



GL01N65L

Silicon N-Channel Power MOSFET

General Description

GL01N65L, the silicon N-channel Enhanced VDMOSFET, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system miniaturization and higher efficiency. The package form is SOT-23, which accords with the RoHS standard.

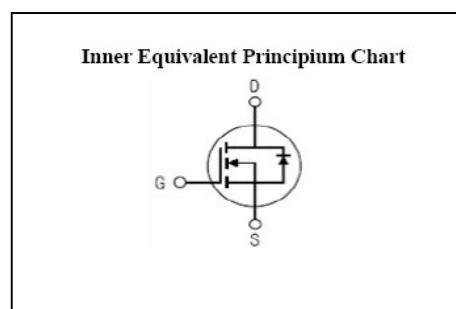
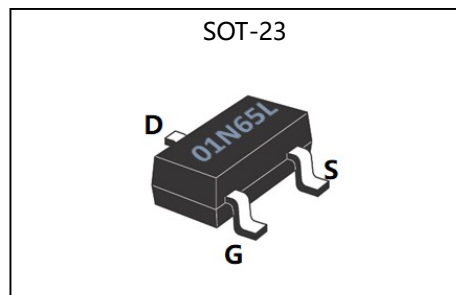
V_{DSS}	650	V
I_D	50	mA
$P_D(T_C=25^{\circ}C)$	1.39	W
$R_{DS(ON).TYP.}$	140	Ω

Features

- Fast Switching
- Low ON Resistance
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Applications

- Power switch circuit of adaptor and charger



Absolute (Tc=25°C unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	650	V
I_D	Continuous Drain Current	50	mA
	Continuous Drain Current $T_C=100^{\circ}C$	35	mA
I_{DM}^{a1}	Pulsed Drain Current	200	mA
V_{GS}	Gate-to-Source Voltage	± 20	V
dv/dt^{a3}	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	1.39	W
	Derating Factor above $25^{\circ}C$	0.89	W/ $^{\circ}C$
T_J, T_{stg}	Operating Junction and Storage Temperature Range	150, -55 to 150	$^{\circ}C$
T_L	Maximum Temperature for Soldering	300	$^{\circ}C$

Caution Stresses greater than those in the "Absolute Maximum Ratings" may cause permanent damage to the device

Thermal Characteristics

Symbol	Parameter	Rating	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	90	$^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	200	$^{\circ}C/W$

Wuxi Guang Lei electronic technology co., LTD



GL01N65L

Silicon N-Channel Power MOSFET

Electrical Characteristics (Tc= 25°C unless otherwise specified)

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	650	--	--	V
$\Delta V_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	$I_D=250\mu A, \text{Reference } 25^\circ C$	--	0.55	--	V/°C
I_{DSS}	Drain to Source Leakage Current	$V_{DS}=650V, V_{GS}=0V, T_a=25^\circ C$	--	--	1.0	μA
		$V_{DS}=520V, V_{GS}=0V, T_a=125^\circ C$	--	--	100	
$I_{GSS(F)}$	Gate to Source Forward Leakage	$V_{GS}=+20V$	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	$V_{GS}=-20V$	--	--	-100	nA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$R_{DS(ON)1}$	Drain-to-Source On-Resistance	$V_{GS}=10V, I_D=25mA$	--	140	175	Ω
$R_{DS(ON)2}$	Drain-to-Source On-Resistance	$V_{GS}=4.5V, I_D=20mA$	--	150	185	Ω
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6	--	2.5	V
g_{fs}	Forward Trans conductance	$V_{DS}=15V, I_D=20mA$	--	0.13	--	S
Pulse width<380 μs ; duty cycle<2%.						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=25V$ $f=1.0MHz$	--	8.8	--	pF
C_{oss}	Output Capacitance		--	1.5	--	
C_{rss}	Reverse Transfer Capacitance		--	0.6	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	$I_D=20mA, V_{DD}=350V$ $V_{GS}=10V, R_g=25\Omega$	--	3.5	--	ns
t_r	Rise Time		--	4.0	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	10	--	
t_f	Fall Time		--	15	--	
Q_g	Total Gate Charge	$I_D=20mA, V_{DD}=350V$ $V_{GS}=10V$	--	0.8	--	nC
Q_{gs}	Gate to Source Charge		--	0.09	--	
Q_{gd}	Gate to Drain ("Miller") Charge		--	0.4	--	



GL01N65L

Silicon N-Channel Power MOSFET

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_{SD}	Continuous Source Current (Body Diode)		--	--	50	mA
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	200	mA
V_{SD}	Diode Forward Voltage	$I_S=50\text{mA}, V_{GS}=0\text{V}$	--	--	1.5	V
t_{rr}	Reverse Recovery Time	$I_S=20\text{mA}, T_J=25^\circ\text{C}$	--	90	--	ns
Q_{rr}	Reverse Recovery Charge	$dI_F/dt=100\text{A}/\mu\text{s}, V_{GS}=0\text{V}$	--	8	--	μC

a1: Repetitive rating; pulse width limited by maximum junction temperature

a2: $L=0.1\text{mH}$, $I_D=50\text{mA}$, Start $T_J=25^\circ\text{C}$

a3: $I_{SD}=50\text{mA}$, $dI/dt \leq 100\text{A}/\mu\text{s}$, $V_{DD} \leq BV_{DS}$, Start $T_J=25^\circ\text{C}$



GL01N65L

Silicon N-Channel Power MOSFET

Characteristics Curves

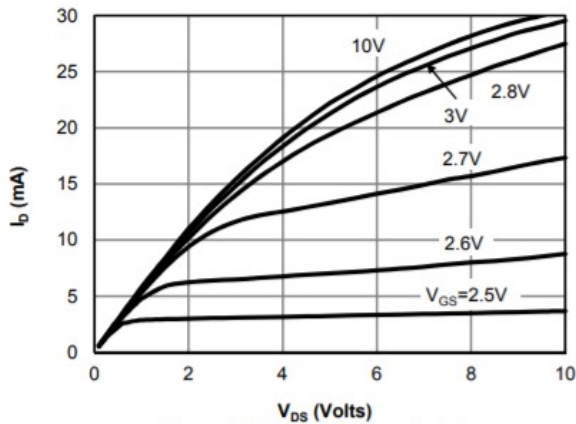


Figure 1: On-Region Characteristics

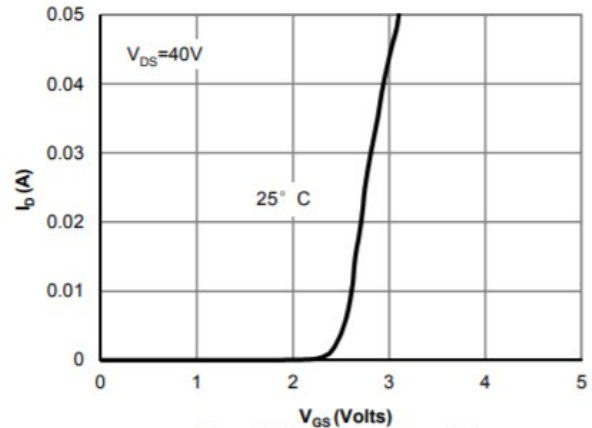


Figure 2: Transfer Characteristics

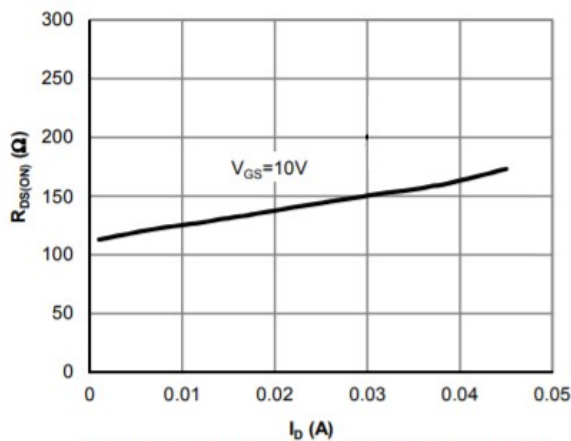


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

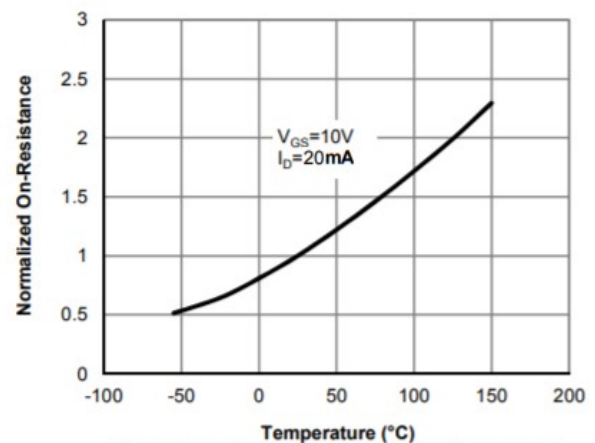


Figure 4: On-Resistance vs. Junction Temperature

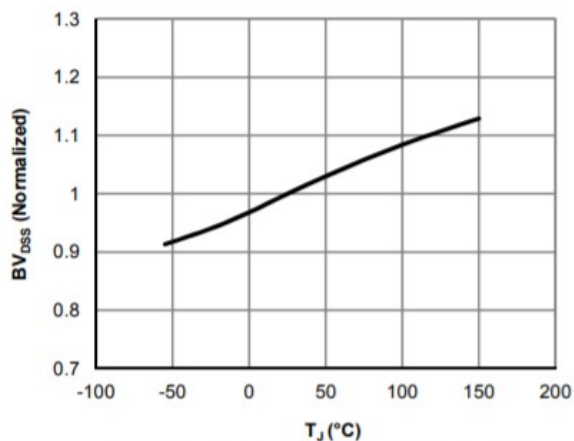


Figure 5: Break Down vs. Junction Temperature

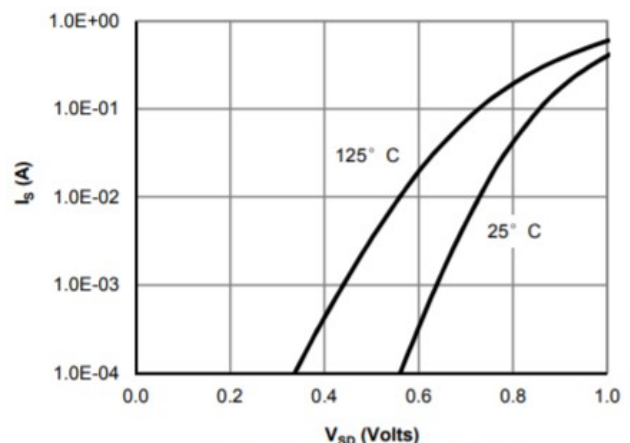


Figure 6: Body-Diode Characteristics

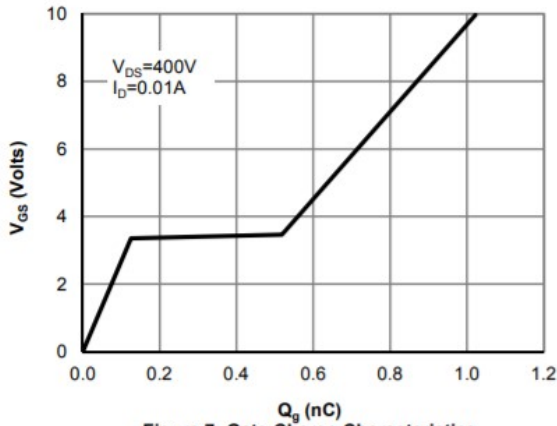


Figure 7: Gate-Charge Characteristics

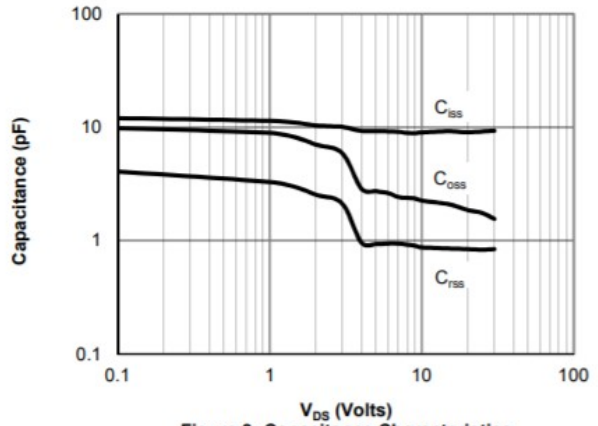


Figure 8: Capacitance Characteristics

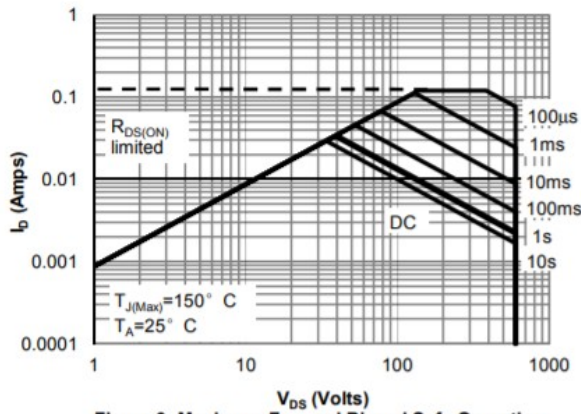


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

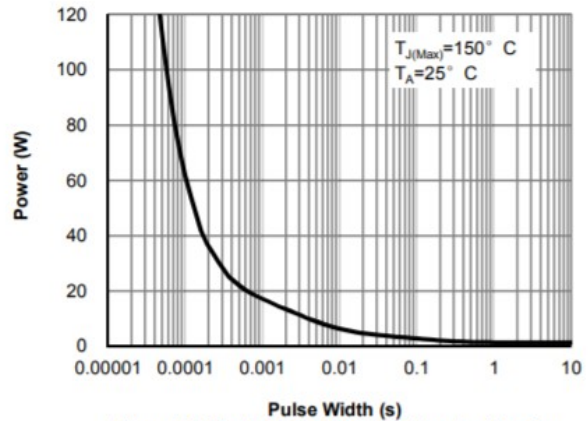


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

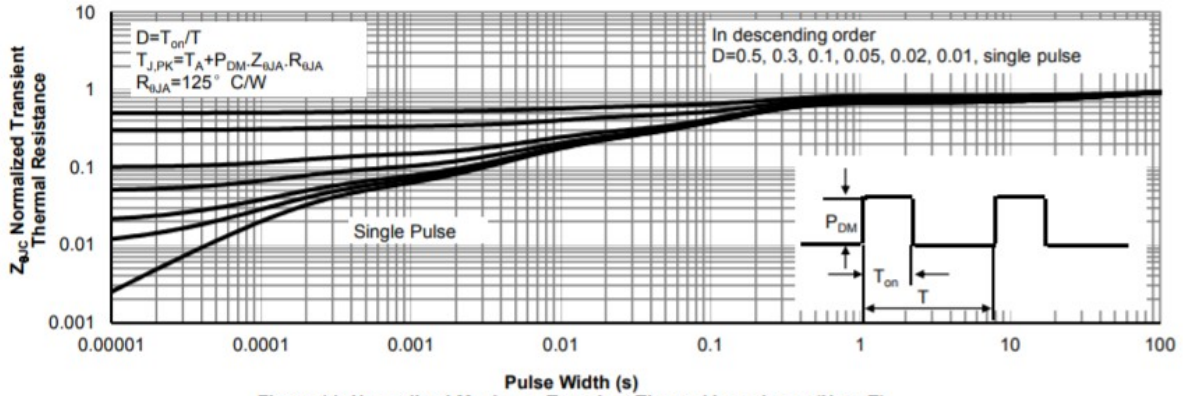


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)