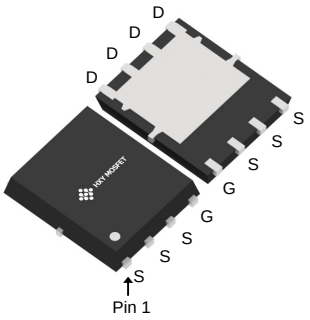
Description

The STL100NH3LL uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

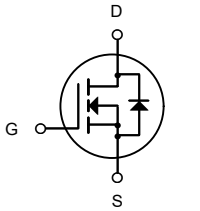


DFN5X6-8L

General Features

V_{DS} = 30V I_D = 120A

$R_{DS(ON)}$ < 2.6mΩ V_{GS}=10V



N-Channel MOSFET

Application

Battery protection

Load switch

Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
STL100NH3LL	DFN5X6-8L	HXY MOSFET	5000

Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	120	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	57	A
I_{DM}	Pulsed Drain Current	360	A
EAS	Single Pulse Avalanche Energy	125	mJ
P_D	Total Power Dissipation[4]	115	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[2]	1.3	℃/W

Electrical Characteristics (T_J=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=30V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
$V_{GS(th)}$	GateSource Threshold Voltage	V_{GS}=V_{DS}, I_D=250μ A	1	1.6	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[2]	V_{GS}=10V,I_D=20A	---	2.6	3.3	mΩ
		V_{GS}=4.5V,I_D=10A	---	3.8	5	
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	2218	---	pF
C_{oss}	Output Capacitance		---	480	---	
C_{rss}	Reverse Transfer Capacitance		---	340	---	
$t_{d(on)}$	Turn-On Delay Time [3,4]	V_{DD}=15V,I_D=15A, R_G=3.3Ω V_{GS}=10V	---	12.6	---	ns
t_r	Rise Time[3,4]		---	19.5	---	ns
$t_{d(off)}$	Turn-Off Delay Time [3,4]		---	42.8	---	ns
t_f	Fall Time[3,4]		---	13.2	---	ns
Q_g	Total Gate Charge [3,4]	V_{GS}=4.5V, V_{DS}=15V, I_D=20A	---	24	---	nC
Q_{gs}	Gate-Source Charge [3,4]		---	4.2	---	nC
Q_{gd}	Gate-Drain “Miller” Charge [3,4]		---	13	---	nC
V_{SD}	Source-Drain Diode Forward Voltage[3]	V_{GS}=0V,I_S=1A	---	---	1	V
IS	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	120	A
ISM	Pulsed Source Current		---	---	360	A
Trr	Reverse Recovery Time	V_{GS}=30V,Is=1A , di/dt=100A/μs T_J=25°C	---	258	---	NS
Qrr	Reverse Recovery Charge		---	324	---	NC

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=50A.,R_G=25Ω ,Starting T_J=25°C.
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
4. Essentially independent of operating temperature.

Typical Characteristics

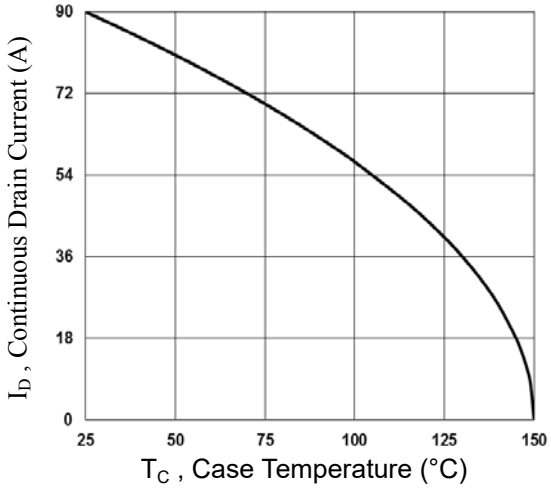


Fig.1 Continuous Drain Current vs. T_C

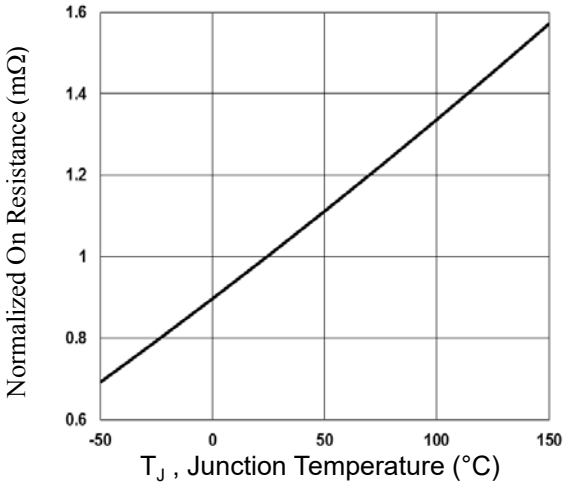


Fig.2 Normalized RDSON vs. T_J

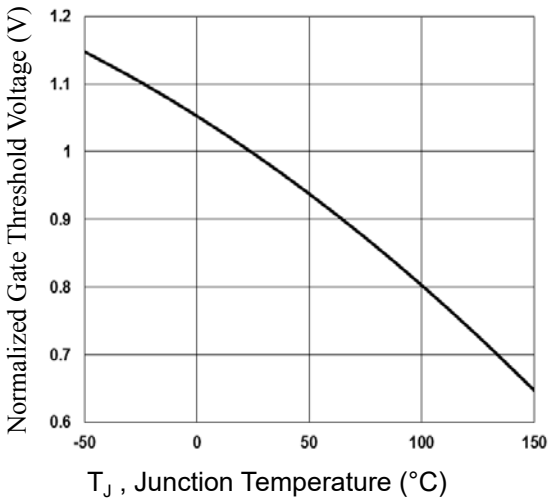


Fig.3 Normalized V_{th} vs. T_J

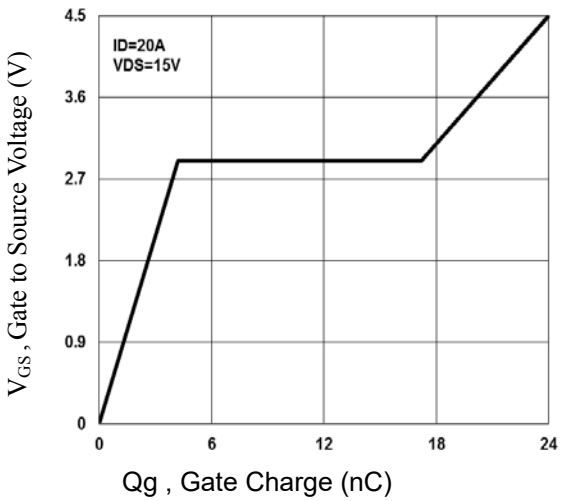


Fig.4 Gate Charge Waveform

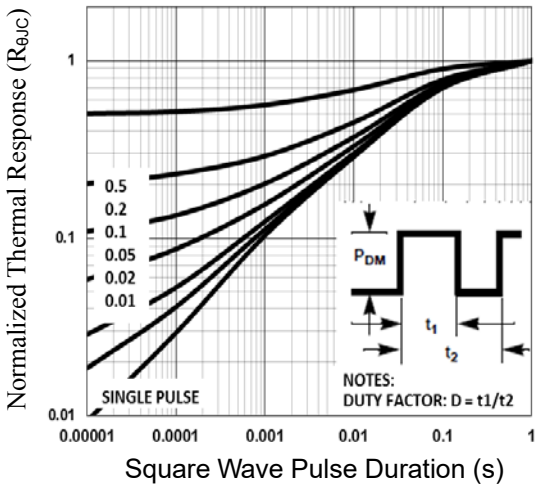


Fig.5 Normalized Transient Impedance

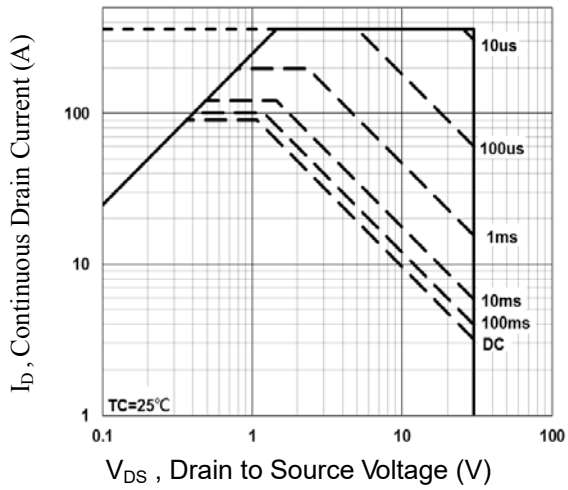


Fig.6 Maximum Safe Operation Area

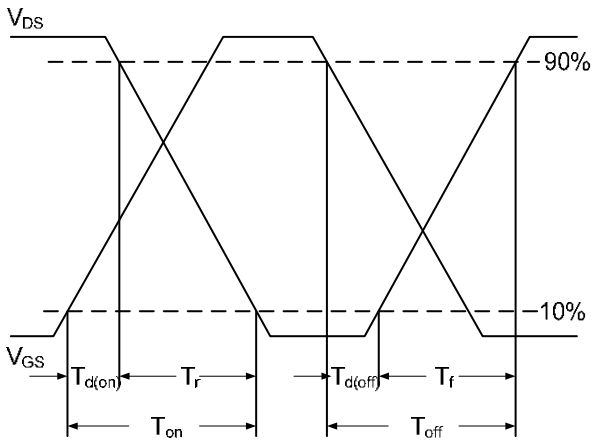


Fig.7 Switching Time Waveform

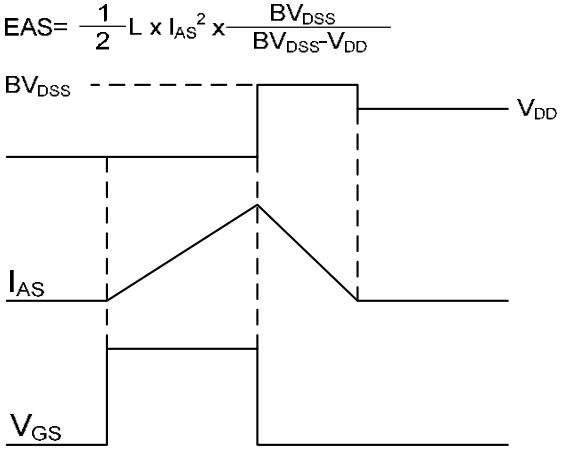
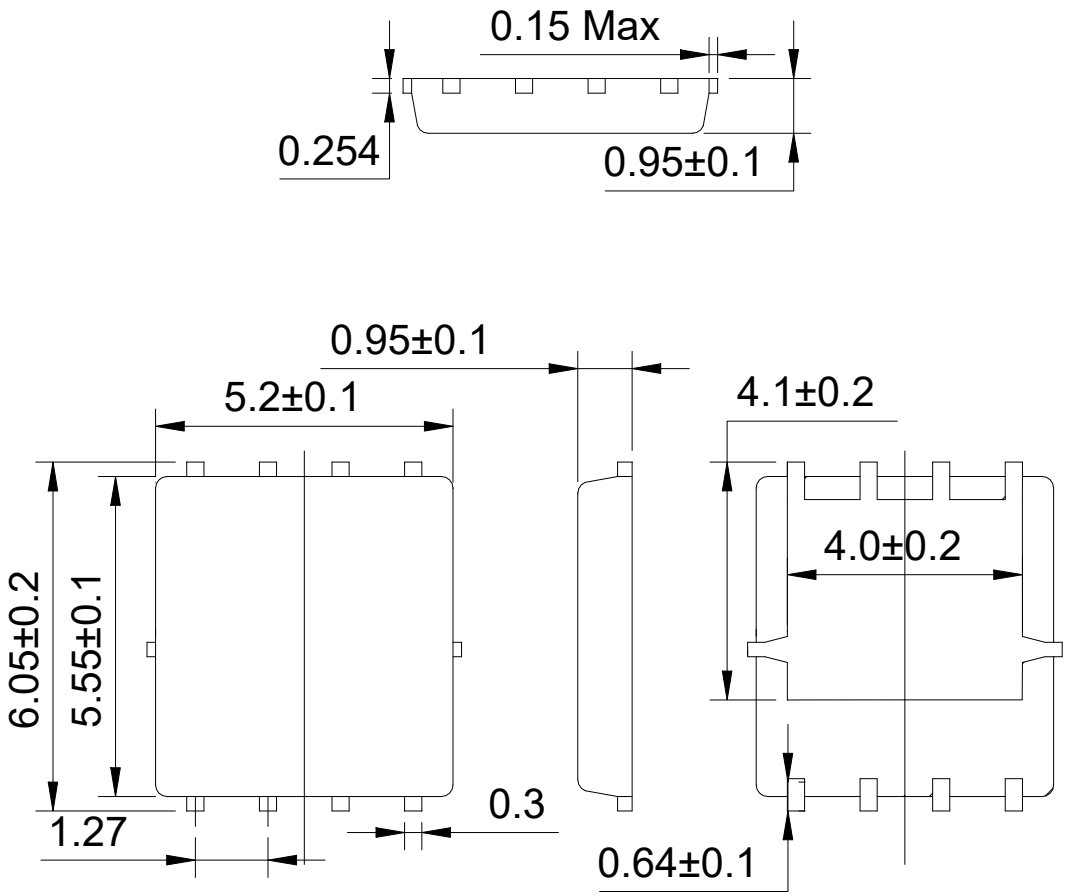


Fig.8 EAS Waveform

DFN5X6-8L Package Information

Unit:mm



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