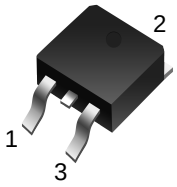
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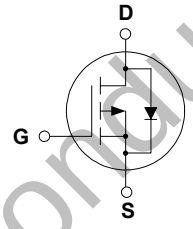
TO-252

RoHS COMPLIANT



Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 82.5nC (Typ.)
- ☐ BVDSS=-60 V,I_D=-25A
- ☐ R_{DS}(on) : 58.5m Ω (Max) @V_G=10V
- ☐ 100% Avalanche Tested



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

WildGoose Semiconductor

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	-60	V
Gate-Source Voltage (V_{DS}=0V)	V_{GS}	±20	V
Drain Current-Continuous(T_C=25℃)	I_D	-25	A
Drain Current-Continuous(T_C=100℃)		-16	A
Drain Current-Continuous@ Current-Pulsed (Note 1)	$I_{DM\ (pluse)}$	-78	A
Maximum Power Dissipation(T_C=25℃)	P_D	50	W
Maximum Power Dissipation(T_C=100℃)		22	W
Avalanche energy (Note 2)	E_{AS}	89	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	℃

Thermal Characteristic

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$		2.5	℃/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	-60			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-60V, V_{GS}=0V T_J=25℃			-1	μA
		V_{DS}=-60V, 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}=-5V, I_D=-10A		16		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-10V, I_D=-10A T_J=25℃		45	58.5	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-4.5V, I_D=-8A T_J=25℃		52	69.2	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-30V,V_{GS}=0V, f=1.0MHz		2437		pF
C_{oss}	Output Capacitance			78		pF
C_{rss}	Reverse Transfer Capacitance			69		pF
Rg	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1.0MHz		7.3		Ω
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=-10V, V_{DS}=-30V, R_L=3Ω, R_{GEN}=3Ω		8		nS
t_r	Turn-on Rise Time			37.2		nS
$t_{d(off)}$	Turn-Off Delay Time			64.4		nS
t_f	Turn-Off Fall Time			19.2		nS
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-30V, I_D=-10A		82.5		nC
Q_{gs}	Gate-Source Charge			12.4		nC
Q_{gd}	Gate-Drain Charge			13.4		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				-25	A
V_{SD}	Forward on Voltage (Note 3)	V_{GS}=0V, I_S=-9A			-1.2	V
t_{rr}	Reverse Recovery Time	I_F=-10A, di/dt=-100A/μs		24		ns
Q_{rr}	Reverse Recovery Charge	I_F=-10A, di/dt=-100A/μs		25.2		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.

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Typical Electrical And Thermal Characteristics (Curves)

Figure 1. Output Characteristics

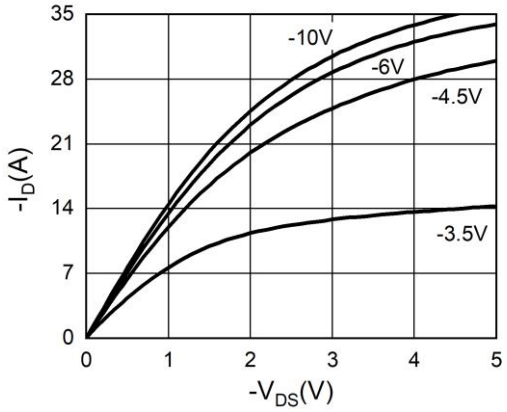


Figure 2. Transfer Characteristics

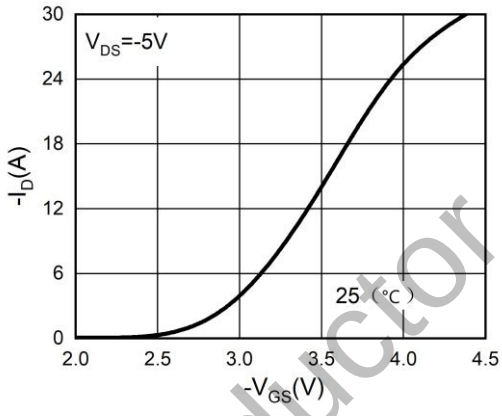


Figure 3. Power Dissipation

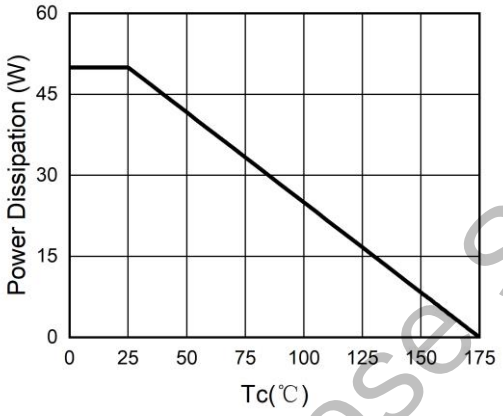


Figure 4. Drain Current

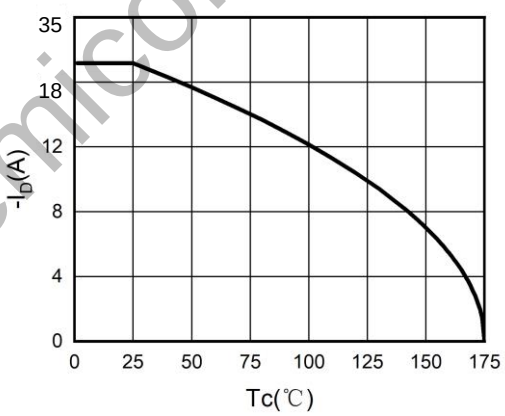


Figure 5. BV_{DSS} vs Junction Temperature

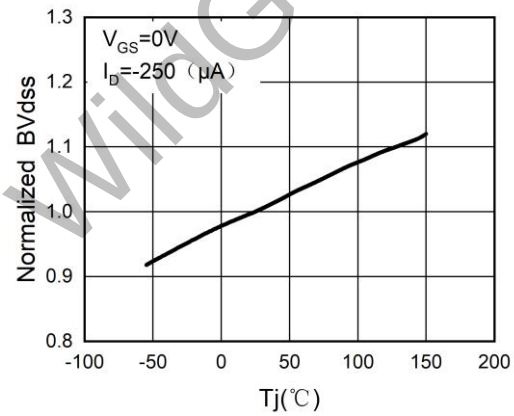
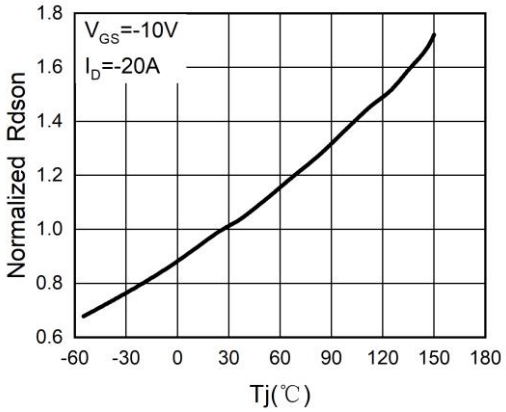


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



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Typical Electrical And Thermal Characteristics (Curves)

Figure 7. Gate Charge Waveforms

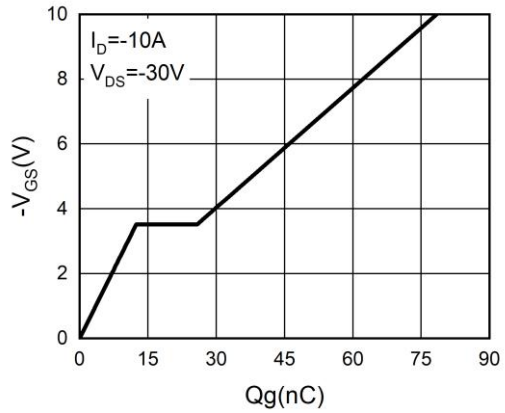


Figure 8. Capacitance

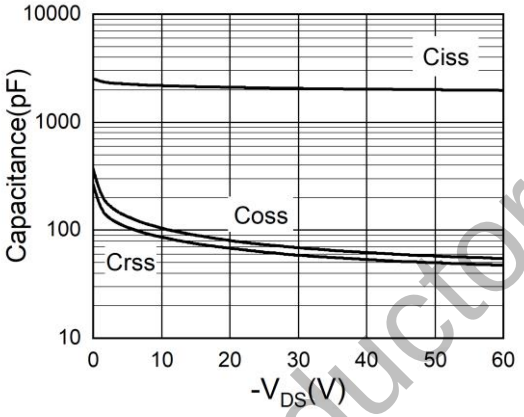


Figure 9. Body-Diode Characteristics

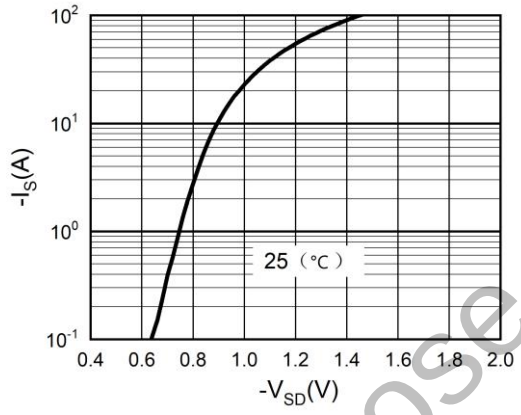
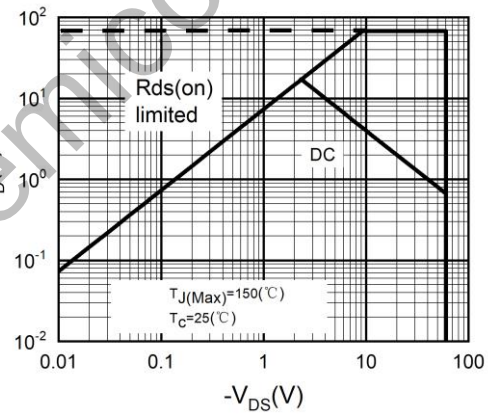


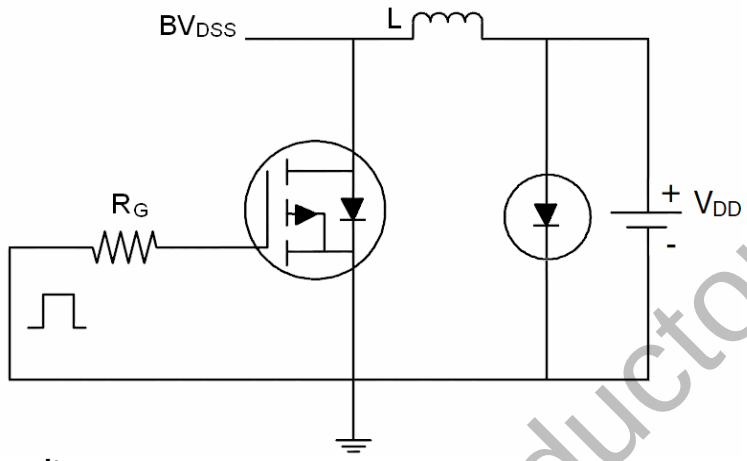
Figure 10. Maximum Safe Operating Area



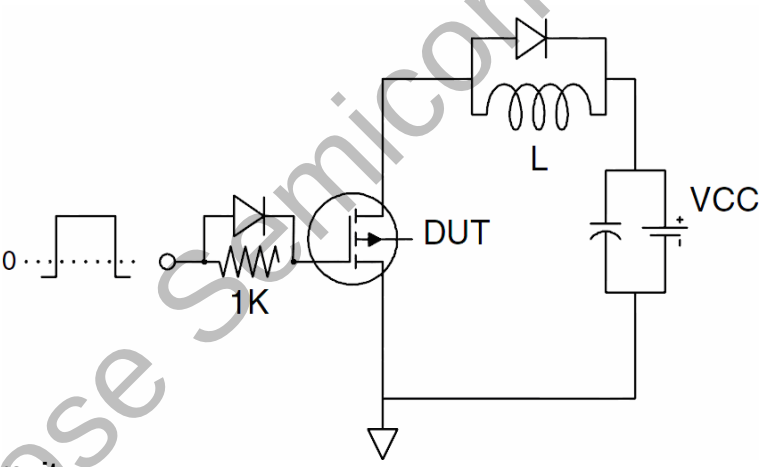
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Test Circuit

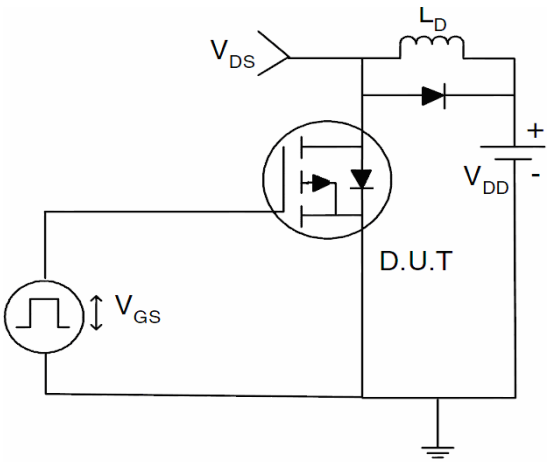
1) E_{AS} Test Circuit



2) Gate Charge Test Circuit



3) Switch Time Test Circuit

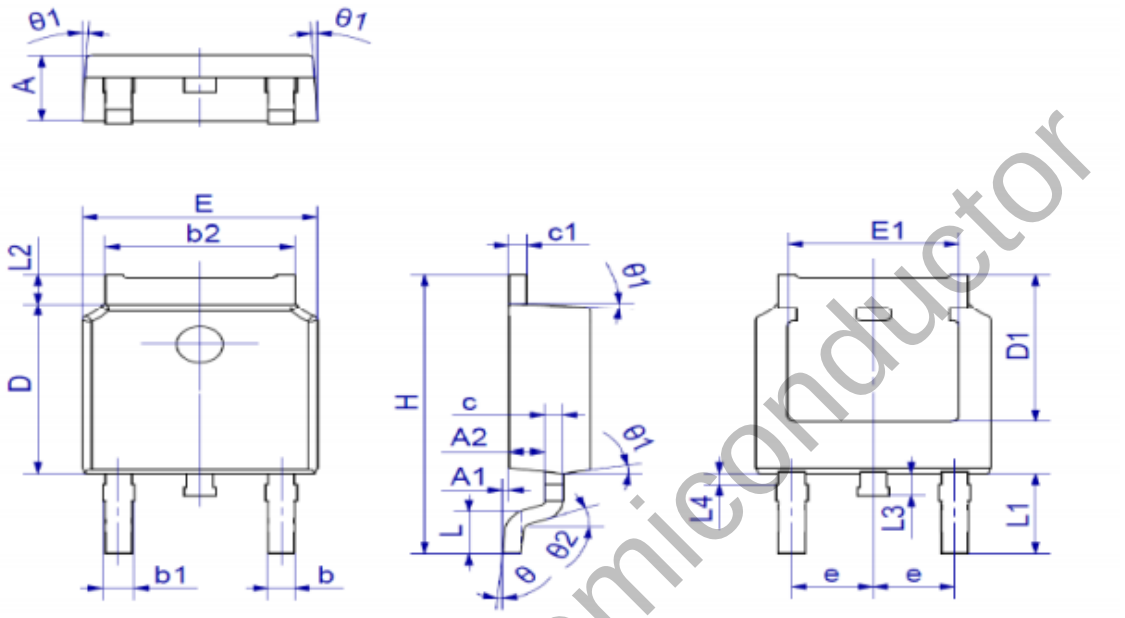


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Package Dimension

TO-252

Unit:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.10	2.50	0.083	0.098
A1	0	0.15	0.000	0.006
A2	0.76	1.36	0.030	0.054
b	0.61	0.85	0.024	0.033
b1	0.71	0.91	0.028	0.036
b2	5.04	5.64	0.198	0.222
c	0.508 TYP.		0.02 TYP.	
c1	0.508 TYP.		0.02 TYP.	
D	5.8	6.3	0.228	0.248
D1	5	5.6	0.197	0.220
E	6.3	6.9	0.248	0.272
E1	4.55	5.15	0.179	0.203
e	2.286 TYP.		0.09 TYP.	
H	9.65	10.4	0.380	0.409
L	1.4	1.7	0.055	0.067
L1	2.90 REF.		0.114 REF.	
L2	0.75	1.35	0.030	0.053
L3	0.6	1.2	0.024	0.047
θ	0°	10°	0°	10°
θ1	5°	9°	5°	9°
θ2	25° REF.		25° REF.	

关键尺寸									
A	A1	b	D	E	E1	e	H	D	L1

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