GL35N03AD3D

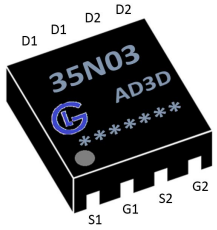
GL Silicon N-Channel Power MOSFET

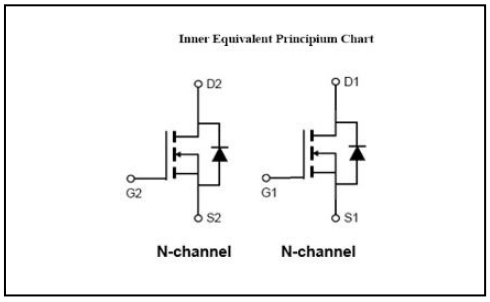
General Description：

The GL35N03AD3D uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications. The package form is DFN3.3*3.3, which accords with the RoHS standard.

V_{DSS}	30	V
I_D	35	A
P_D	30	W
$R_{DS(ON)type}$	9	mΩ

DFN3.3*3.3





Features：

- **Fast Switching**
- **Low Gate Charge and Rdson**
- **Low Reverse transfer capacitances**
- **100% Single Pulse avalanche energy Test**

Applications：

PWM applications
Load switch
Power management

Absolute（Tc= 25℃ unless otherwise specified）：

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	30	V
I_D	Continuous Drain Current T_C = 25 °C	35	A
	Continuous Drain Current T_C = 70 °C	22	A
I_{DM} a1	Pulsed Drain Current	80	A
V_{GS}	Gate-to-Source Voltage	±20	V
Eas a2	L=0.1mH	25	mJ
dv/dt a3	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	30	W
T_J， T_{stg}	Operating Junction and Storage Temperature Range	150，–55 to 150	℃
T_L	MaximumTemperature for Soldering	300	℃

Electrical Characteristics（Tc= 25℃ 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=-250μA	30	--	--	V
$\Delta BV_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	ID=-250uA,Reference25℃	--	0.1	--	V/℃
I_{DSS}	Drain to Source Leakage Current	V_{DS} = 30, V_{GS}= 0V, T_a = 25℃	--	--	1	μA
		V_{DS} =24V, V_{GS}= 0V, T_a = 125℃	--	--	250	
$I_{GSS(F)}$	Gate to Source Forward Leakage	V_{GS} =+20V	--	--	1	μA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	V_{GS} =-20V	--	--	-1	μA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=10V,I_D=15A	--	9	11.5	mΩ
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=4.5V,I_D10A	--	15	18	mΩ
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1	--	2.5	V
Pulse width tp≤380μs, δ ≤2%						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D =15A	27	--	--	S
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 15V f = 1.0MHz	--	810	--	pF
C_{oss}	Output Capacitance		--	225	--	
C_{rss}	Reverse Transfer Capacitance		--	160	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_D =1A V_{DD} = 15V V_{GS} =10V R_G =3.3Ω	--	9	--	ns
tr	Rise Time		--	8	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	28	--	
t_f	Fall Time		--	9	--	
Q_g	Total Gate Charge	I_D =5A V_{DD} =15V V_{GS} = 4.5V	--	14	--	nC
Q_{gs}	Gate to Source Charge		--	4.4	--	
Q_{gd}	Gate to Drain (“Miller”)Charge		--	5.0	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	35	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	80	A
V_{SD}	Diode Forward Voltage	I_S=35A,V_{GS}=0V	--	--	1.5	V
trr	Reverse Recovery Time	I_S=35A,T_j = 25° C	--	30	--	ns
Qrr	Reverse Recovery Charge	dI_F/dt=100A/us, V_{GS}=0V	--	80	--	nC
Pulse width tp≤380μs, δ ≤2%						

Symbol	Parameter	Typ.	Units
$R_{\theta JA}$	Junction-to-Ambient	6.25	℃/W

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

[a2]: T_J=25℃, V_{DD}=15V, V_G=10V,L=0.1mH

[a3]: I_{SD} =35A,di/dt ≤100A/us,V_{DD}≤BV_{DS}, Start T_J=25℃

Typical Electrical and Thermal Characteristics

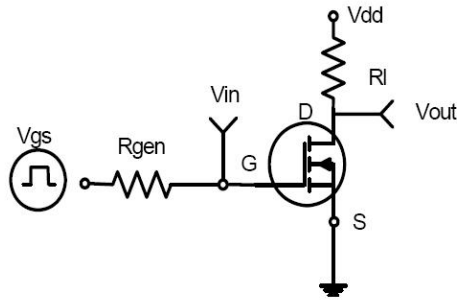


Figure 1:Switching Test Circuit

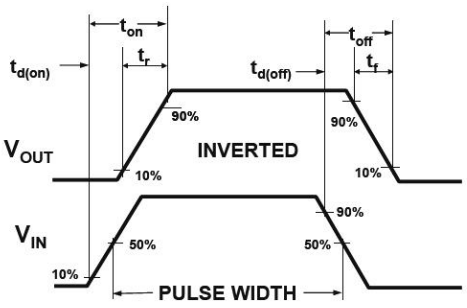


Figure 2:Switching Waveforms

Typical Electrical and Thermal Characteristics (Curves)

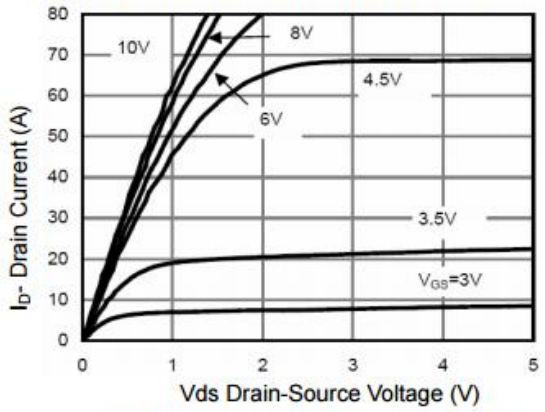


Figure 1 Output Characteristics

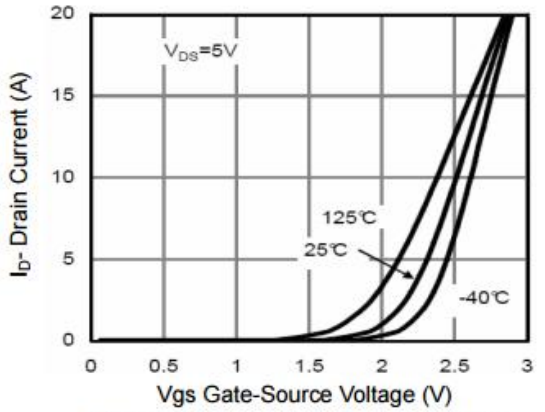


Figure 2 Transfer Characteristics

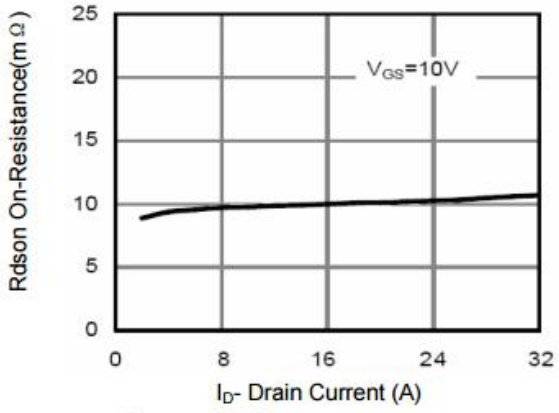


Figure 3 Rdson- Drain Current

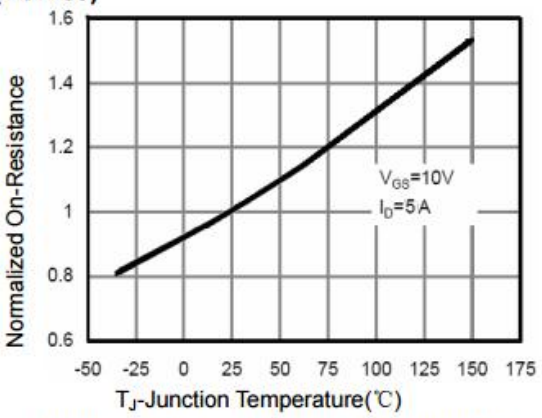


Figure 4 Rdson-Junction Temperature

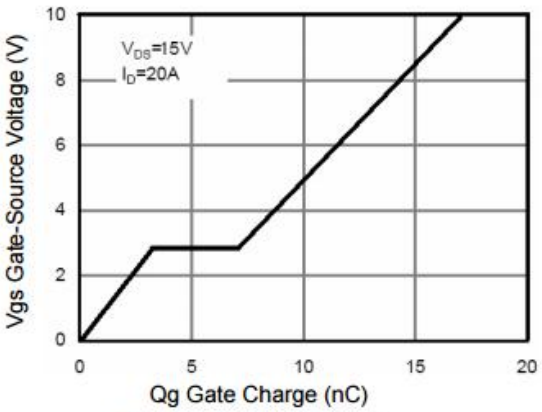


Figure 5 Gate Charge

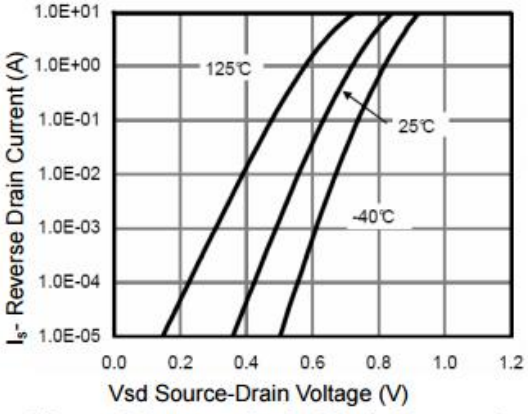


Figure 6 Source- Drain Diode Forward

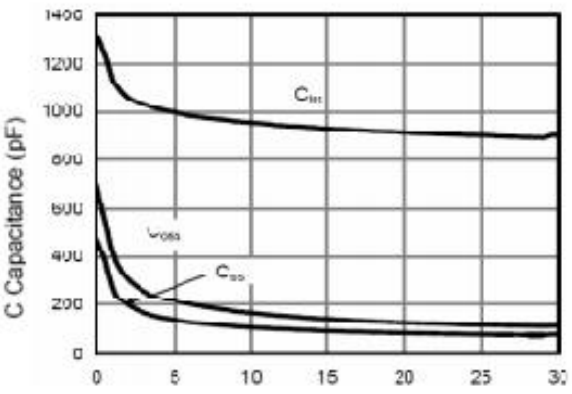


Figure 7 Capacitance vs Vds

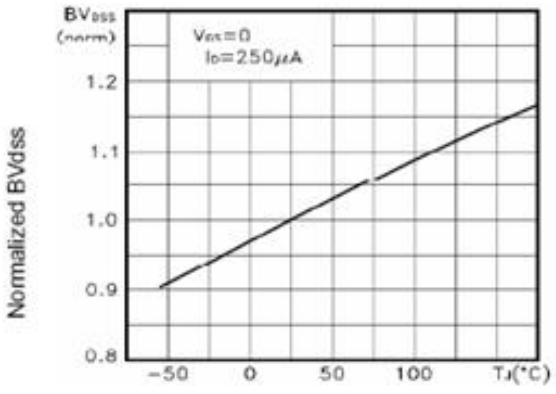


Figure 9 BV_{DSS} vs Junction Temperature

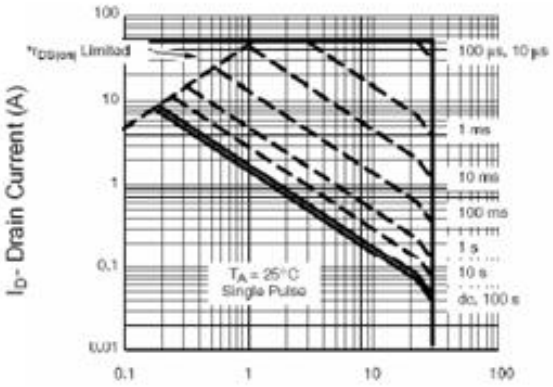


Figure 8 Safe Operation Area

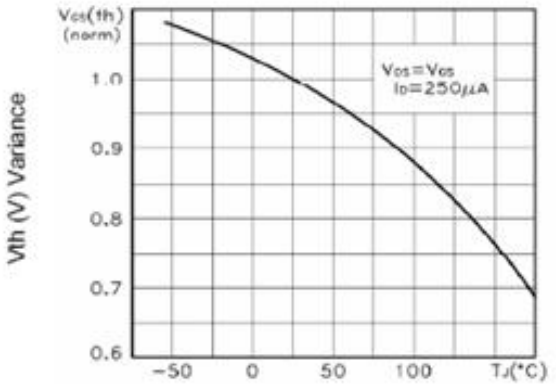


Figure 10 $V_{GS(th)}$ vs Junction Temperature

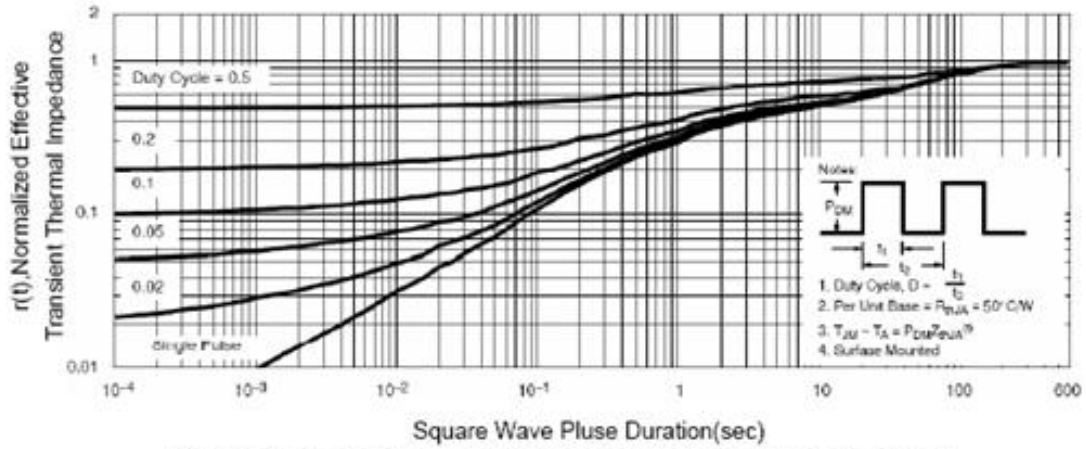


Figure 11 Normalized Maximum Transient Thermal Impedance