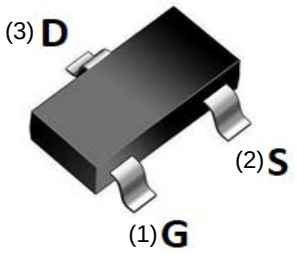
WG608

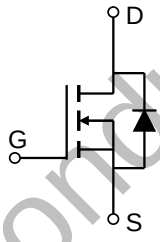
Features:

- ☐ Low Intrinsic Capacitances.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 77 nC (Typ.)
- ☐ BVDSS=60V,I_D=8A
- ☐ R_{DS}(on) :48m Ω (Max) @V_G=10V
- ☐ 100% Avalanche Tested

SOT-23-3L

RoHS COMPLIANT





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

Schematic diagram MARKING:WG608

Absolute Maximun Ratings(TA=25℃unless otherwise noted)

Parameter	Symblo	Limit	Unit
Drain-Source Voltage	VDS	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	8	A
Drain Current-Pulsed (Note 1)	I_{DM}	40	A
Maximum Power Dissipation	P_D	3.2	W
Operating Junction and Storage Tee mperature Range	T_J,T_{STG}	-55 To 150	℃

Thermal Characteristic

Thermal Resistance ,Junction-to-Ambient (Note 2)	R_{JA}	39	℃/W

WildGoose Semiconductor

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	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,	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	1.7	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D =8A	-	32	48	mΩ
		V_{GS}=4.5V, I_D=2A	-	41	62	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1.0MHz	-	4605	-	pF
C_{oss}	Output Capacitance		-	215	-	pF
C_{rss}	Reverse Transfer Capacitance		-	191	-	pF
Q_g	Total Gate Charge	V_{DS}=30V, I_D=6A, V_{GS}=10V	-	77	-	nC
Q_{gs}	Gate-Source Charge		-	9	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	23	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=30V, I_D=8A, R_G=1.8Ω, V_{GS}=10V	-	7.1	-	ns
t_r	Turn-on Rise Time		-	5.3	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	27.2	-	ns
t_f	Turn-off Fall Time		-	6.2	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	8	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	40	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S =8A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_F=8A, dI/dt=100A/μs	-	29	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	45	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition : T_J=25℃, V_{DD}=30V, V_G=10V, L=0.5mH, Rg=25Ω, I_{AS}=8A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

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Typical Performance Characteristics

Figure1: Output Characteristics

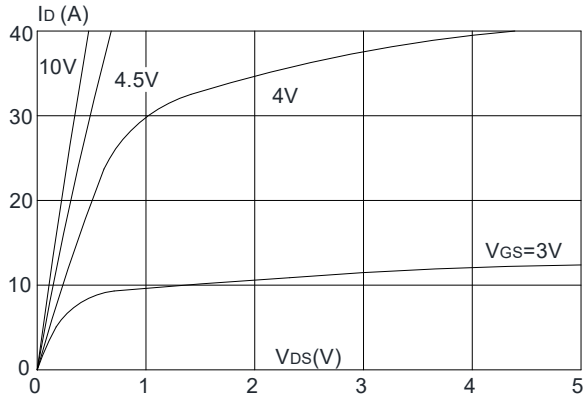


Figure 2: Typical Transfer Characteristics

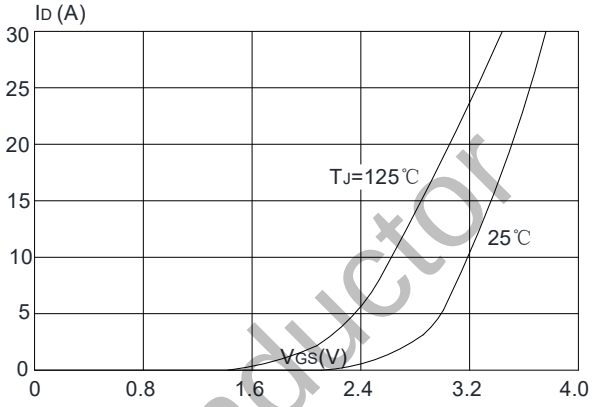


Figure 3: On-resistance vs. Drain Current

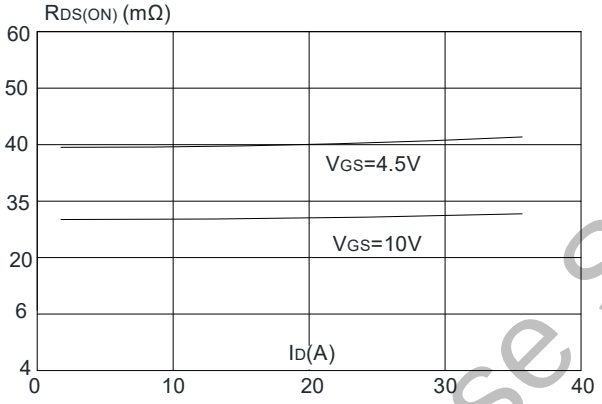


Figure 4: Body Diode Characteristics

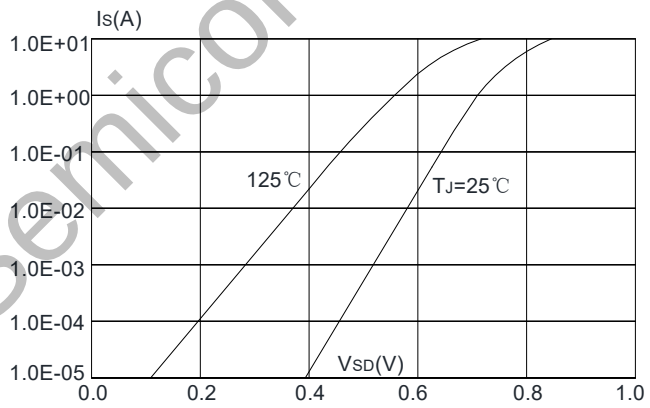


Figure 5: Gate Charge Characteristics

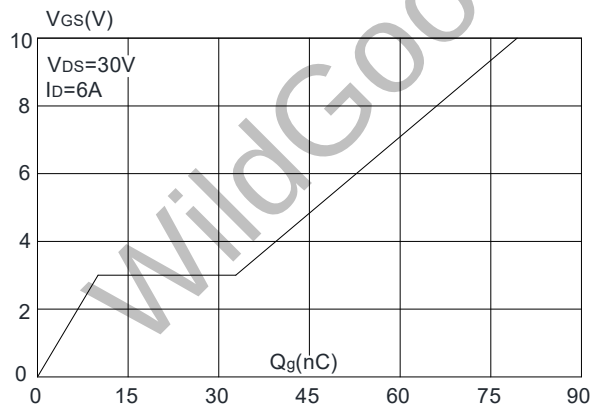
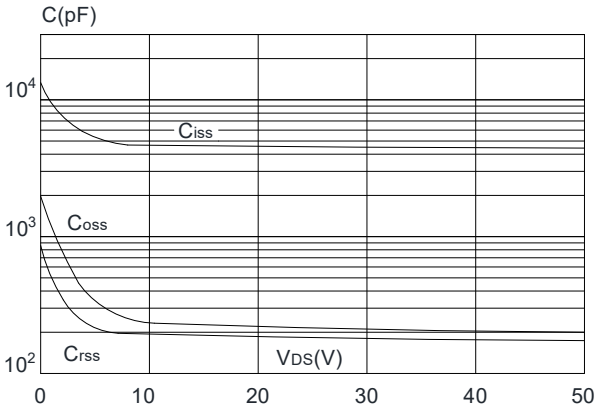


Figure 6: Capacitance Characteristics



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Typical Performance Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

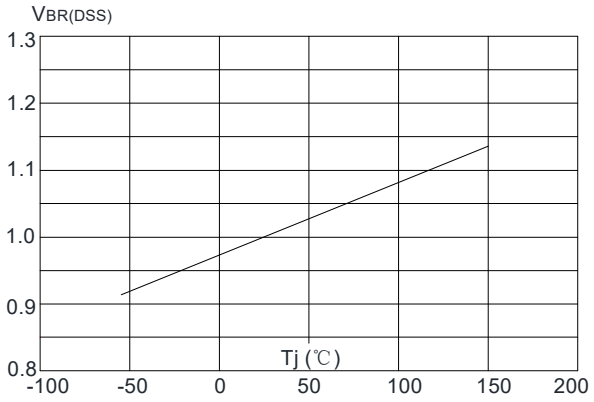


Figure 8: Normalized on Resistance vs. Junction Temperature

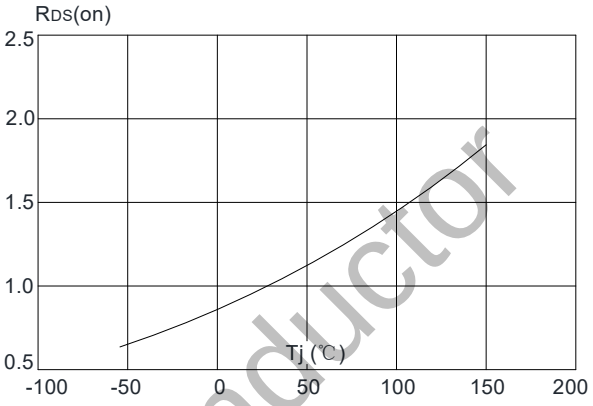


Figure 9: Maximum Safe Operating Area

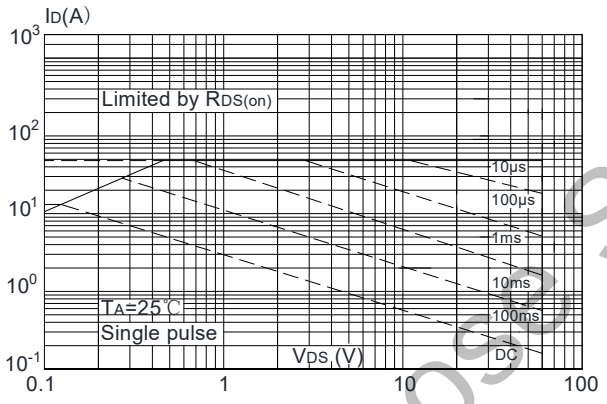


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

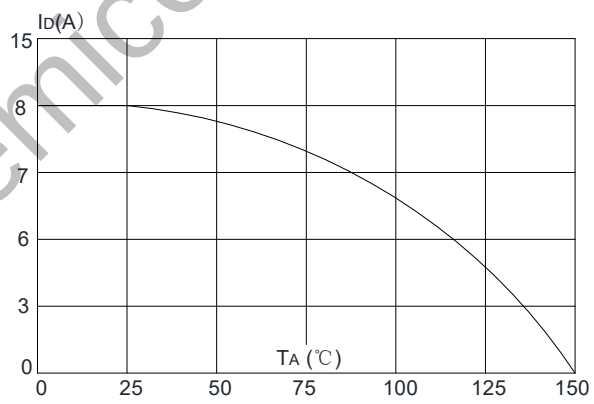
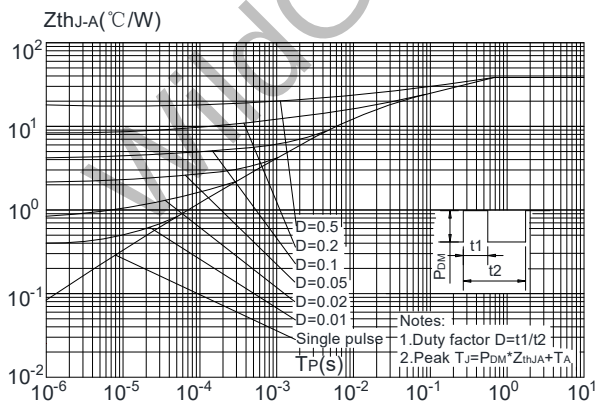


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



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Test Circuit

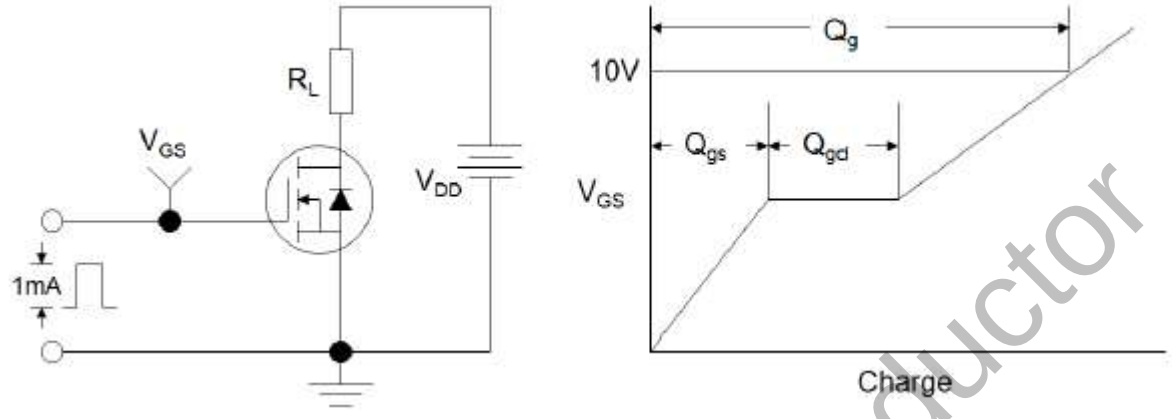


Figure1:Gate Charge Test Circuit & Waveform

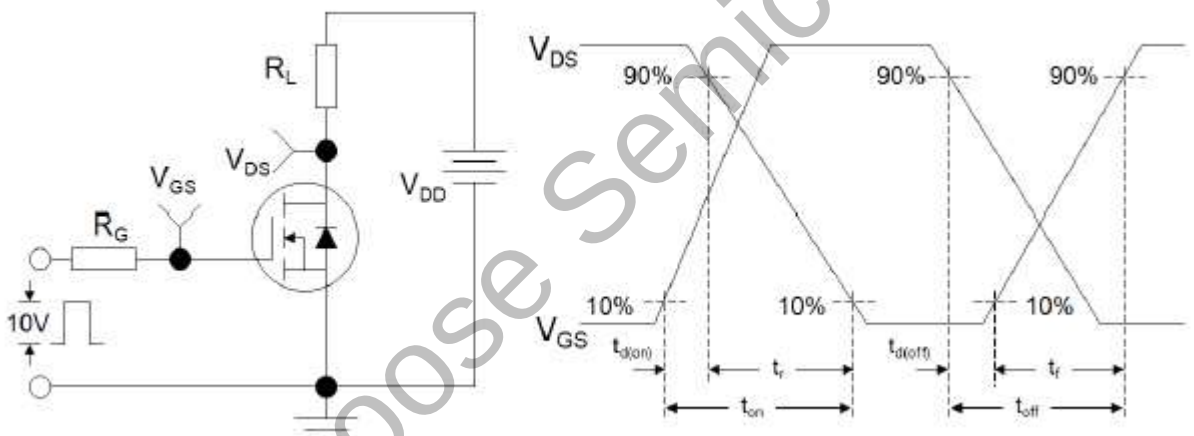


Figure 2: Resistive Switching Test Circuit & Waveforms

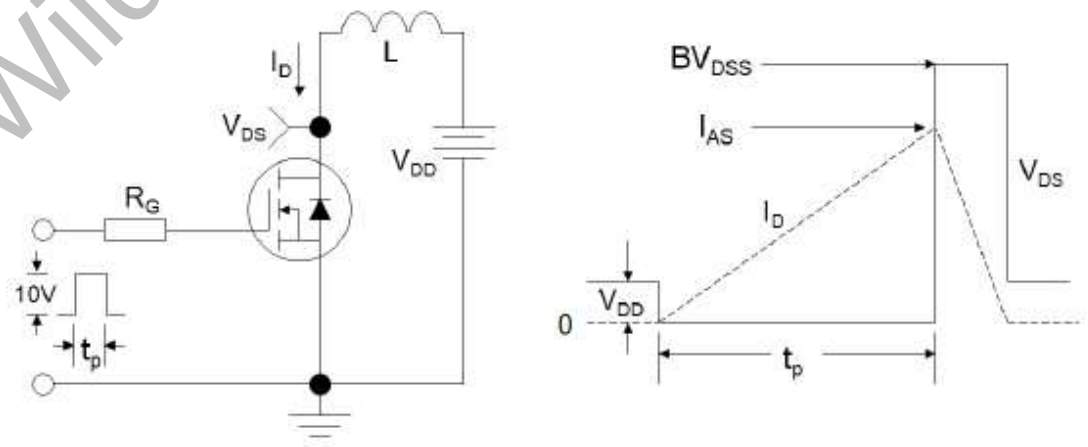


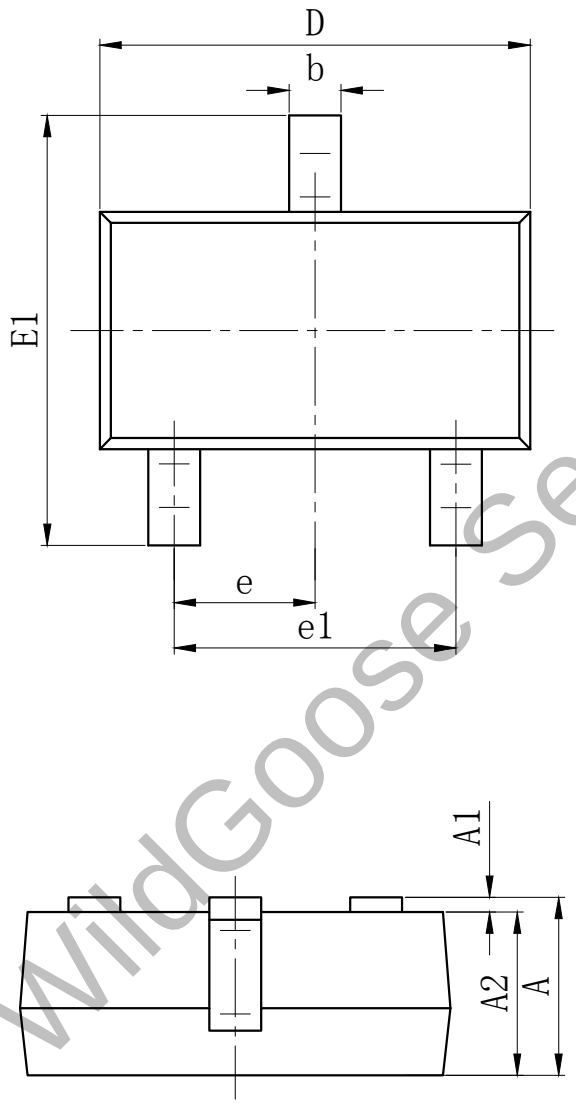
Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

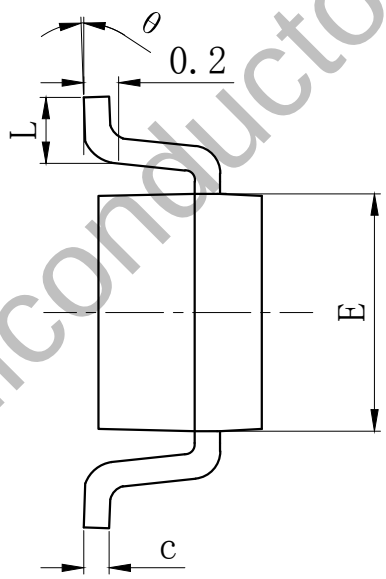
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Package Dimension

SOT-23-3L

Umit:mm





SYMBOL	MILLIMETER	
	MIN	MAX
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.250	0.450
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950(BSC)	
e1	1.800	2.000
L	0.300	0.500
θ	0°	8°

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