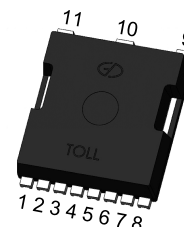


N-Channel 120V (D-S) Power MOSFET

Features

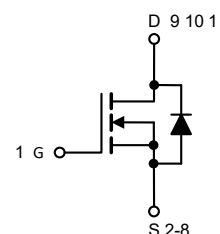
- 100% Avalanche Tested
- Extremely Low Losses with Low FOM $R_{DS(on)} \cdot Q_g$
- Halogen Free, Pb-Free
- RoHS Compliant



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Applications

- DC/DC
- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit



Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ unless otherwise noted)				
Parameter		Symbol	Value	Unit
Drain Source Voltage		V_{DS}	120	V
Gate Source Voltage		V_{GS}	± 20	V
Drain Current, Continuous $V_{GS}=10\text{V}$	$T_C=25^\circ\text{C}$	I_D	374	A
	$T_C=100^\circ\text{C}$		237	
Drain Current, Pulsed (Note 1)		I_{DM}	1421	A
Single Avalanche Energy (Note 2)		E_{AS}	2132	mJ
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	417	W
	$T_C=100^\circ\text{C}$		167	
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	$^\circ\text{C}$

Note 1: Single Pulse; $t_p \leq 1\text{us}$.

Note 2: $V_{DD} = 60\text{V}$, $V_{GS} = 10\text{V}$, $L = 1\text{mH}$, starting $T_J = 25^\circ\text{C}$.

Thermal Characteristics			
Parameter	Symbol	Max	Unit
Thermal Resistance Junction to Case	R_{thJC}	0.3	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 3)	R_{thJA}	25	$^\circ\text{C/W}$

Note 3: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a 25°C still air environment.

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	120	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =120V, V _{GS} =0V	--	--	1	uA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =250uA	2	3	4	V
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance (Note 4)	R _{DS(on)}	V _{GS} =10V, I _D =80A	--	1.4	1.7	mΩ
Total Gate Charge	Q _g	V _{GS(off)} =0V, V _{GS(on)} =10V, V _{DD} =60V, I _D =80A	--	156	--	nC
Gate Source Charge	Q _{gs}		--	54	--	
Gate Drain Charge	Q _{gd}		--	29	--	
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =60V, I _D =80A, R _G =3Ω	--	29	--	ns
Turn-on Rise Time	t _r		--	43	--	
Turn-off Delay Time	t _{d(off)}		--	68	--	
Turn-off Fall Time	t _f		--	41	--	
Gate Resistance	R _g	V _{GS} =0V, f=1MHz, open drain	--	1.4	--	Ω
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =60V, f=1MHz	--	12205	--	pF
Output Capacitance	C _{oss}		--	2542	--	
Reverse Transfer Capacitance	C _{rss}		--	69	--	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Current, Continuous	I _{SD}	T _C =25°C	--	--	374	A
Diode Forward Voltage (Note 4)	V _{SD}	I _F =2A, V _{GS} =0V	--	--	1.2	V
Reverse Recovery Time	T _{rr}	I _F =80A, di/dt = 100 A/μs	--	90	--	ns
Reverse Recovery Charge	Q _{rr}		--	211	--	nC

Note 4: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

Typical Characteristics Curves ($T_J = 25^\circ\text{C}$ unless otherwise noted)

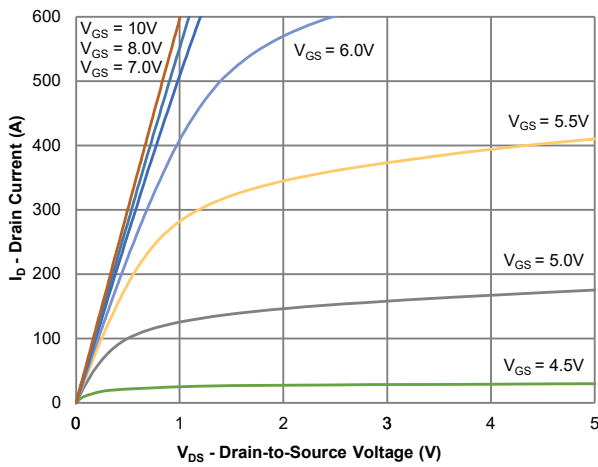


Figure 1: Output Characteristics

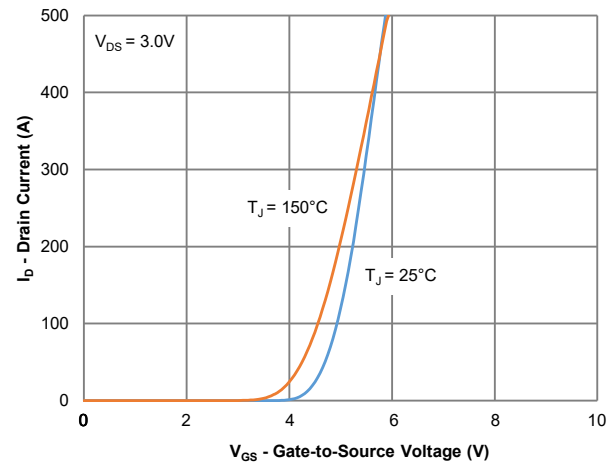


Figure 2: Transfer Characteristics

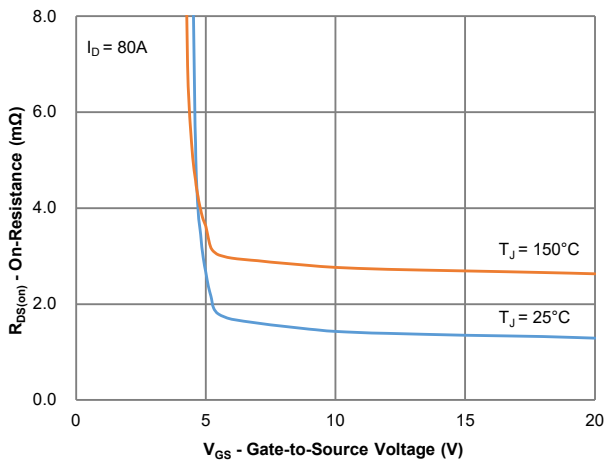


Figure 3: On-Resistance vs. Gate-Source Voltage

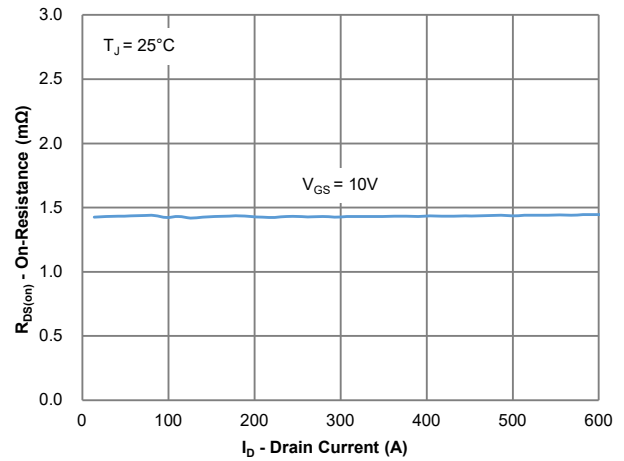


Figure 4: On-Resistance vs. Drain Current and Gate Voltage

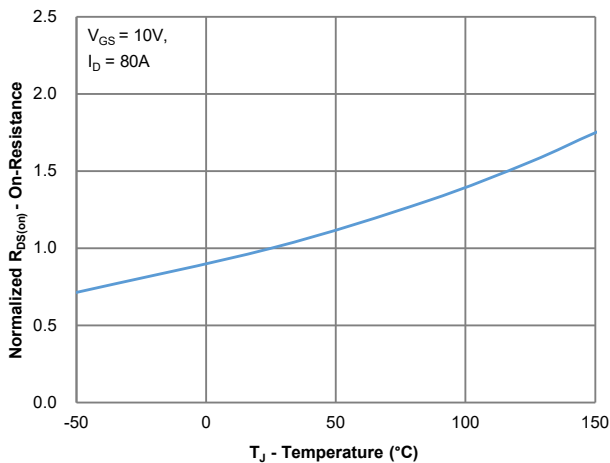


Figure 5: On-Resistance vs. Junction Temperature

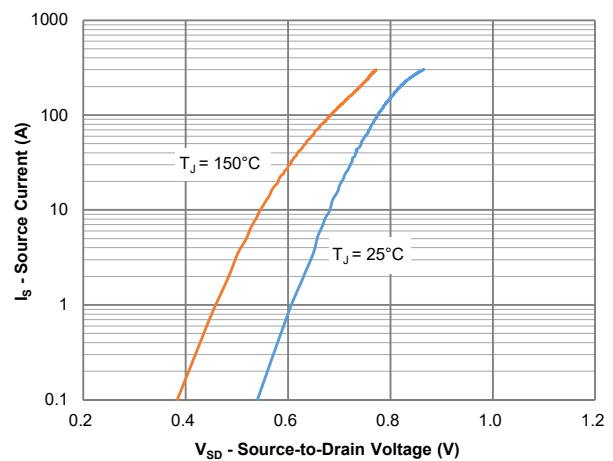


Figure 6: Source-Drain Diode Forward Voltage

Typical Characteristics Curves ($T_J = 25^\circ\text{C}$ unless otherwise noted)

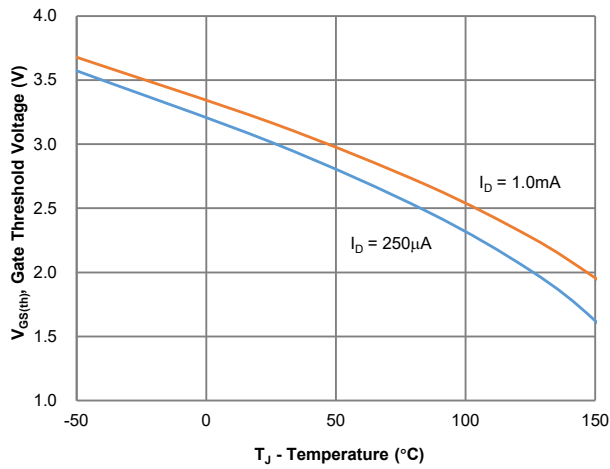


Figure 7: Gate Threshold Variation vs. Junction Temperature

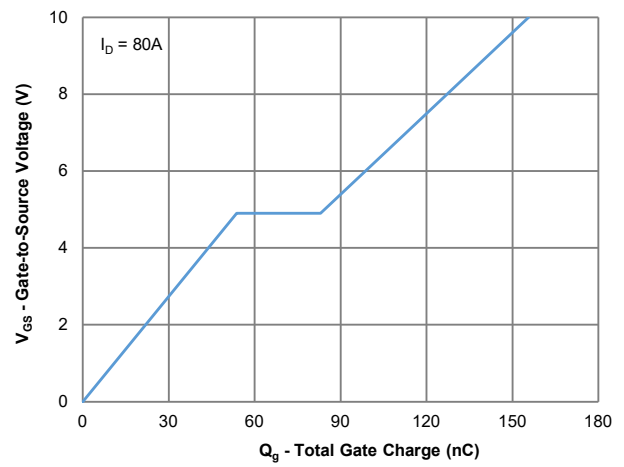


Figure 8: Gate Charge Characteristics

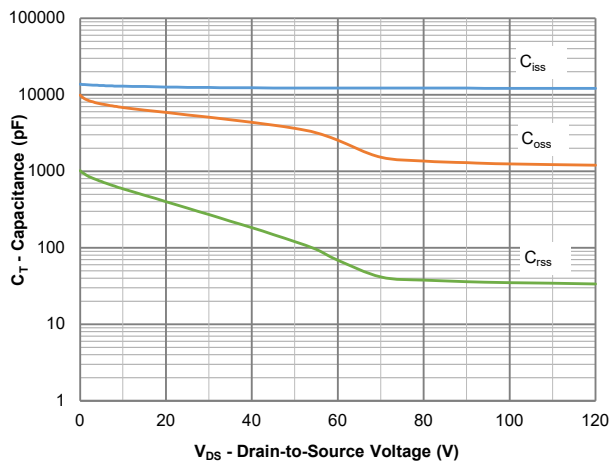


Figure 9: Capacitance Characteristics

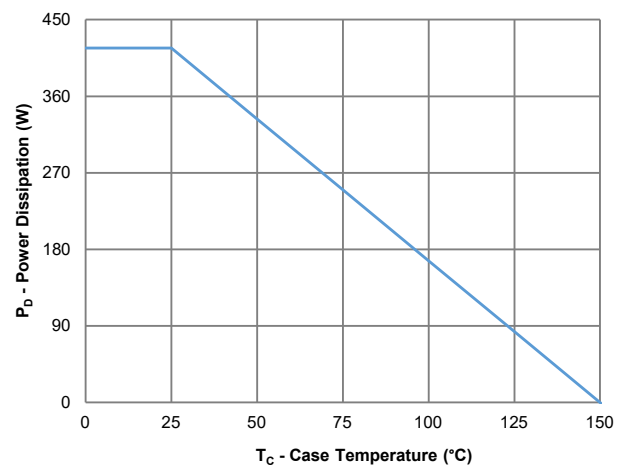


Figure 10: Power Derating

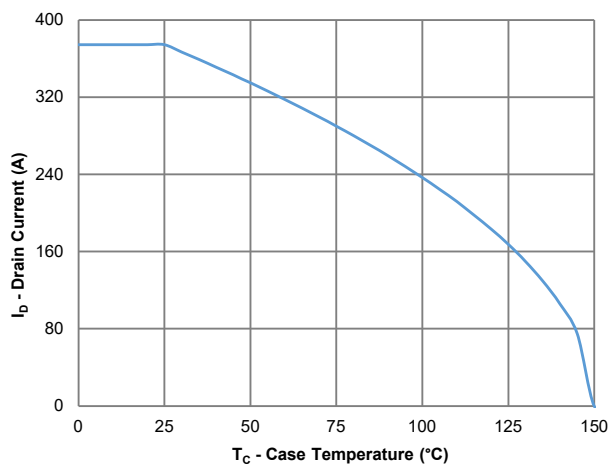


Figure 11: Current Derating

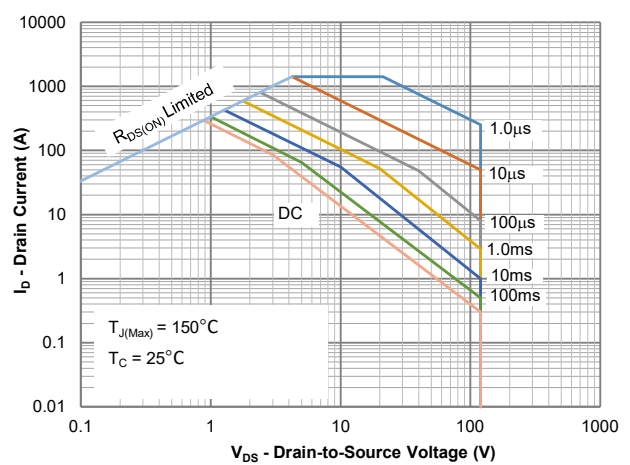


Figure 12: Safe Operating Area

Typical Characteristics Curves (T_J = 25°C unless otherwise noted)

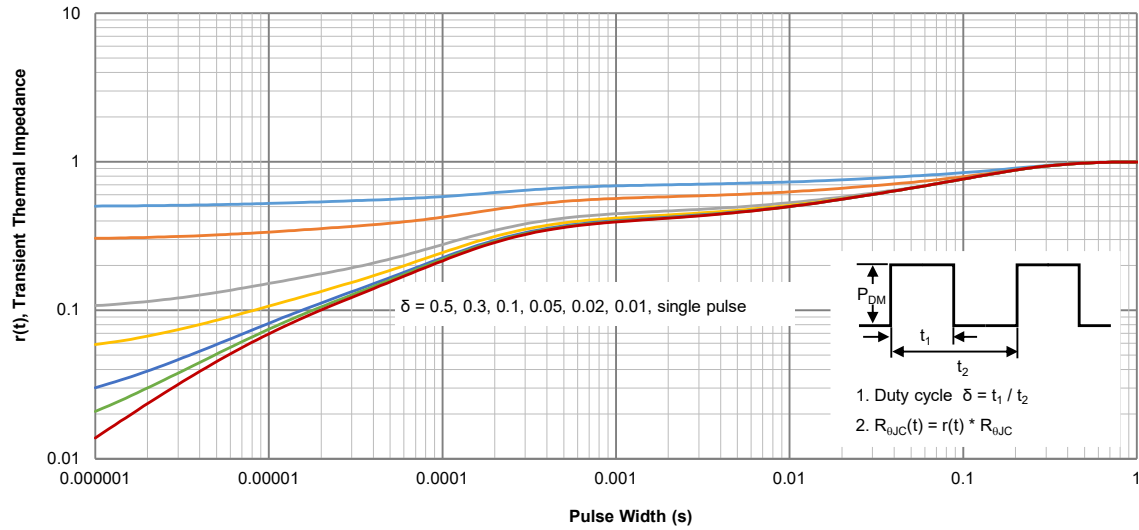
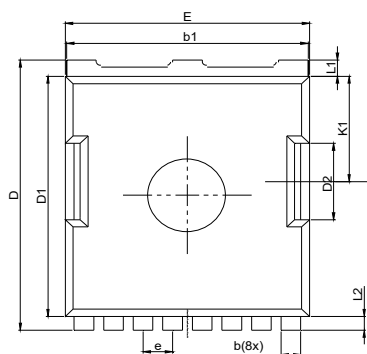


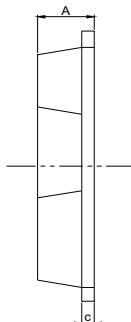
Figure 13: Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (Unit: millimeters)

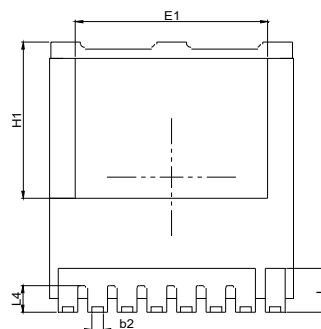
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Top View



Side View



Bottom View



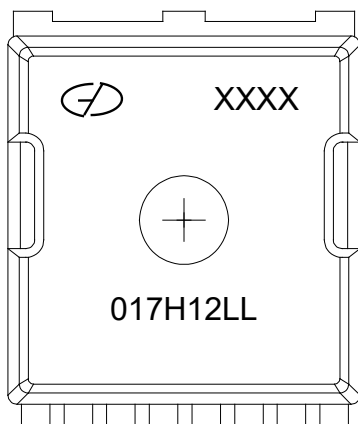
Front View

NOTES:

1. DIMENSION AND TOLERANCE PER ASME Y14.5M, 1994.
2. ALL DIMENSIONS IN MILLIMETER.
3. DIMENSIONS DO NOT INCLUDE BURRS OR MOLD FLASH.
MOLD FLASH OR BURRS DOES NOT EXCEED 0.15MM.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.20	2.30	2.40
b	0.65	0.80	0.90
b1	9.65	9.80	9.95
c	0.40	0.50	0.60
D	11.48	11.68	11.95
D1	10.25	--	10.70
D2	2.85	--	3.40
E	9.70	9.90	10.10
E1	8.00	--	9.25
e	1.20 (BSC)		
H1	6.70	7.00	7.30
K1	4.55		
L	1.35	--	2.10
L1	0.70		
L2	0.60		
L4	0.95	1.20	1.35

Marking Outline



Part Name: GMN017H12LL

1. Logo Mark: 
2. P/N Mark: 017H12LL
3. Date Code: XXXX

Revision History

Version	Date	Major Changes
Rev.A	2025.05.14	Official Release

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