

N-Channel 30V (D-S) Power MOSFET

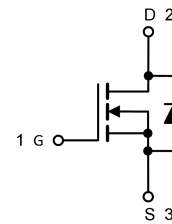
Features

- 100% Avalanche Tested
- Extremely Low Losses with Low FOM $R_{ds(on)} \cdot Q_g$
- RoHS Compliant, Halogen Free, Pb-Free
- AEC-Q101 Qualified
- MSL 1



Applications

- Automotive systems
- Motors, lamps and solenoid control
- Ultra high performance power switching



Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ unless otherwise noted)			
Parameter	Symbol	Value	Unit
Drain Source Voltage	V_{DS}	30	V
Gate Source Voltage	V_{GS}	± 20	V
Drain Current, Continuous $V_{GS}=10\text{V}$ (Note 1)	I_D	90	A
$T_C=25^\circ\text{C}$			
Drain Current, Pulsed (Note 2)	I_{DM}	360	A
Single Avalanche Energy @ $L=0.1\text{mH}$	E_{AS}	90	mJ
Power Dissipation (Note 3)	P_D	75	W
$T_C=25^\circ\text{C}$			
Operating Junction/ Storage Temperature Range	T_J / T_{STG}	-55 to +150	$^\circ\text{C}$

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
Thermal Resistance Junction to Case (Note 3)	R_{thJC}	2	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 4)	R_{thJA}	50	$^\circ\text{C/W}$

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_{thJA} is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

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

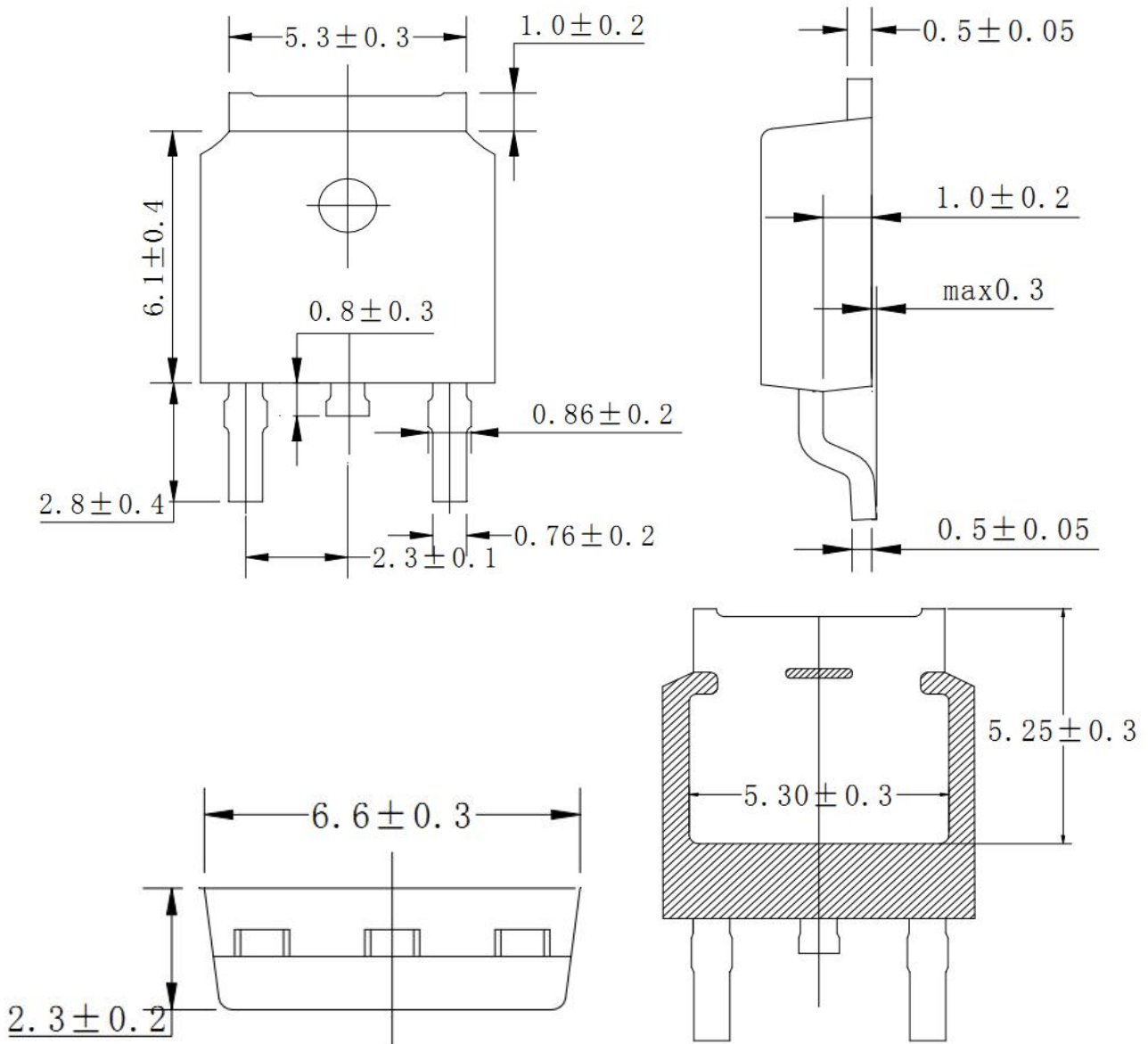
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	30	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	--	--	1	uA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =250uA	1	--	3	V
Gate Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} =10V, I _D =15A	--	3.6	6	mΩ
Total Gate Charge	Q _g	I _D = 32A, V _{DS} =15V, V _{GS} = 4.5V	--	35	--	nC
Gate-Source Charge	Q _{gs}		--	8	--	
Gate-Drain Charge	Q _{gd}		--	18	--	
Turn-on Delay Time	t _{d(on)}	V _{GS} =4.5V, V _{DD} =15V, I _D =32A, R _G =2Ω	--	12	--	ns
Turn-on Rise Time	t _r		--	63	--	
Turn-off Delay Time	t _{d(off)}		--	41	--	
Turn-off Fall Time	t _f		--	11	--	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=800kHz	--	3833	--	pF
Output Capacitance	C _{oss}		--	459	--	
Reverse Transfer Capacitance	C _{rss}		--	427	--	

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

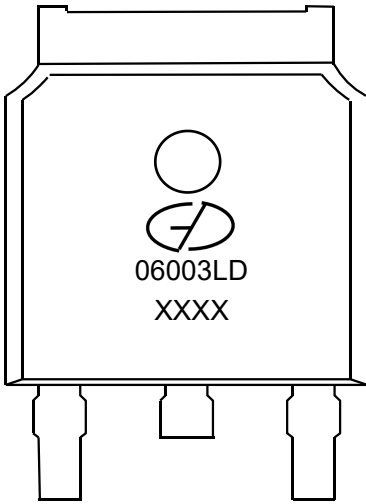
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Source Current (Body Diode)	I _S	T _C =25°C	--	--	90	A
Pulsed Source Current (Body Diode)	I _{SM}		--	--	360	
Diode Forward Voltage	V _{SD}	I _S =2.8A, V _{GS} =0V	--	--	1.2	V
Reverse Recovery Time	T _{rr}	I _F =30A, di/dt = 100 A/μs	--	16	--	ns
Reverse Recovery Charge	Q _{rr}		--	8.8	--	nC

Package Outline Dimensions (Unit: millimeters)


TO-252(D-PAK)



Marking Outline



Part Name: GMN06003LD

1. Logo Mark: 
2. P/N Mark: 06003LD
3. Date Code: XXXX

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