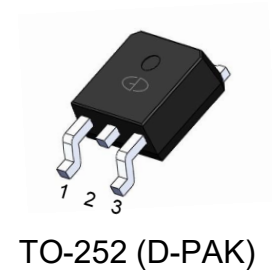


N-Channel 60V (D-S) Power MOSFET

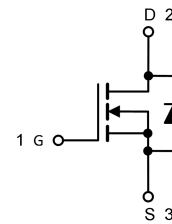
Features

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



Applications

- DC/DC
- Motors, lamps
- Power switching



Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain Source Voltage	V_{DS}	60	V
Gate Source Voltage	V_{GS}	± 20	V
Drain Current, Continuous $V_{GS}=10\text{V}$ (Note 1)	I_D	20	A
Drain Current, Pulsed (Note 2)	I_{DM}	80	A
Single Avalanche Energy	E_{AS}	34	mJ
Power Dissipation (Note 3)	P_D	27.7	W
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.

Note 3: The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.

Thermal Resistance

Parameter	Symbol	Max	Unit
Junction-to-case (Note 4)	$R_{\theta JC}$	5.4	$^\circ\text{C/W}$

Note 4: The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.

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	60	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	--	--	1	uA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =250uA	1	--	2.5	V
Gate Leakage Current	I _{GSS}	V _{GS} =±20V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.5A	--	27	37	mΩ
		V _{GS} =4.5V, I _D =3A	--	36	48	
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =30V, I _D =10A	--	20	--	nC
Gate-Source Charge	Q _{gs}		--	3.5	--	
Gate-Drain Charge	Q _{gd}		--	5	--	
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =30V, I _D =20A, R _{GEN} =3Ω	--	7.9	--	ns
Turn-on Rise Time	t _r		--	22.1	--	
Turn-off Delay Time	t _{d(off)}		--	21.1	--	
Turn-off Fall Time	t _f		--	3.3	--	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =60V, f=1MHz	--	824	--	pF
Output Capacitance	C _{oss}		--	42	--	
Reverse Transfer Capacitance	C _{rss}		--	35	--	

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	--	--	20	A
Pulsed Source Current (Body Diode)	I _{SM}		--	--	80	
Diode Forward Voltage	V _{SD}	I _F =1.7A, V _{GS} =0V	--	--	1.2	V
Reverse Recovery Time	T _{rr}	I _S =20A, di/dt = 100 A/μs	--	30	--	ns
Reverse Recovery Charge	Q _{rr}		--	40	--	nC

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

Fig.1 - Typical Output Characteristics

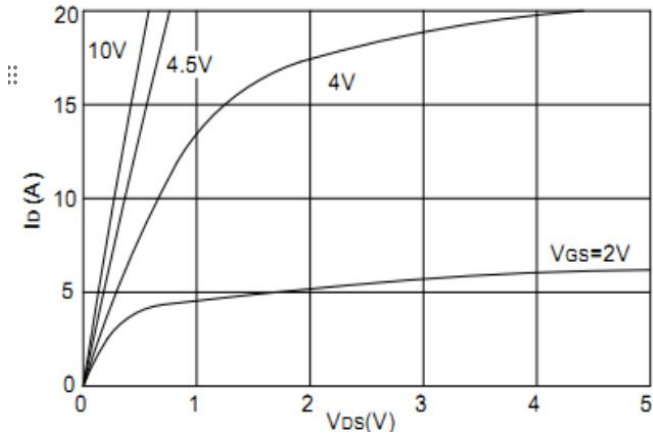


Fig.3 - Gate to Source Cut-off Voltage

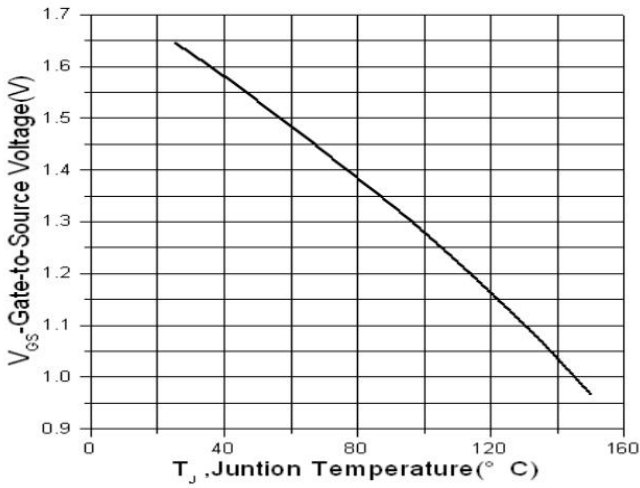


Fig.5 - Gate Charge

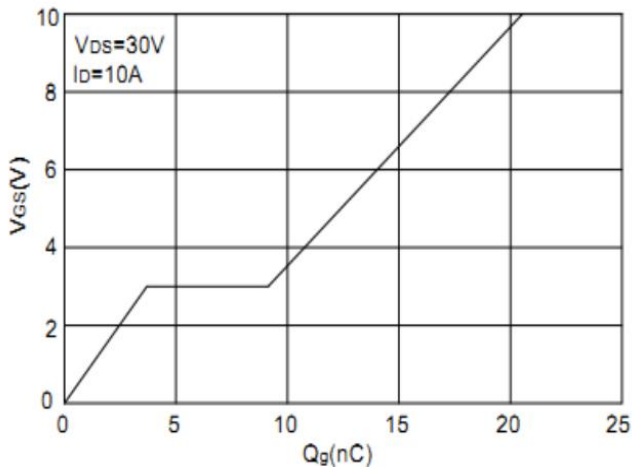


Fig.2 - Transfer Characteristics

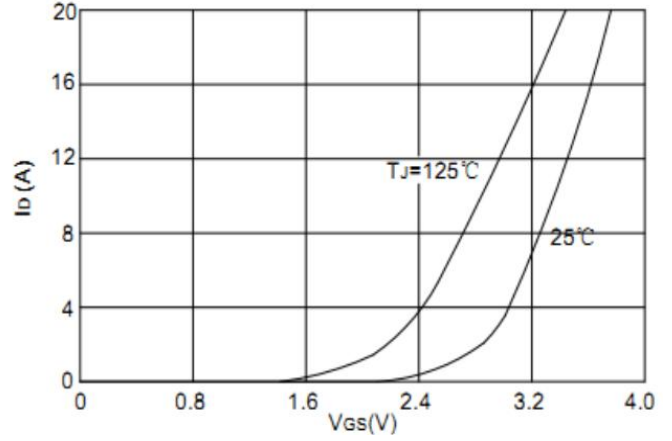


Fig.4 - Body Diode Characteristics

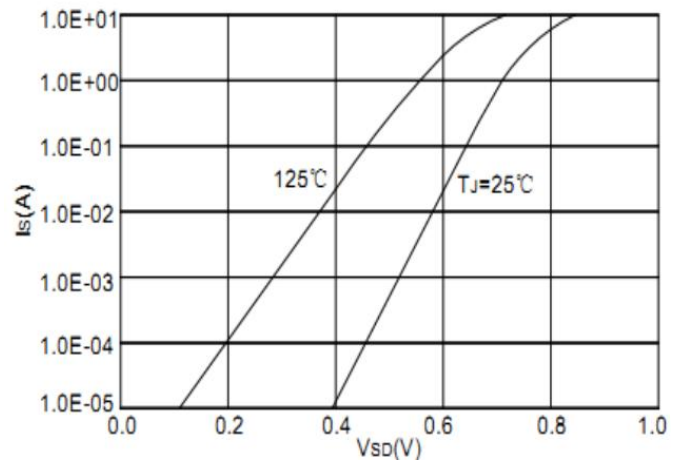
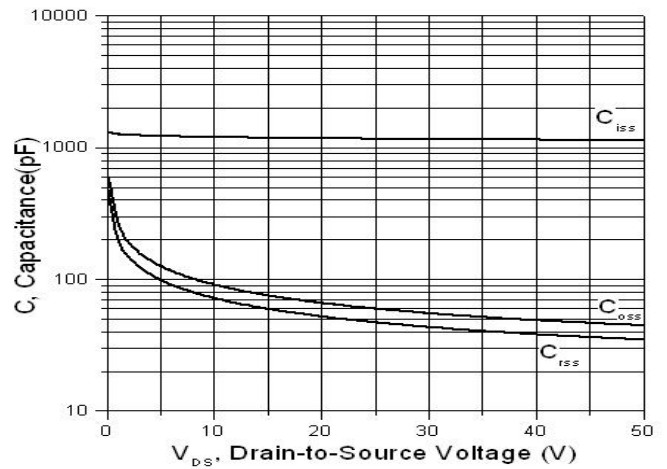


Fig.6 - Capacitance



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

Fig.7 - Drain-to-Source Breakdown Voltage vs. Temperature

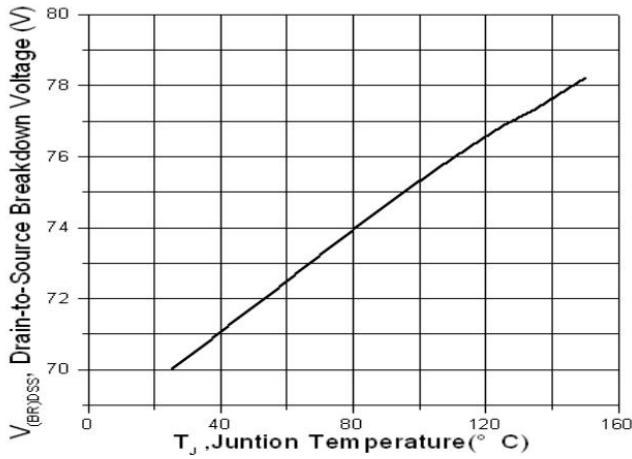


Fig.8 - Normalized On-Resistance vs. Junction Temperature

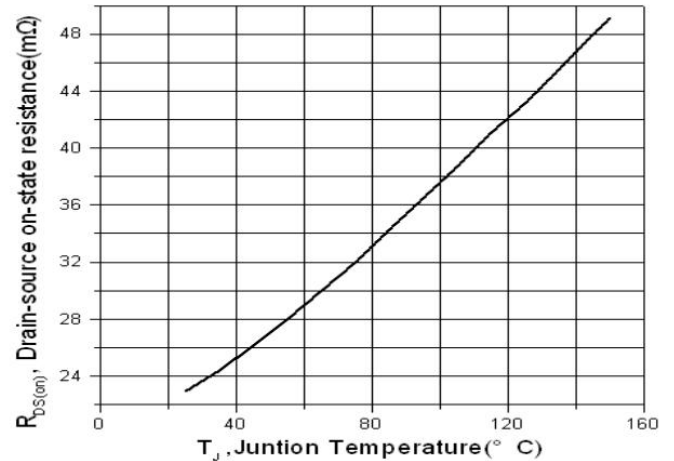


Fig.9 - Safe Operating Area

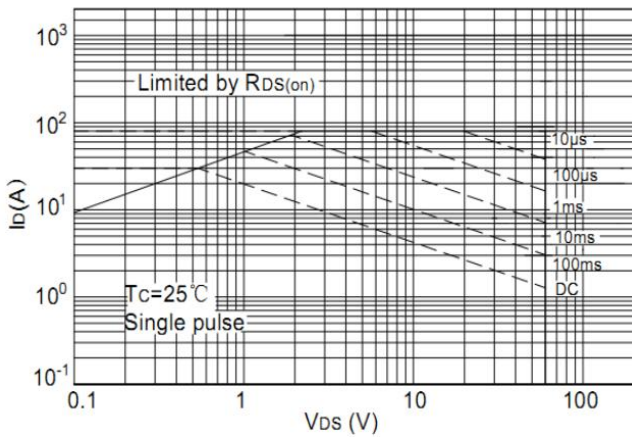


Fig.10 - Drain Current vs. Case Temperature

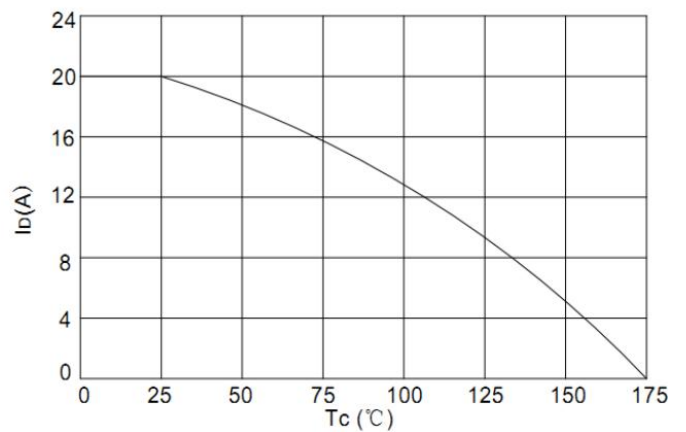
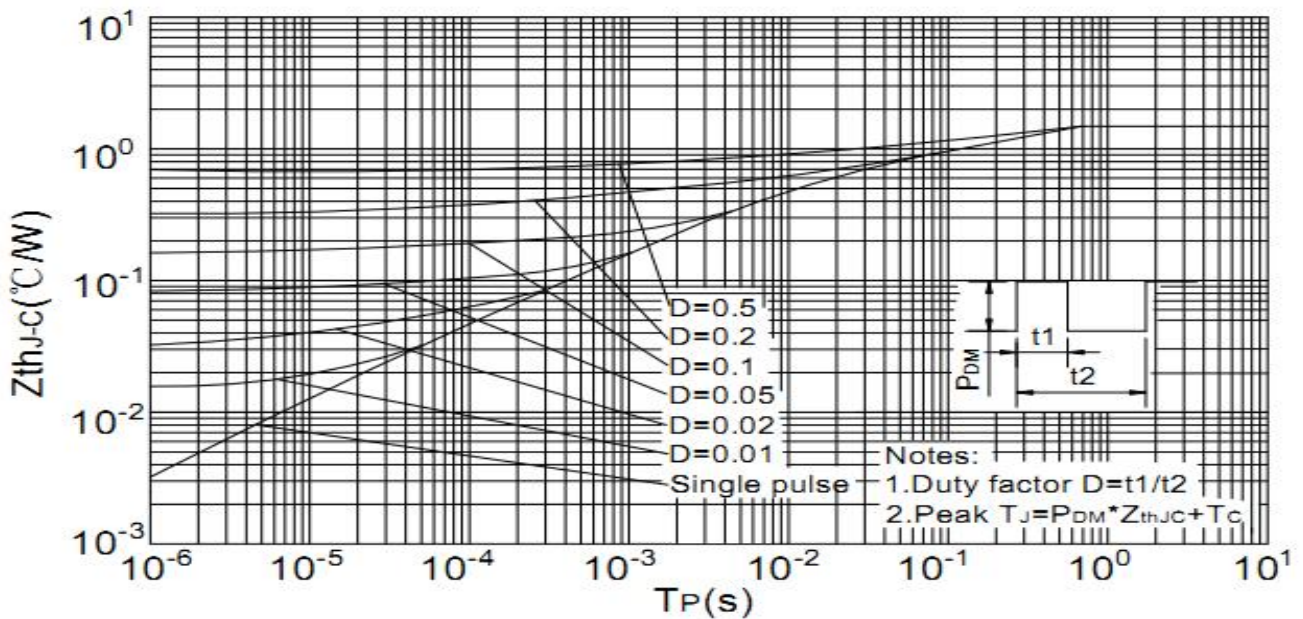
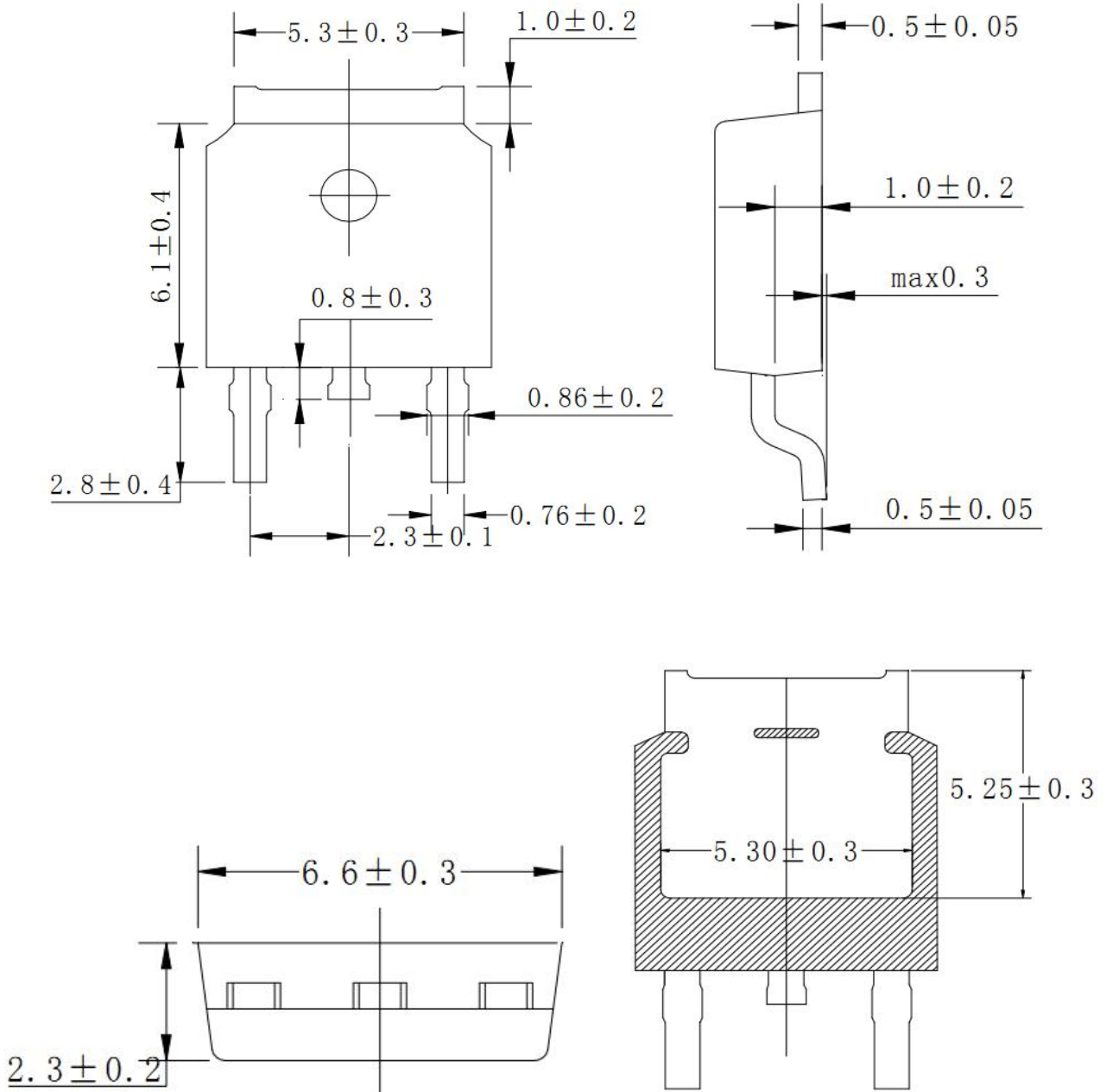


Fig.11 - Normalized Maximum Transient Thermal Impedance

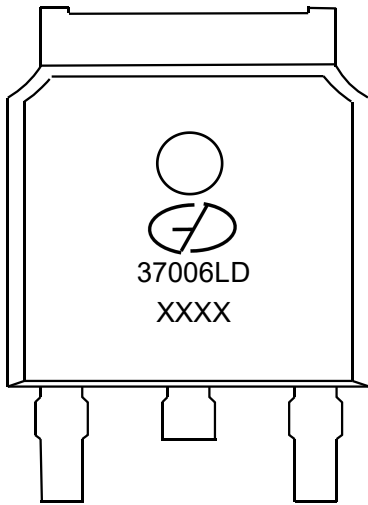


Package Outline Dimensions (Unit: millimeters)


TO-252(D-PAK)



Marking Outline



Part Name: GMN37006LD

1. Logo Mark: 
2. P/N Mark: 37006LD
3. Date Code: XXXX

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