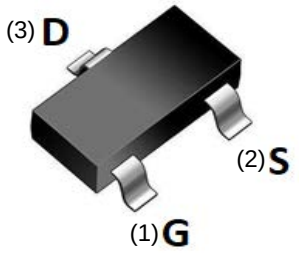
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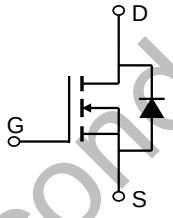
SOT-23-3L

RoHS COMPLIANT



Features:

- ☐ Advanced Trench Technology.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 4.4nC (Typ.).
- ☐ BVDSS= 100V,ID= 5A
- ☐ RDS(on) : 153mΩ (Max) @VG=10V
- ☐ 100% Avalanche Tested



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

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Absolute Maximum Ratings (T_A=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_A=25℃)	2.1	A
	Drain Current-Continuous(T_A=100℃)	1.3	A
$I_{DM\ (pluse)}$	Drain Current-Continuous@ Current-Pulsed (Note 1)	8.4	A
P_D	Maximum Power Dissipation(T_A=25℃)	1.4	W
	Maximum Power Dissipation(T_A=100℃)	0.5	W
E_{AS}	Avalanche energy (Note 2)	16	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃

Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient		91	℃/W

Electrical Characteristics (T_J=25℃ unless otherwise specified)

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}=5V, I_D=3A		6.2		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V, I_D=3A T_J=25℃		122	153	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=2A T_J=25℃		128	171	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=50V,V_{GS}=0V, f=1.0MHz		635		pF
C_{oss}	Output Capacitance			24		pF
C_{rss}	Reverse Transfer Capacitance			19		pF
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1.0MHz		1		Ω
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=10V, V_{DS}=50V, R_L=16.7Ω, R_{GEN}=3Ω		16		nS
t_r	Turn-on Rise Time			4		nS
$t_{d(off)}$	Turn-Off Delay Time			20		nS
t_f	Turn-Off Fall Time			3.6		nS
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=3A		4.4		nC
Q_{gs}	Gate-Source Charge			1.3		nC
Q_{gd}	Gate-Drain Charge			1.1		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				2.1	A
V_{SD}	Forward on Voltage (Note 3)	V_{GS}=0V, I_S=3A			1.2	V
t_{rr}	Reverse Recovery Time	I_F=3A, dI/dt=100A/μs		20		ns
Q_{rr}	Reverse Recovery Charge	I_F=3A, dI/dt=100A/μs		13		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
Notes 2.E_{AS} condition: T_J=25℃,V_{DD}=60V,V_G=10V, Rg=25Ω, L=0.5mH.
Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

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Typical Performance Characteristics

Figure 1. Output Characteristics

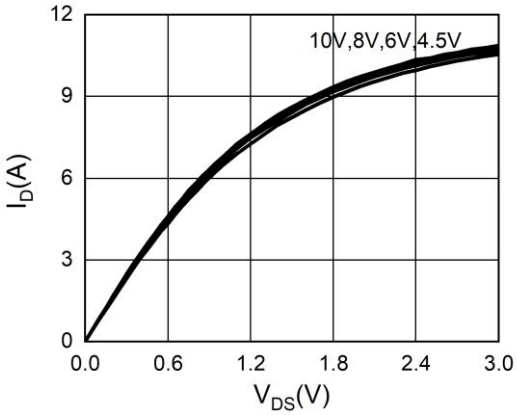


Figure 2. Transfer Characteristics

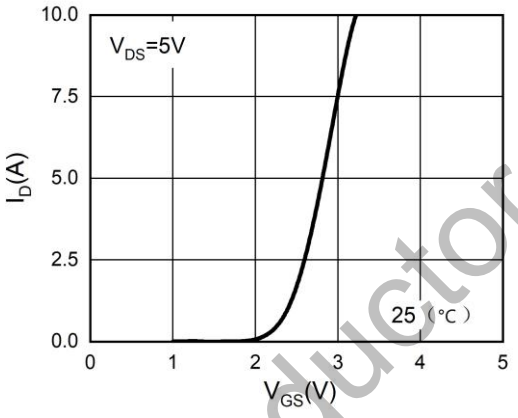


Figure 3. Power Dissipation

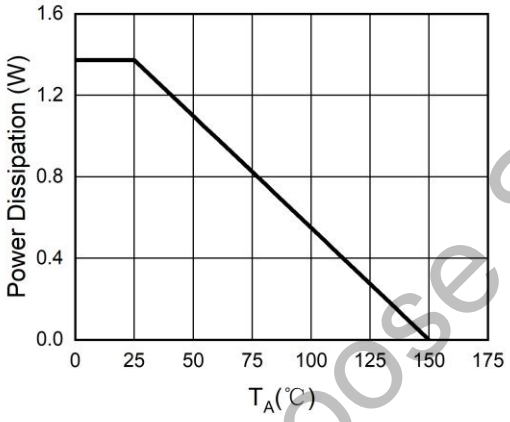


Figure 4. Drain Current

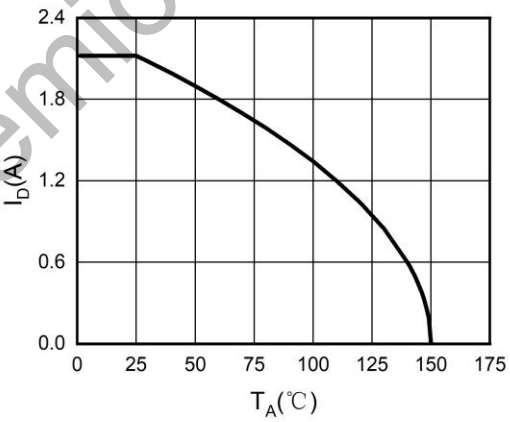


Figure 5. BV_{DSS} vs Junction Temperature

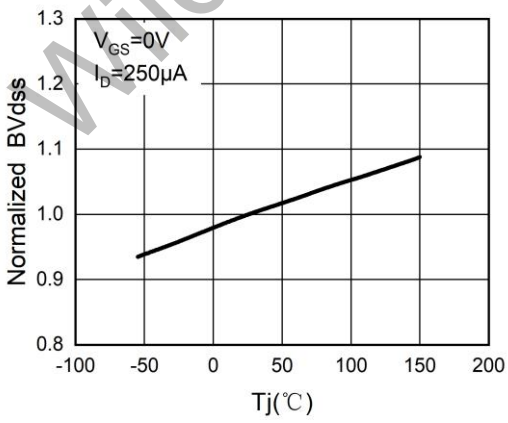
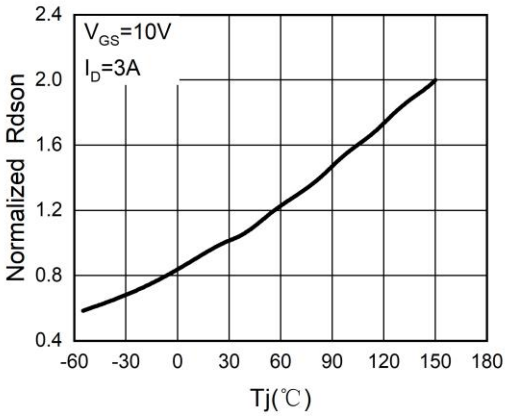


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



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Typical Performance Characteristics

Figure 7. Gate Charge Waveforms

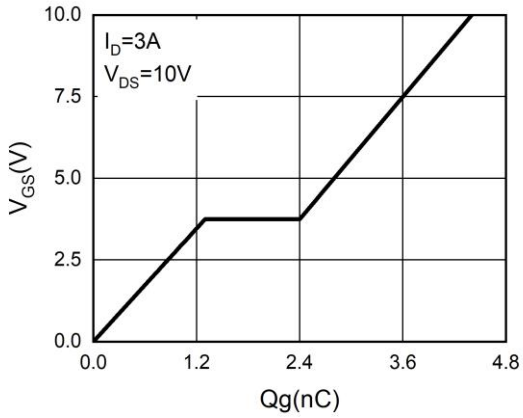


Figure 8. Capacitance

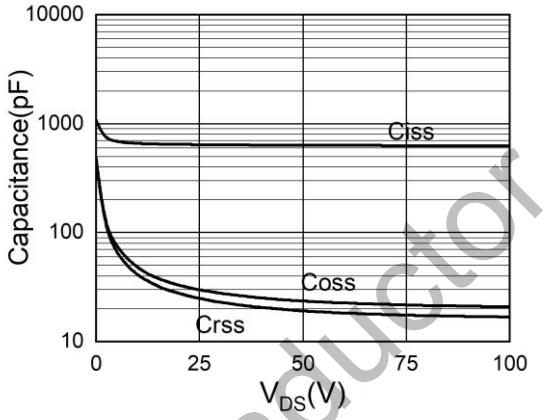


Figure 9. Body-Diode Characteristics

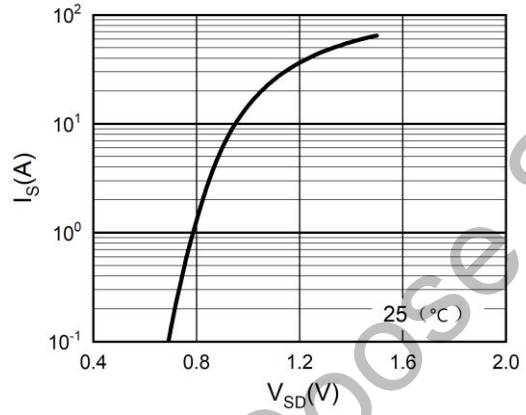
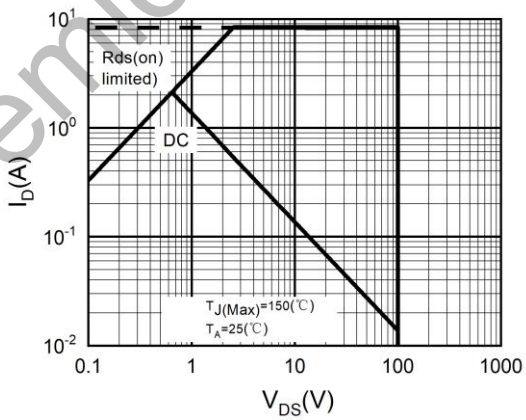


Figure 10. Maximum Safe Operating Area



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Test Circuit

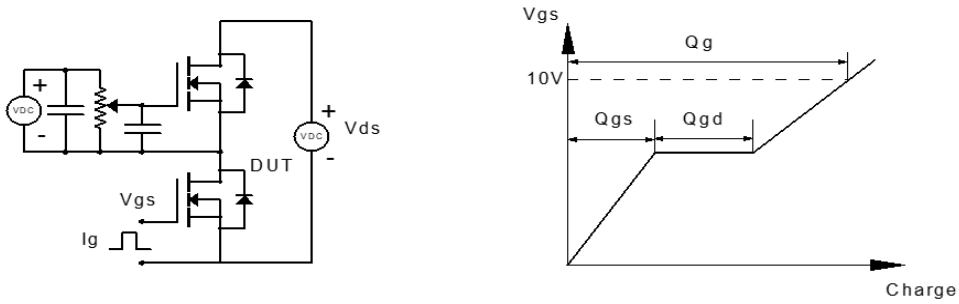


Figure 1: Gate Charge Test Circuit & Waveform

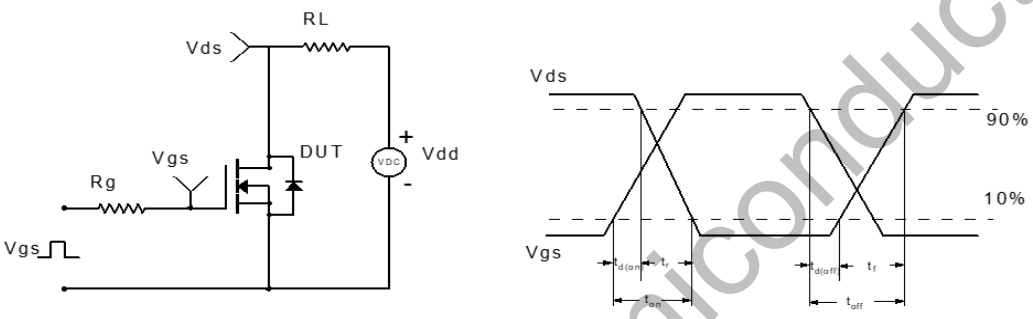


Figure 2: Resistive Switching Test Circuit & Waveform

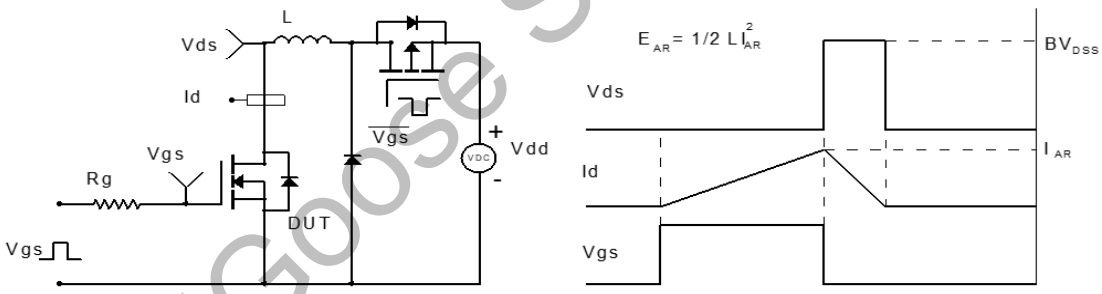


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

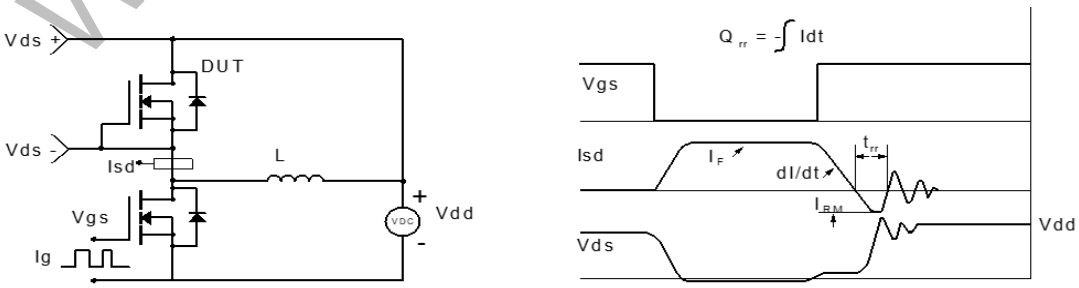


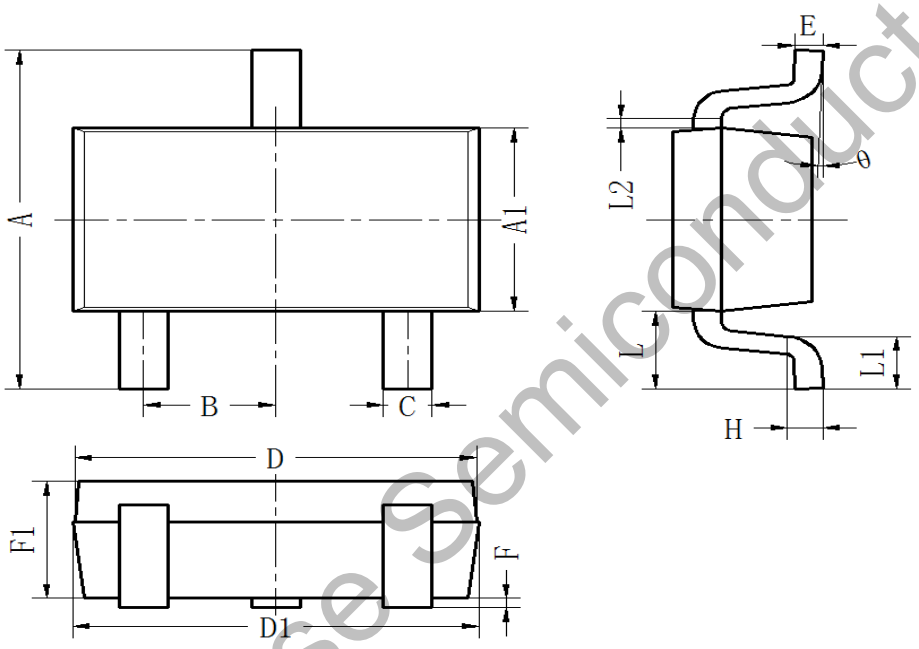
Figure 4: Diode Recovery Test Circuit & Waveform

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Package Dimension

SOT-23-3L

Unit: mm



符号	标准	下公差	上公差	下限值		上限值	
				内控	放行	内控	放行
A	2.8	-0.15	0.15	2.68	2.65	2.92	2.95
A1	1.6	-0.1	0.1	1.52	1.5	1.68	1.7
B	0.95	-0.05	0.05	0.91	0.90	0.99	1.00
C	0.4	-0.1	0.1	0.32	0.3	0.45	0.5
D	2.92	-0.1	0.1	2.84	2.82	3.00	3.02
D1	2.92	-0.05	0.05	2.88	2.87	2.96	2.97
E	0.15	-0.05	0.05	0.11	0.1	0.19	0.2
H	0.254	-0.05	0.05	0.214	0.204	0.294	0.304
L	0.65	-0.1	0.1	0.57	0.55	0.73	0.75
L1	0.45	-0.15	0.15	0.33	0.3	0.57	0.6
L2	0.08	-0.02	0.02	0.06	0.06	0.10	0.10
θ	/	/	/	/	0	/	8
F1	1.1	-0.05	0.05	1.06	1.05	1.14	1.15
F	0.08	-0.04	0.04	0.05	0.04	0.11	0.12

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