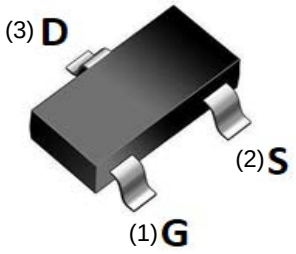
WG5P02-3L

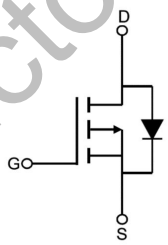
Features:

- ☐ Advanced Trench Technology.
- ☐ Excellent Switching Characteristics.
- ☐ Extended Safe Operating Area.
- ☐ Unrivalled Gate Charge :Qg= 33.7nC (Typ.).
- ☐ BVDSS= -20V,ID= -5A
- ☐ RDS(on) : 26mΩ (Max) @VG=4.5V
- ☐ 100% Avalanche Tested

SOT-23-3L



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



Schematic diagram

Absolute Maximum Ratings (T_A=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_A= 25℃	-5	A
		T_A= 100℃	-3.25	A
I_{DM}	Pulsed Drain Current note1		-20	A
P_D	Power Dissipation	T_A= 25℃	1.1	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		114	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

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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	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}= -20V, V_{GS}=0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D= -250μA	-0.4	-0.7	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS}= -4.5V, I_D= -5A	-	20	26	mΩ
		V_{GS}= -2.5V, I_D= -4A	-	27	37	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}= -10V, V_{GS}=0V, f=1.0MHz	-	1200	-	pF
C_{oss}	Output Capacitance		-	191	-	pF
C_{rss}	Reverse Transfer Capacitance		-	168	-	pF
Q_g	Total Gate Charge	V_{DS}= -10V, I_D= -5A, V_{GS}= -4.5V	-	33.7	-	nC
Q_{gs}	Gate-Source Charge		-	3.5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	10.5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD} = -10V, I_D= -5A, V_{GS}= -4.5V,R_{GEN}=10Ω	-	11	-	ns
t_r	Turn-on Rise Time		-	35	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	30	-	ns
t_f	Turn-off Fall Time		-	10	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-5	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-20	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S= -5A	-	-	-1.2	V

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

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

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Typical Performance Characteristics

Figure1: Output Characteristics

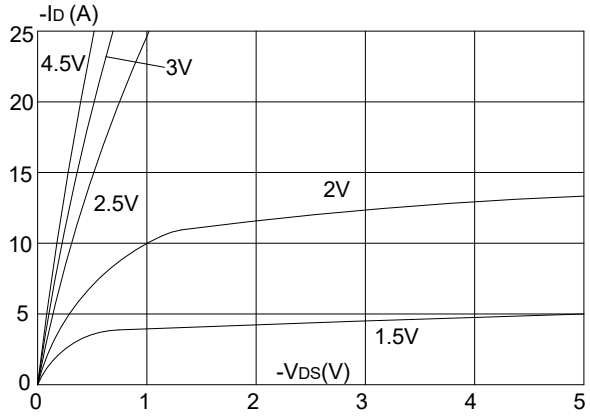


Figure 2: Typical Transfer Characteristics

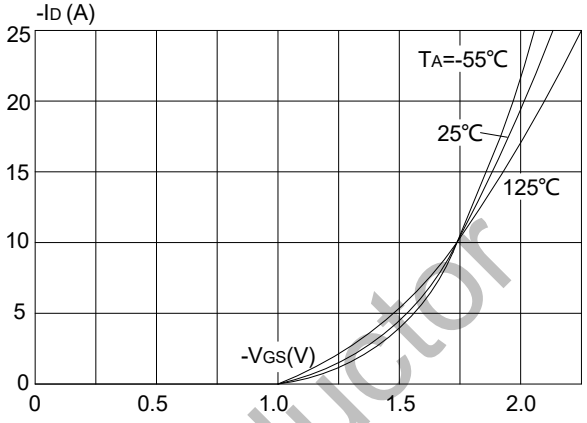


Figure 3: On-resistance vs. Drain Current

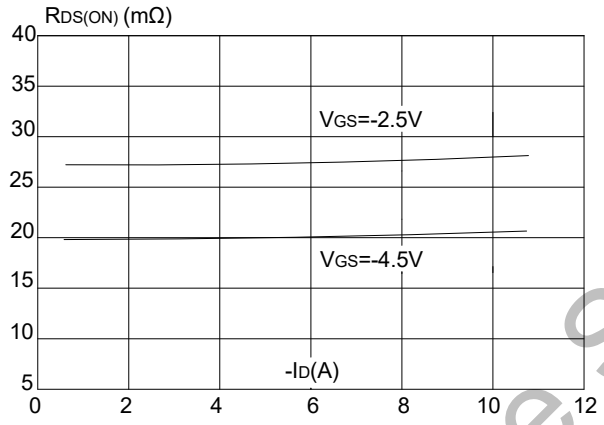


Figure 4: Body Diode Characteristics

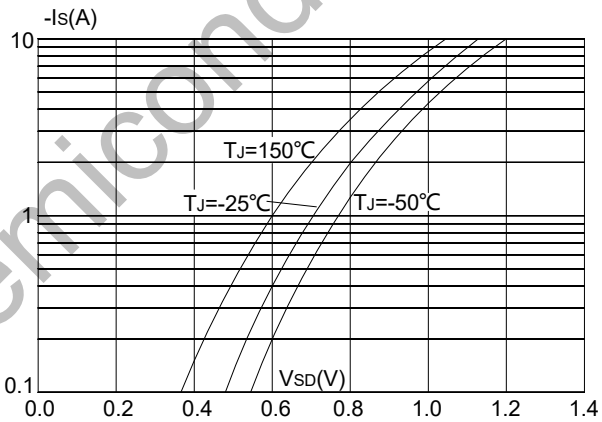


Figure 5: Gate Charge Characteristics

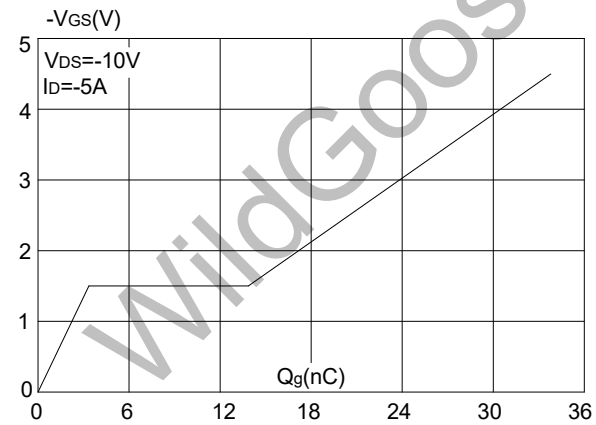
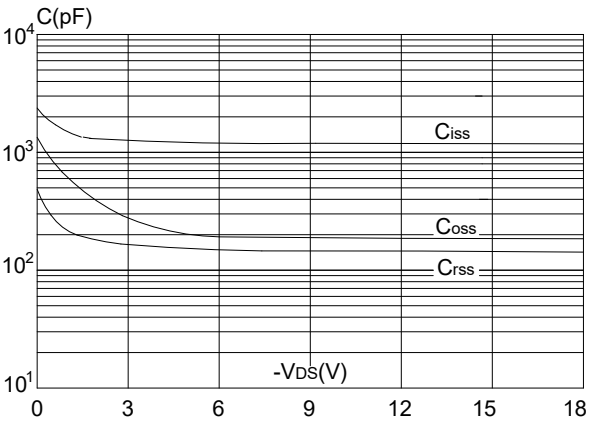


Figure 6: Capacitance Characteristics



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Typical Performance Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

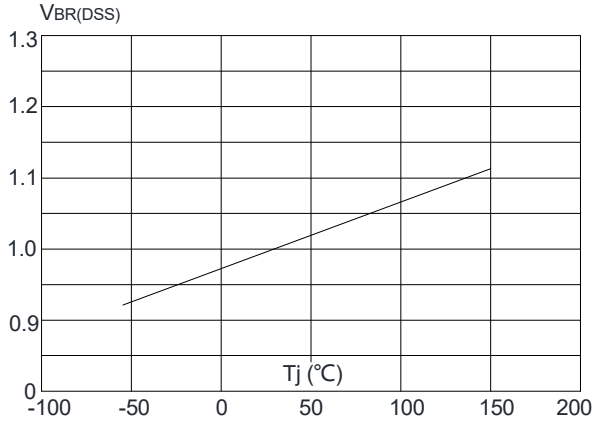


Figure 8: Normalized on Resistance vs. Junction Temperature

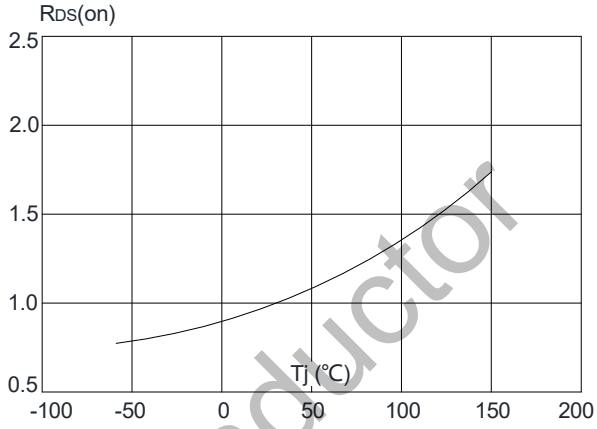


Figure 9: Maximum Safe Operating Area

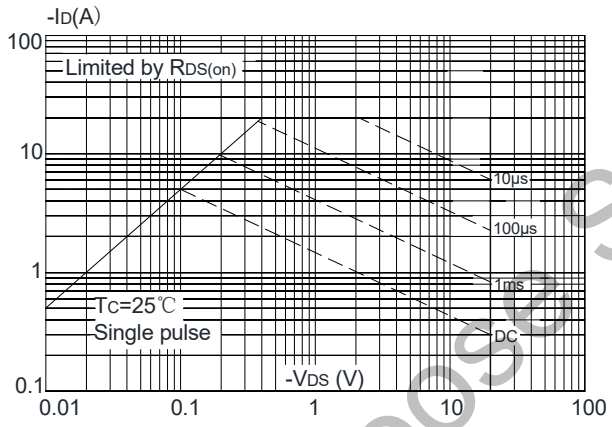


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

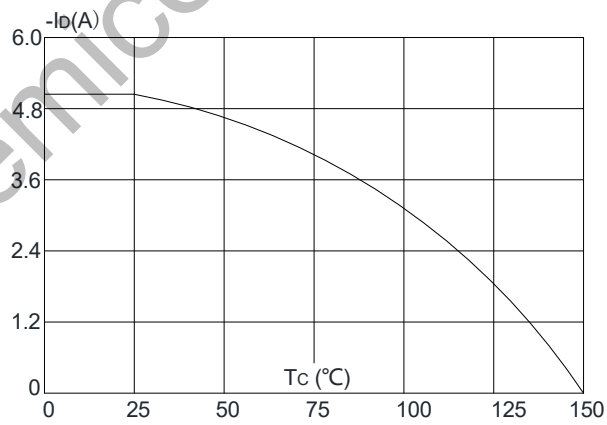
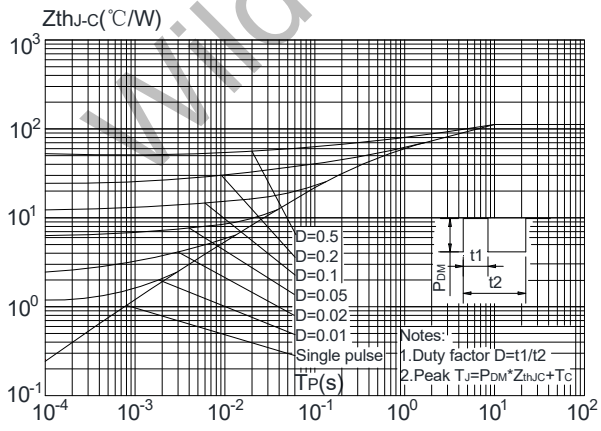


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



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Test Circuit

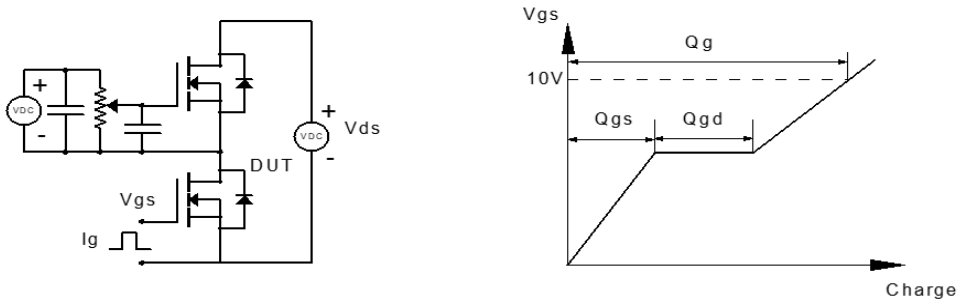

Figure 1: Gate Charge Test Circuit & Waveform

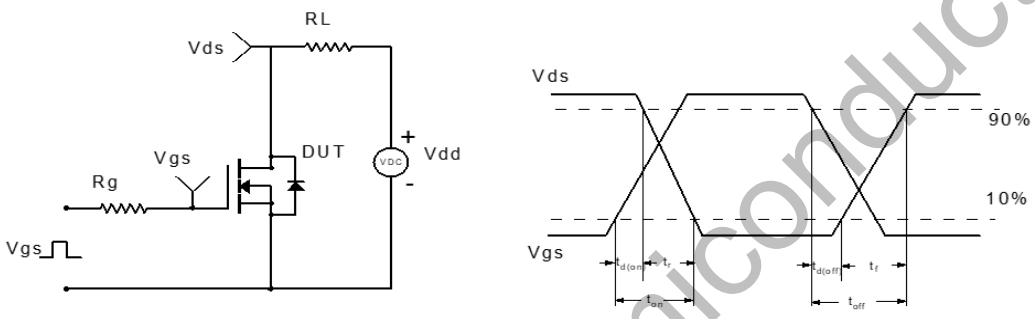

Figure 2: Resistive Switching Test Circuit & Waveform

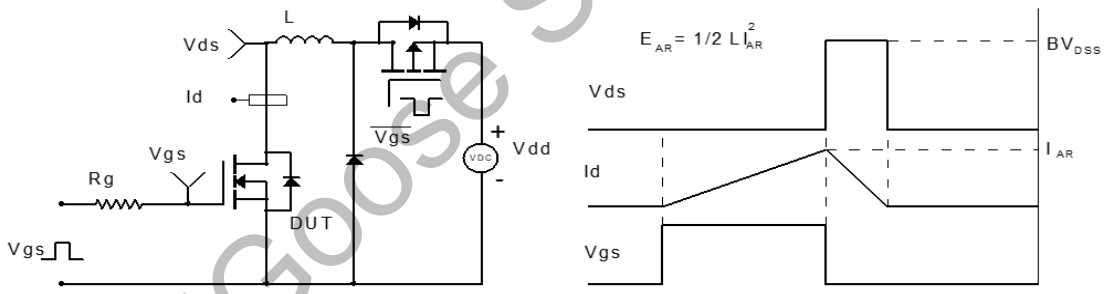

Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

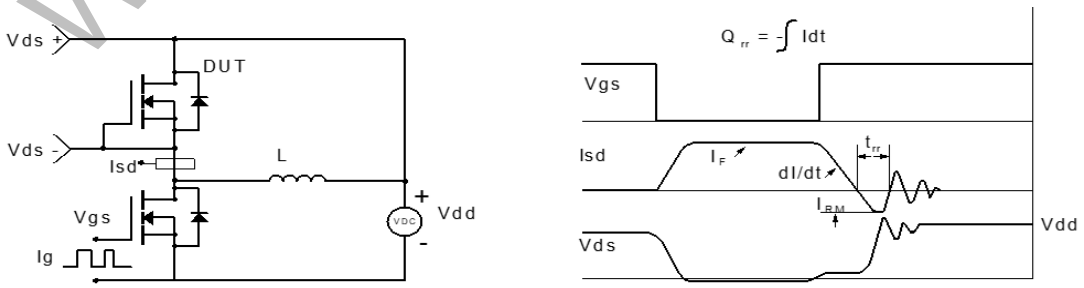

Figure 4: Diode Recovery Test Circuit & Waveform

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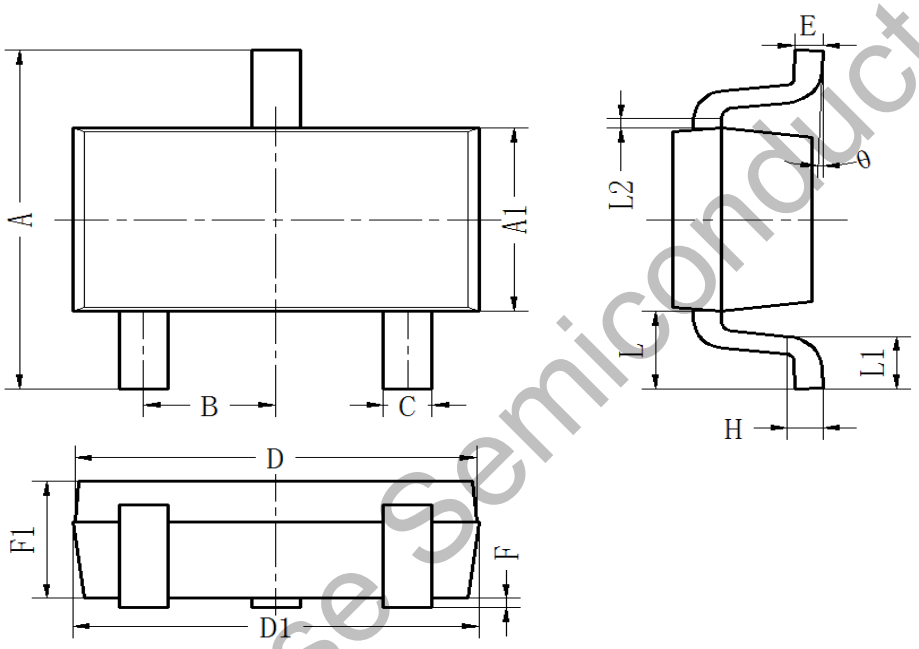
Package Dimension

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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