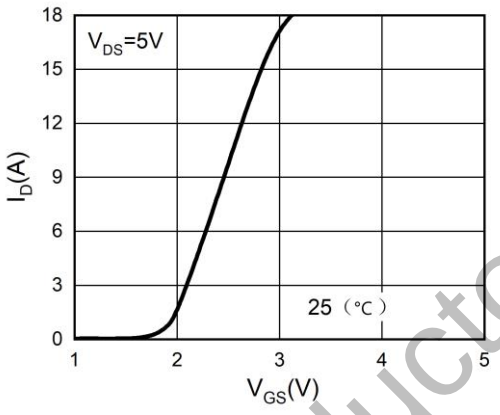


Figure 3. Power Dissipation

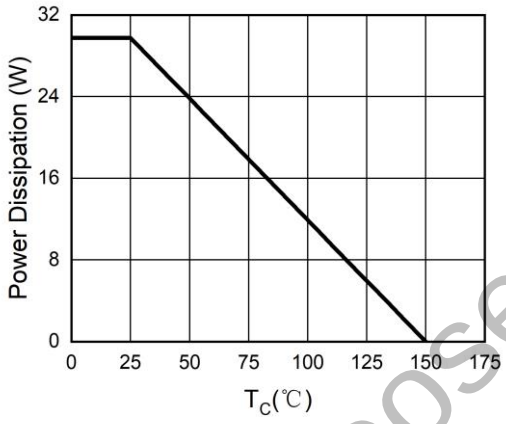


Figure 4. Drain Current

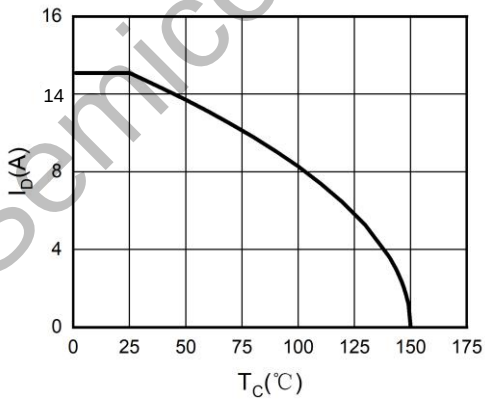


Figure 5. BV_{DSS} vs Junction Temperature

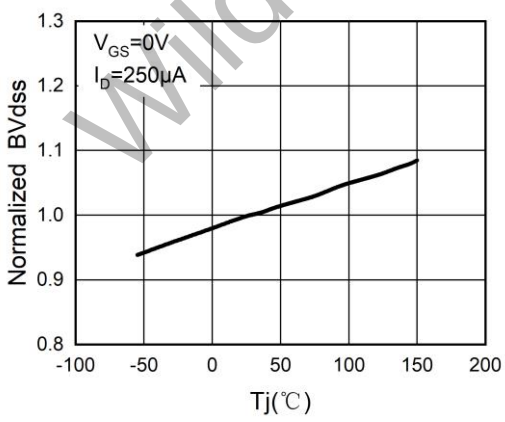
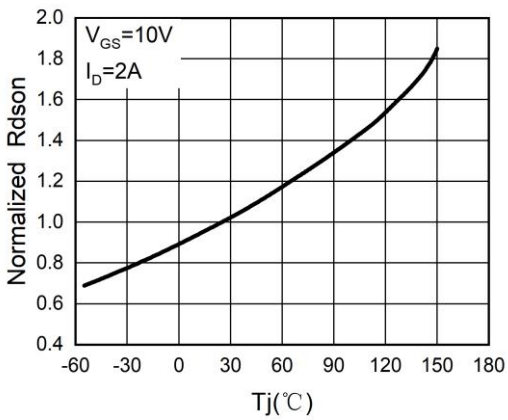


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



WildGoose Semiconductor

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Figure 7. Gate Charge Waveforms

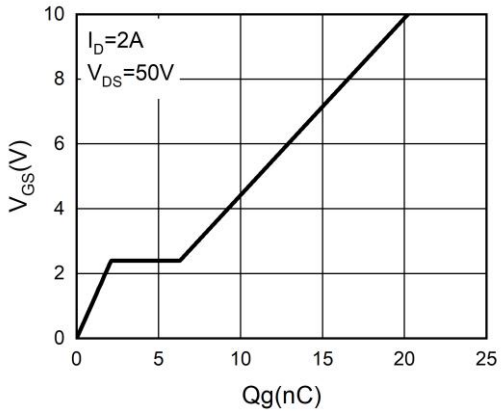


Figure 8. Capacitance

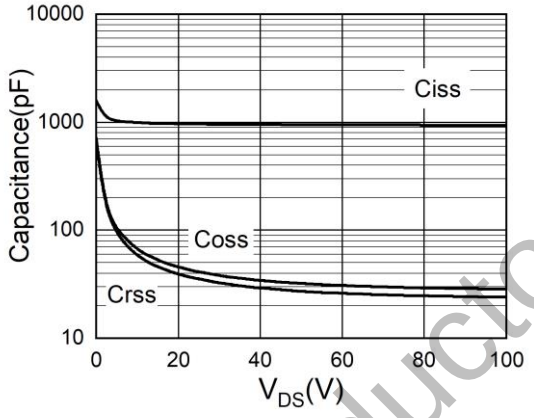


Figure 9. Body-Diode Characteristics

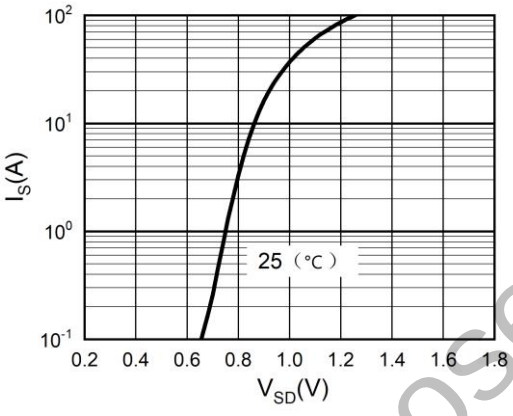
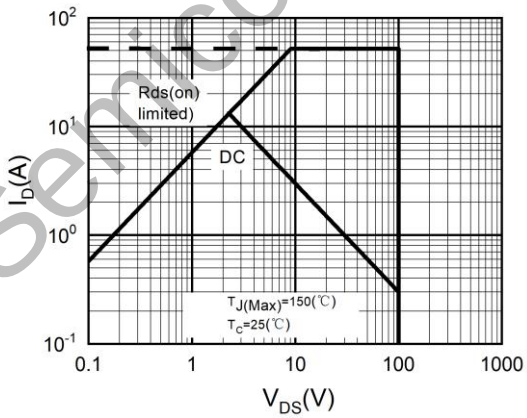


Figure 10. Maximum Safe Operating Area



WildGoose Semiconductor

Test Circuit

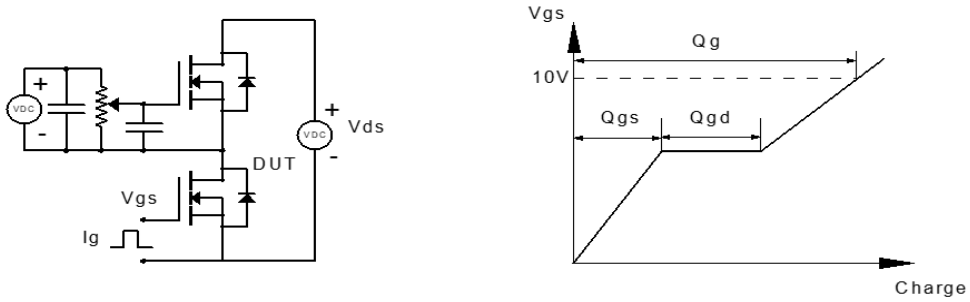


Figure 1: Gate Charge Test Circuit & Waveform

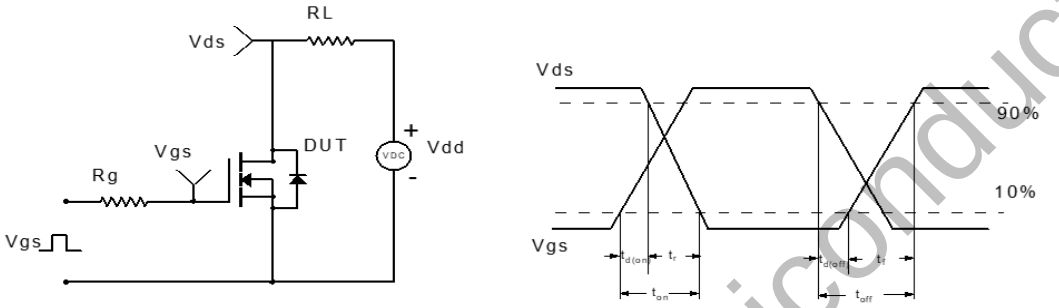


Figure 2: Resistive Switching Test Circuit & Waveform

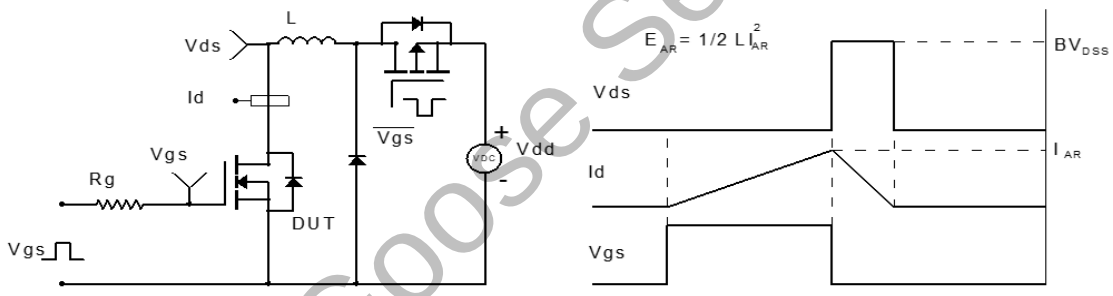


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

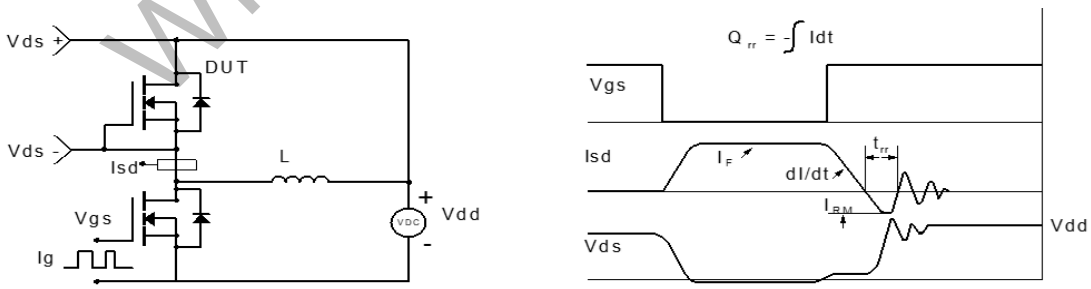


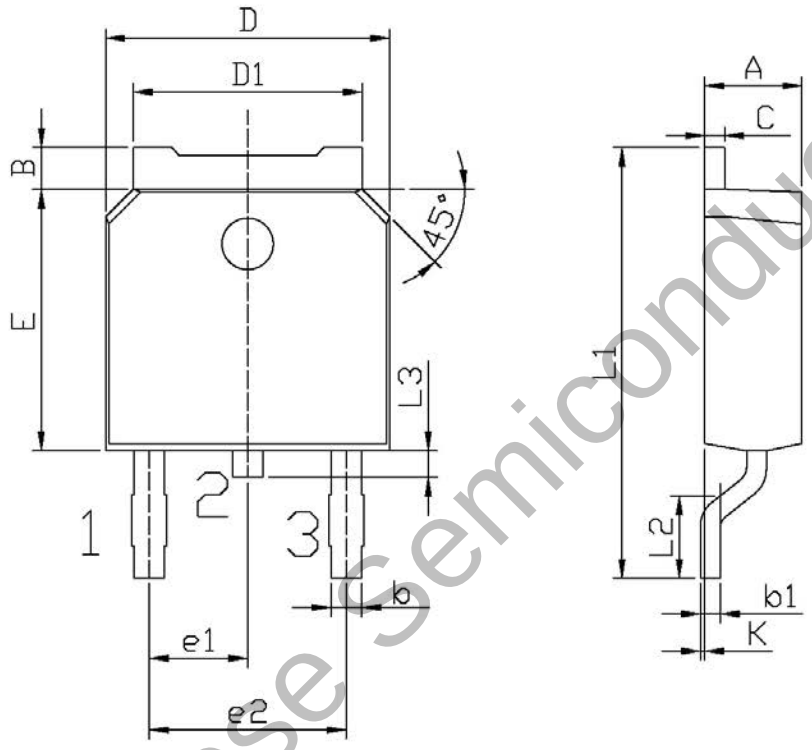
Figure 4: Diode Recovery Test Circuit & Waveform

WildGoose Semiconductor

Package Dimension

TO-252

Unit:mm



WildGoose Semiconductor

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.20	5.40	K	0.00	0.10