Prisemi®

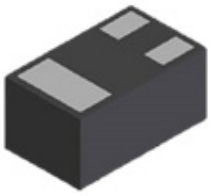
PNM3FD20V2

N-Channel MOSFET

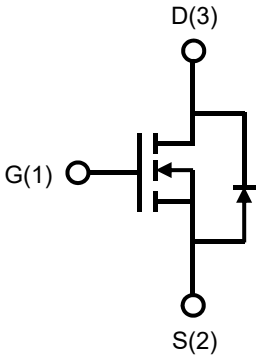
Description

The MOSFET provide the best combination of fast switching , low on-resistance and cost-effectiveness.

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
20	62 @ V_{GS} = 4.5V	2
	70 @ V_{GS} = 2.5V	



Bottom View



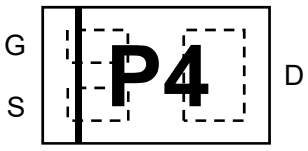
Circuit Diagram

Feature

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Applications

- PWM applications
- Load switch
- Power management



Marking (Top View)

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Drain-source Voltage	V_{DS}	20	V
Gate-source Voltage	V_{GS}	±12	V
Drain Current	I_D	2	A
Pulsed Drain Current	I_{DP}	6	A
Total Power Dissipation	P_D	300	mW
Channel to ambient	$R_{th(ch-a)}$	420	℃/W
Junction and Storage Temperature Range	T_J,T_{STG}	-55~+150	℃

Electrical characteristics per line@25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D= 1mA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 20V,V_{GS}= 0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±12V, V_{DS}= 0V	-	-	±0.1	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D= 250μA	0.4	0.6	0.85	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 4.5V, I_D= 1.0A	-	62	75	mΩ
		V_{GS}= 2.5V, I_D= 1.0A	-	70	85	
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}= 10V,V_{GS}= 0V, f= 1MHz	-	196	-	pF
Output Capacitance	C_{oss}		-	24	-	
Reverse Transfer Capacitance	C_{rss}		-	21	-	
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 6V, V_{GS} = 4.5V, R_G = 50Ω,R_L = 12Ω, I_D = 500mA	-	6.6	-	ns
Turn-on Rise Time	t_r		-	70	-	
Turn-Off Delay Time	$t_{d(off)}$		-	13.5	-	
Turn-Off Fall Time	t_f		-	40	-	
Total Gate Charge	Q_g	V_{DS} = 10V,I_D = 0.01A, V_{GS} = 4.5V	-	2.3	-	nC
Gate-Source Charge	Q_{gs}		-	0.2	-	
Gate-Drain Charge	Q_{gd}		-	0.4	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V,I_S = 100mA	-	0.7	1.0	V

Typical Characteristics

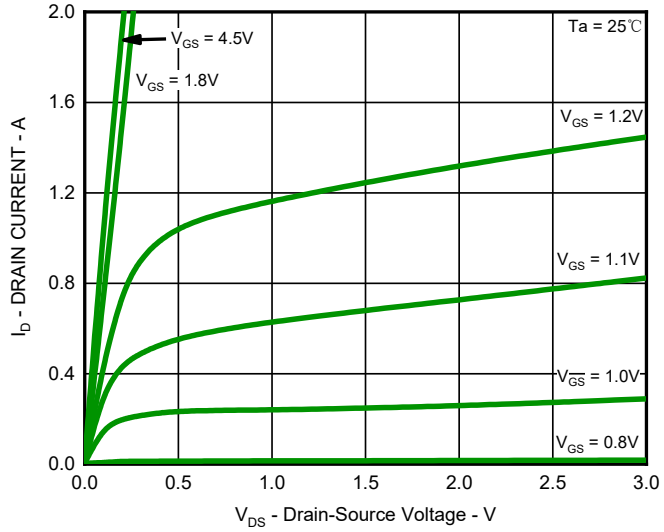


Fig.1 Output Characteristics

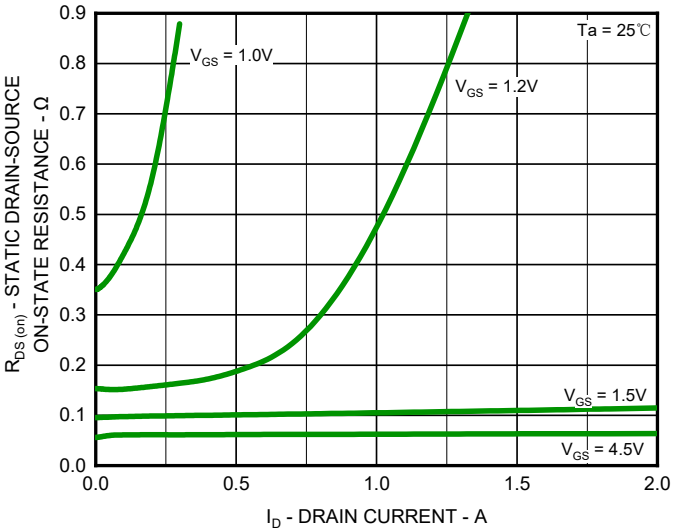


Fig.2 On-Resistance vs. Drain Current (I)

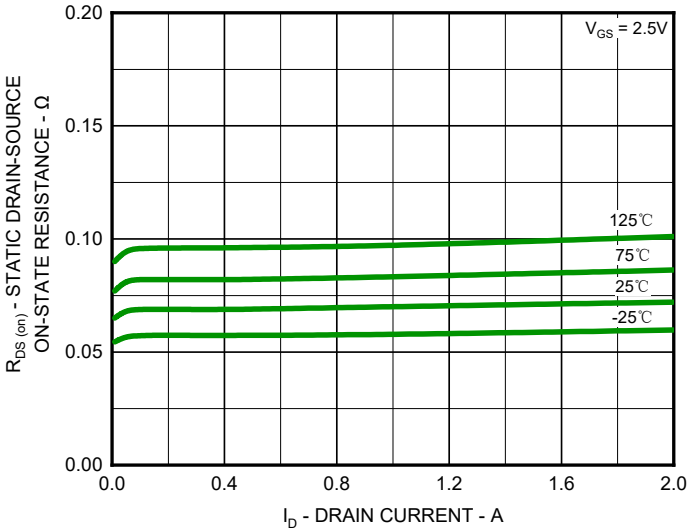


Fig.3 On-Resistance vs. Drain Current (II)

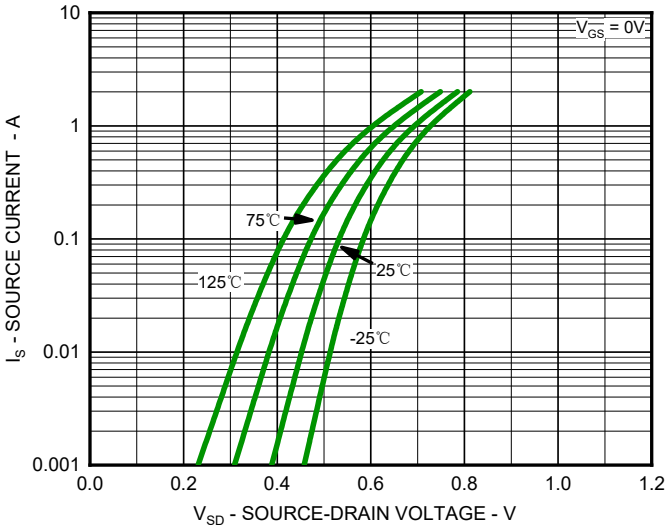


Fig.4 Diode Forward Voltage vs. Current

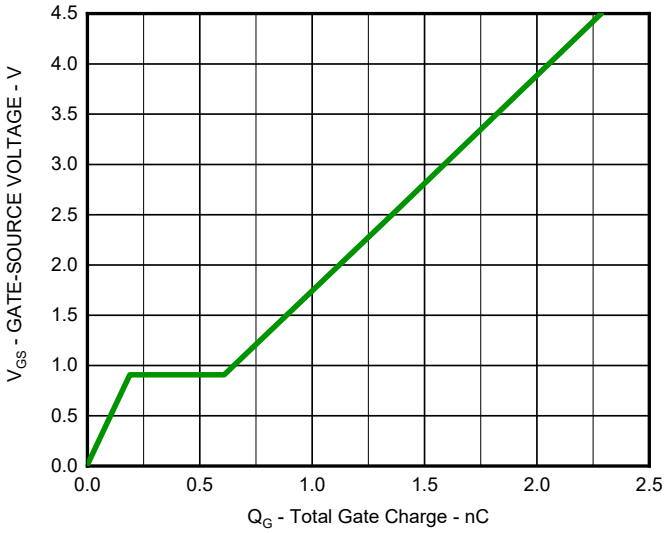


Fig.5 Gate Charge Characteristics

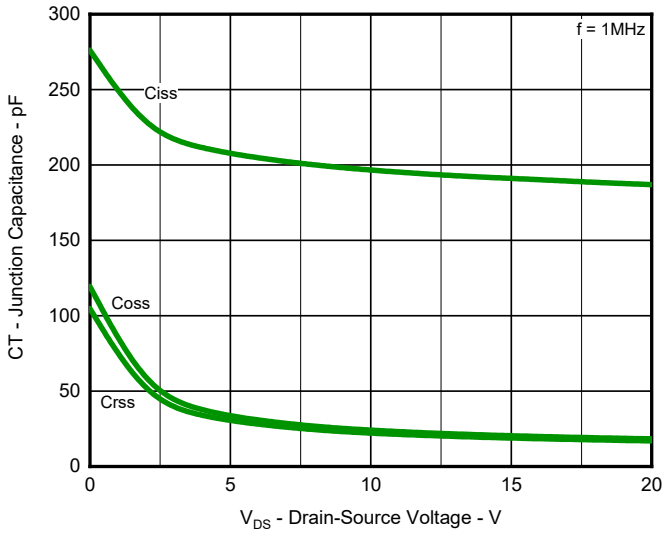
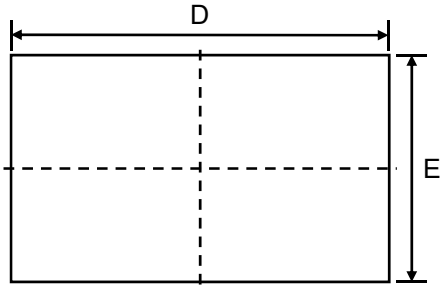
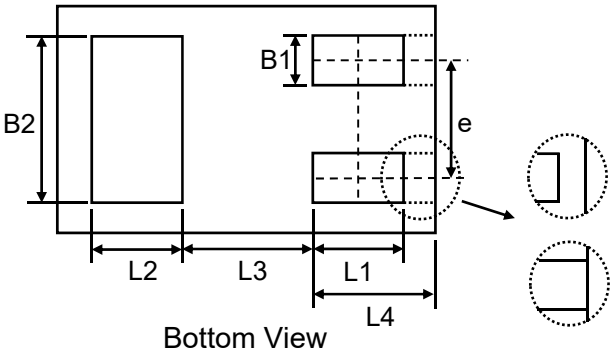


Fig.6 Typical Junction Capacitance

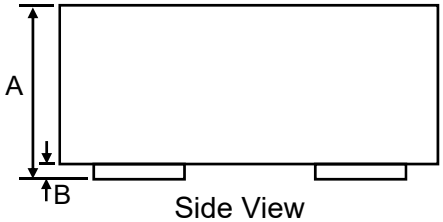
Product dimension (DFN1006-3L)



Top View

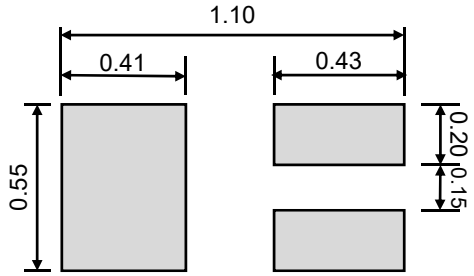


Bottom View



Side View

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.33	0.498	0.013	0.020
B	0.00	0.05	0.000	0.002
B1	0.10	0.20	0.004	0.008
B2	0.45	0.55	0.018	0.022
D	0.90	1.05	0.035	0.041
E	0.50	0.65	0.020	0.026
e	0.35		0.014	
L1	0.20	0.30	0.008	0.012
L2	0.20	0.30	0.008	0.012
L3	0.39		0.015	
L4	0.25	0.35	0.010	0.014



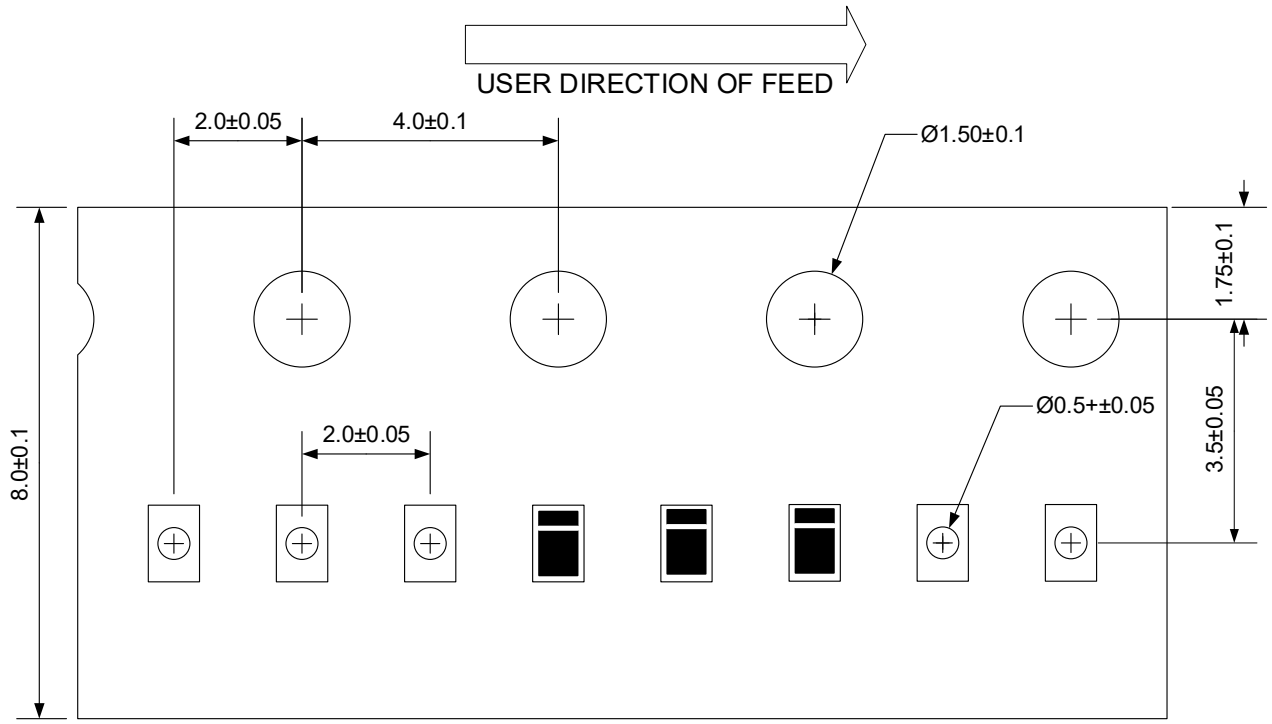
Suggested PCB Layout

Unit:mm

Ordering information

Device	Package	Reel	Shipping
PNM3FD20V2	DFN1006-3L(Pb-Free)	7"	10000 / Tape & Reel

Load with information



Unit:mm

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