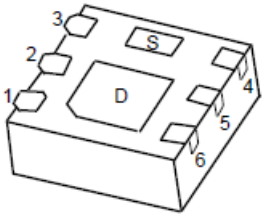
GPMN3022

30V N-Channel MOSFET

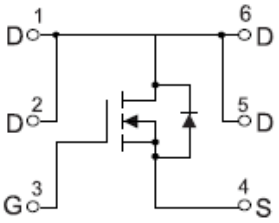
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	7mΩ@10V	22A
	12mΩ@4.5V	

DFN2X2-6L



Schematic diagram



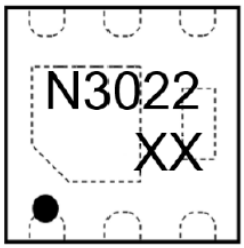
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge

Application

- Load Switch
- DC/DC Converter
- Power Management

MARKING:



N3022 =Device Code

XX = Date Code

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1,6]	T_A = 25°C	I_D	22	A
	T_A = 100°C		14	
Pulsed Drain Current[2]		I_{DM}	88	A
Single Pulsed Avalanche Current[3]		I_{AS}	13	A
Single Pulsed Avalanche Energy[3]		E_{AS}	42	mJ
Power Dissipation[5,6]	T_A = 25°C	P_D	2.7	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	47	°C/W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~ +150	°C

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
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	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.5	2	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 10A		7	9	mΩ
		V_{GS} = 4.5V, I_D = 10A		12	18	
Dynamic Characteristics[5]						
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		1307		pF
Output Capacitance	C_{oss}			152		
Reverse Transfer Capacitance	C_{rss}			136		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		2.0		Ω
Switching Characteristics[5]						
Total Gate Charge	Q_g	V_{DS} = 20V, V_{GS} = 10V, I_D = 10A		28.6		nC
Gate-Source Charge	Q_{gs}			3.5		
Gate-Drain Charge	Q_{gd}			7.0		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10V, V_{GS} = 4.5V, R_G = 3Ω, R_L = 0.75Ω		10		ns
Turn-On Rise Time	t_r			14		
Turn-Off Delay Time	$t_{d(off)}$			33		
Turn-Off Fall Time	t_f			8		
Source-Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 10A			1.2	V

Notes :

1.The maximum current rating is limited by package.

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

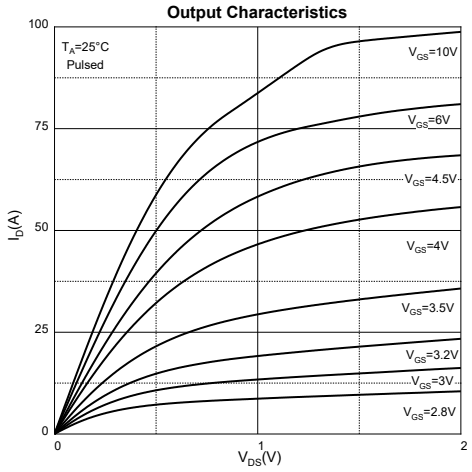
3.E_{AS} condition: V_{DD} = 15V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω, Starting T_J = 25°C.

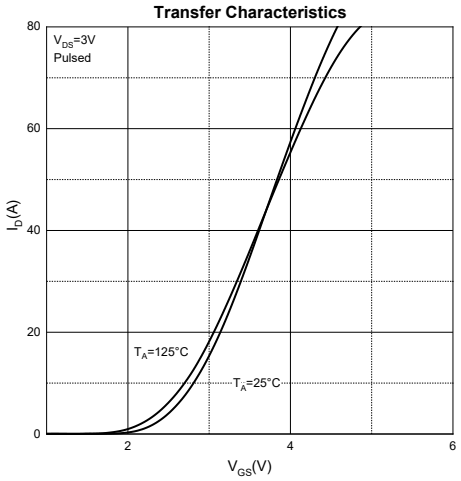
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

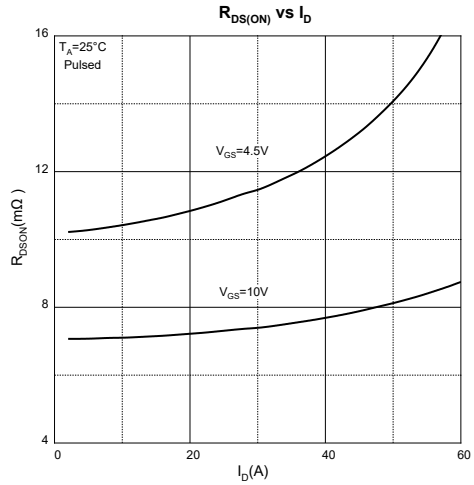
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

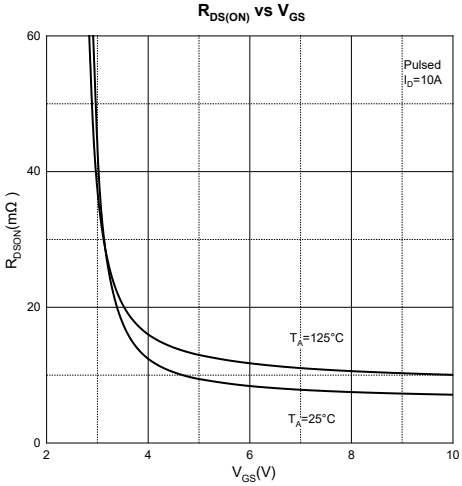
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

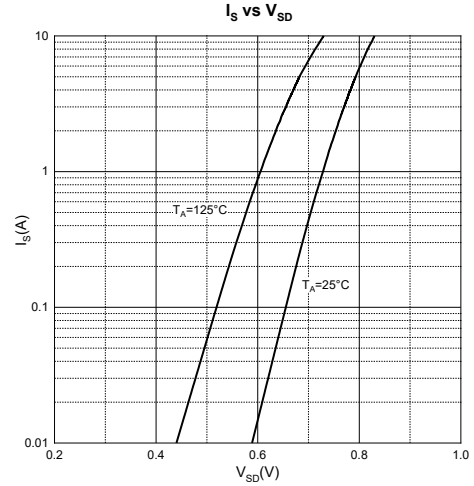
Typical Characteristics

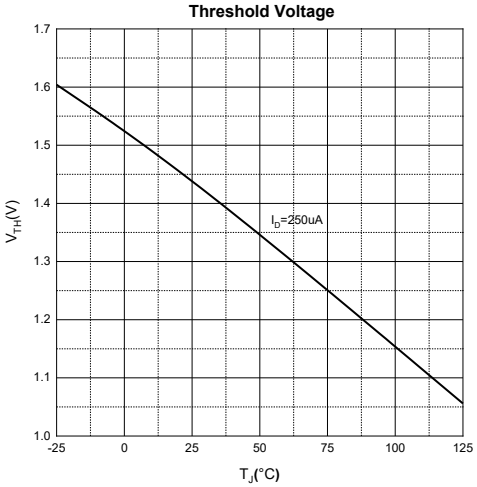




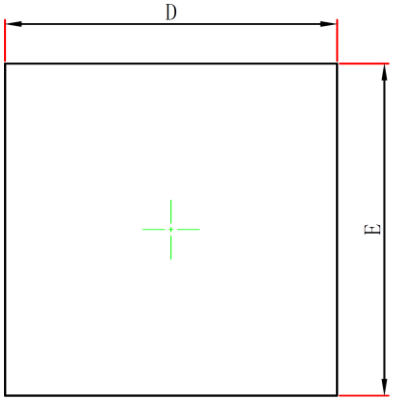




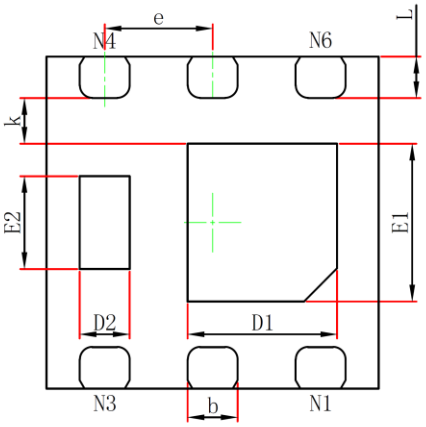




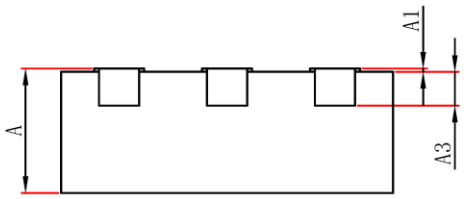
DFN2X2-6L Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0	0.050	0	0.002
A3	0.120	0.220	0.005	0.009
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.800	1.050	0.031	0.041
E1	0.800	1.050	0.031	0.041
D2	0.200	0.400	0.008	0.016
E2	0.450	0.850	0.018	0.033
k	0.200MIN		0.008MIN	
b	0.250	0.350	0.010	0.014
e	0.65BSC		0.026TYP	
L	0.174	0.326	0.007	0.013

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