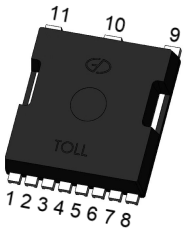
N-Channel 100V (D-S) Power MOSFET

Features

- 100% Avalanche Tested
- Extremely Low Losses with Low FOM Rdson*Qg
- RoHS Compliant, Halogen Free, Pb-Free
- AEC-Q101 Qualified
- MSL 1



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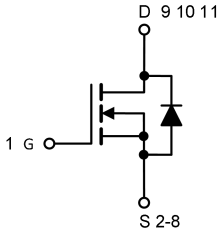
Applications

- Automotive systems
- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit



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

Parameter		Symbol	Value	Unit
Drain Source Voltage		V_{DS}	100	V
Gate Source Voltage		V_{GS}	±20	V
Drain Current, Continuous V_{GS}=10V *(Note 1)*	T_C=25°C	I_D	224	A
	T_C=100°C		141	
Drain Current, Pulsed *(Note 2)*		I_{DM}	896	A
Single Avalanche Energy		E_{AS}	795	mJ
Power Dissipation *(Note 3)*	T_C=25°C	P_D	208	W
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	°C

Note 1: Calculated continuous current based on maximum allowable junction temperature.
Note 2: Repetitive rating; pulse width limited by max. junction temperature.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Junction to Case *(Note 3)*	$R_{\theta JC}$	0.6	°C/W
Junction-to-ambient (t ≤ 10s)*(Note 4)*	$R_{\theta JA}$	62	°C/W

Note 3: The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.
Note 4: The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	--	--	1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250uA	2	--	4	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V	--	--	±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=50A	--	1.8	3	mΩ
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=50V, I_D=100A	--	106	--	nC
Gate Source Charge	Q_{gs}		--	41	--	
Gate Drain Charge	Q_{gd}		--	30	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DD}=50V, R_L=1Ω, R_{GEN}=2.2Ω	--	39	--	ns
Turn-on Rise Time	t_r		--	15	--	
Turn-off Delay Time	$t_{d(off)}$		--	50	--	
Turn-off Fall Time	t_f		--	16	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=50V, f=100kHz	--	6209	--	pF
Output Capacitance	C_{oss}		--	2570	--	
Reverse Transfer Capacitance	C_{rss}		--	67	--	

Reverse Diode Characteristics (T_J =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Current, Continuous	I_S	T_C=25°C	--	--	224	A
Pulsed Source Current (Body Diode)	I_{SM}		--	--	896	
Diode Forward Voltage	V_{SD}	I_S=50A, V_{GS}=0V	--	--	1.2	V
Reverse Recovery Time	T_{rr}	V_R =50V, I_F =50A, di/dt = 100 A/μs	--	75	--	ns
Reverse Recovery Charge	Q_{rr}		--	123	--	nC

Typical Characteristics Curves (T_J = 25℃ unless otherwise noted)

Fig.1 - Typical Output Characteristics

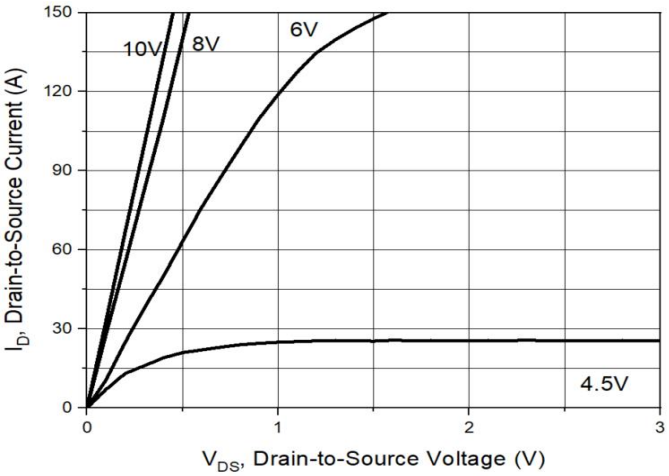


Fig.2 - Drain-to-Source Breakdown Voltage vs. Junction Temperature

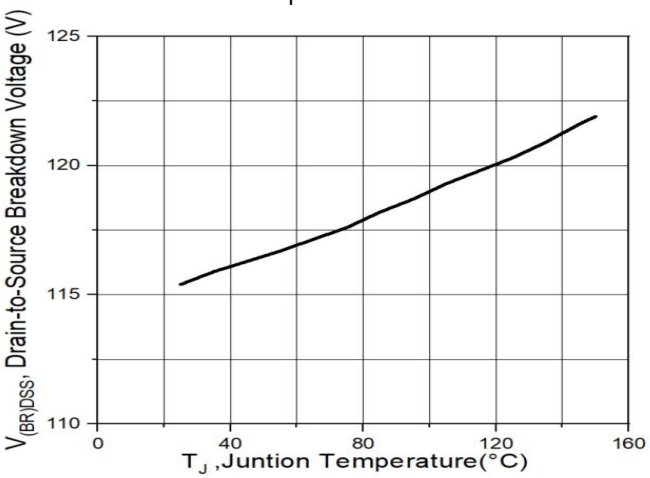


Fig.3 - $R_{DS(on)}$ vs. Junction Temperature

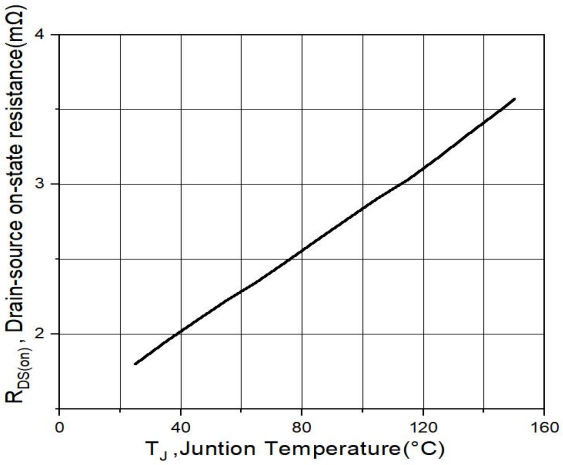


Fig.4 - Vth vs. Junction Temperature

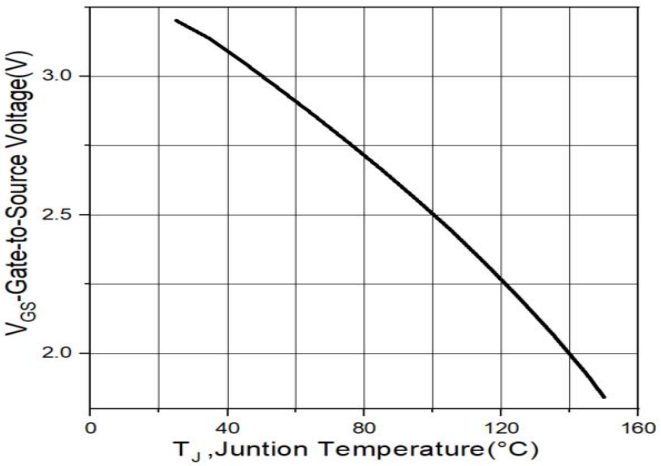


Fig.5 - Capacitance

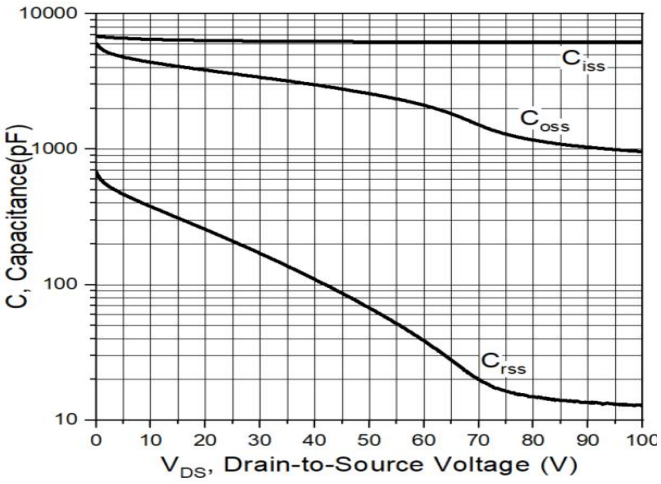
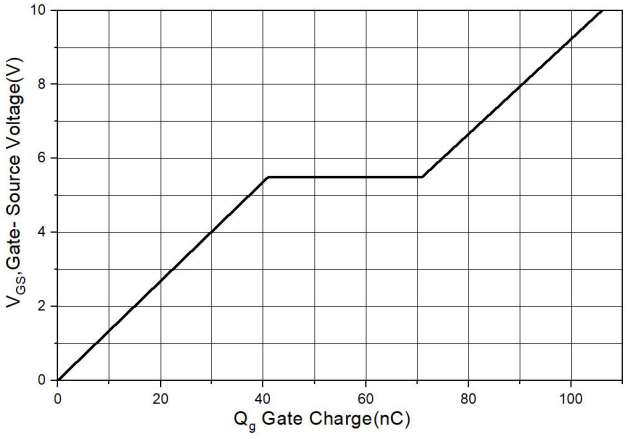


Fig.6 - Gate Charge



Typical Characteristics Curves (T_J = 25℃ unless otherwise noted)

Fig.7 - Transfer Characteristics

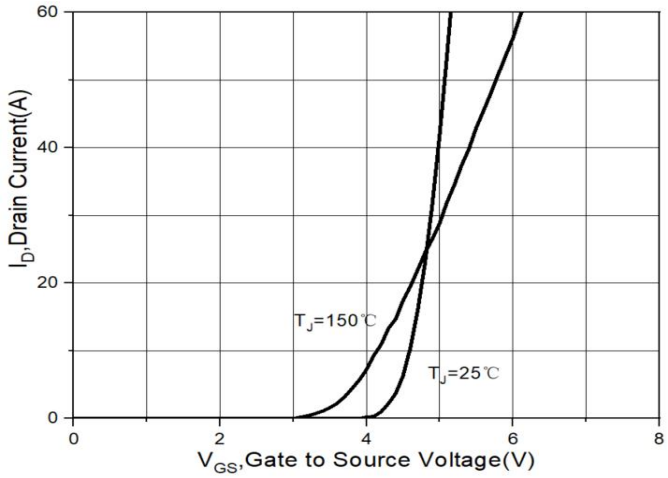
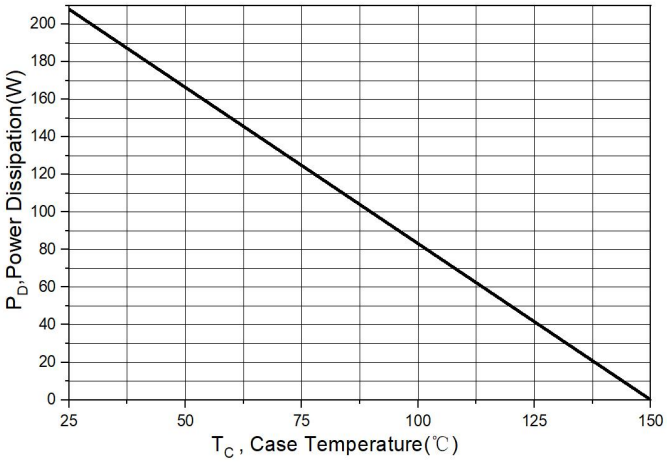


Fig.8 - Power Dissipation



Package Outline Dimensions (Unit: millimeters)

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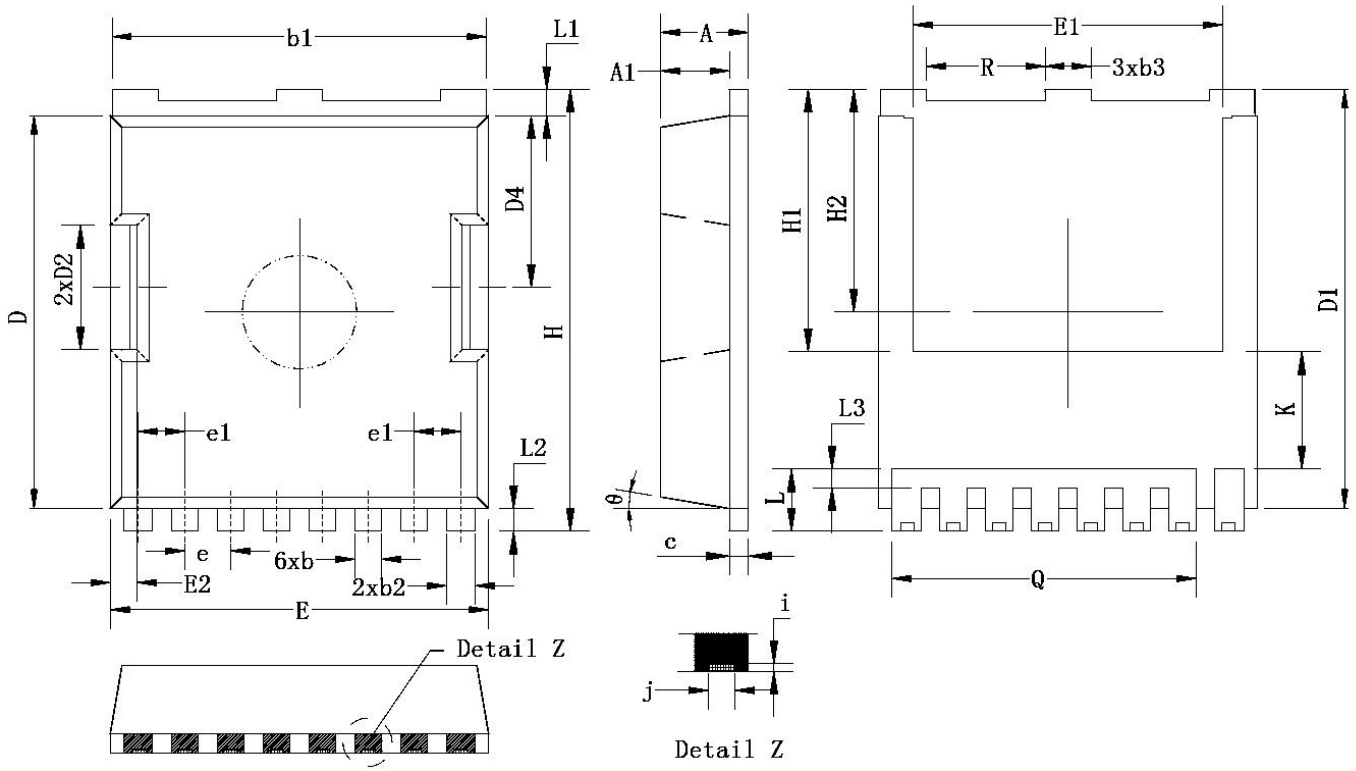
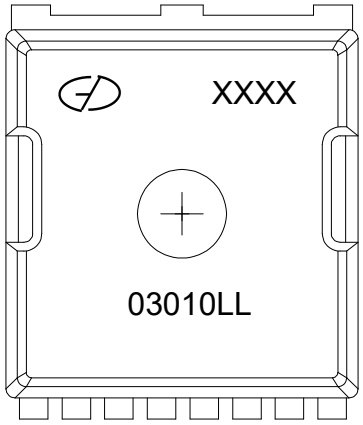


Symbol	Min	Typ	Max		Symbol	Min	Typ	Max
A	2.25	2.30	2.35		E2	0.65	0.70	0.75
A1	1.75	1.80	1.85		H	11.60	11.70	11.80
b	0.65	0.70	0.75		H1	6.95 BSC		
b1	9.75	9.80	9.85		H2	5.90 BSC		
b2	0.70	0.75	0.80		i	0.10 REF		
b3	1.15	1.20	1.25		j	0.35 REF		
c	0.45	0.50	0.55		K	3.10 REF		
D	10.35	10.40	10.45		L	1.55	1.65	1.75
D1	11.00	11.10	11.20		L1	0.65	0.70	0.75
D2	3.25	3.30	3.35		L2	0.50	0.60	0.70
D4	4.50	4.55	4.60		L3	0.40	0.50	0.60
e	1.20 BSC				Q	7.95 REF		
e1	1.225 BSC				R	3.05	3.10	3.15
E	9.85	9.90	9.95		θ	10°REF		
E1	8.00	8.10	8.20					

Marking Outline



Part Name: GMN03010LL

1. Logo Mark:
2. Date Code: XXXX
3. P/N Mark: 03010LL

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