

Description

The PNM3FD7002EN uses advanced trench technology to provide excellent $R_{DS(on)}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications.

MOSFET Product Summary

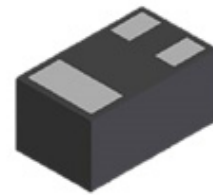
V _{DS} (V)	R _{DS(on)} (Ω)(Typ)	I _D (A)
60	1.4 @ V _{GS} = 10V	0.5
	1.6 @ V _{GS} = 4.5V	
ESD	HBM	
	Pass 2kV	

Feature

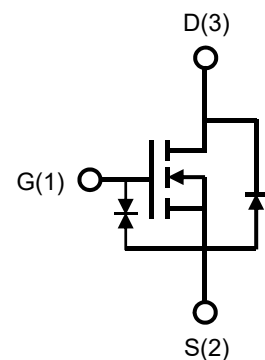
- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package

Applications

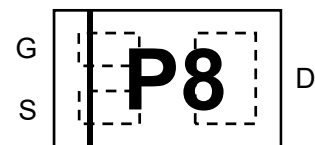
- PWM applications
- Load switch
- Power management
- DC-DC Converters
- Wireless Chargers



**DFN1006-3L
(Bottom View)**



Circuit Diagram



Marking (Top View)

Absolute maximum rating@25°C

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous ¹⁾	$T_C = 25^\circ C$	I_D	0.5	A
	$T_C = 100^\circ C$		0.4	
Pulsed Drain Current ²⁾		I_{DM}	1.5	A
Total Power Dissipation ³⁾		P_D	1.1	W
Thermal Resistance Junction-to-Ambient ⁴⁾		$R_{\theta JA}$	113	$^\circ C/W$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ C$

Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V	-	-	1.0	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±10	μA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.6	2.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 0.3A	-	1.4	2.6	Ω
		V _{GS} = 4.5V, I _D = 0.2A	-	1.6	3.0	
Dynamic Characteristics ⁵⁾						
Input Capacitance	C _{ISS}	V _{DS} = 30V, V _{GS} = 0V, f = 1.0MHz	-	27	-	pF
Output Capacitance	C _{OSS}		-	8.5	-	
Reverse Transfer Capacitance	C _{RSS}		-	3.0	-	
Switching Characteristics ⁵⁾						
Turn-on Delay Time	t _{d(on)}	V _{DS} = 50V, V _{GS} = 10V, R _G = 6Ω, I _D = 0.2A	-	7.0	-	ns
Turn-on Rise Time	t _r		-	5.0	-	
Turn-Off Delay Time	t _{d(off)}		-	19	-	
Turn-Off Fall Time	t _f		-	21	-	
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 0.2A	-	0.81	-	nC
Gate-Source Charge	Q _{gs}		-	0.02	-	
Gate-Drain Charge	Q _{gd}		-	0.56	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 0.2A	-	0.7	1.2	V

Notes:

1. Computed continuous current assumes the condition of T_{J_Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. Repetitive Rating: Pulse width limited by maximum junction temperature($T_{J_Max}=150^\circ C$).
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout
5. Guaranteed by design, not subject to production.

Typical Characteristics

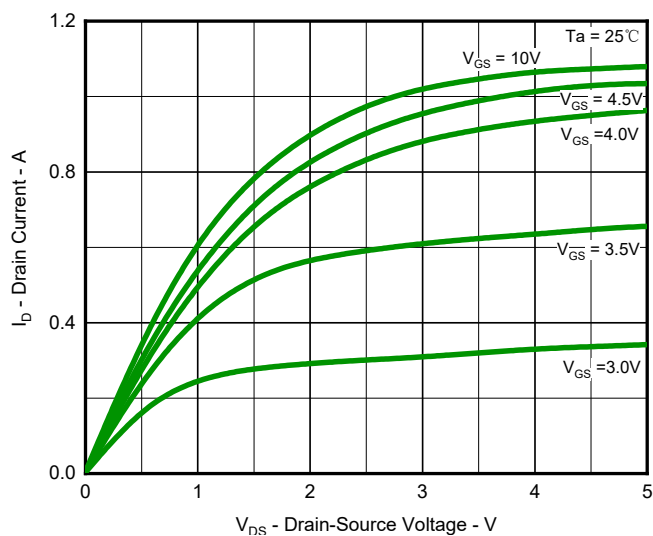


Fig.1 Output Characteristics

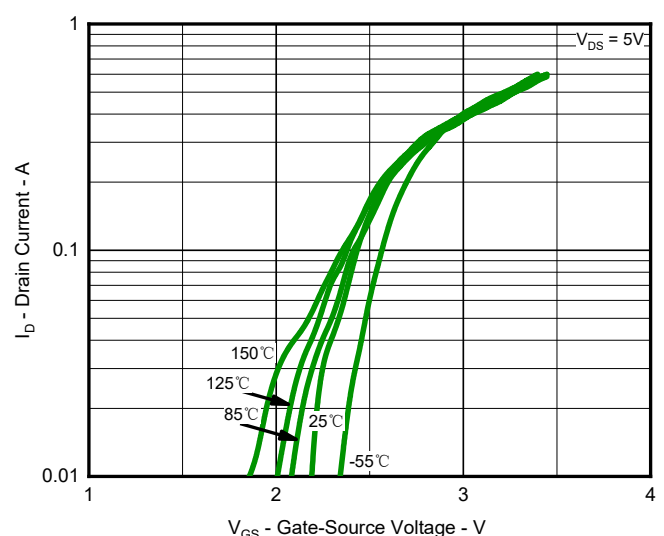


Fig.2 Typical Transfer Characteristic

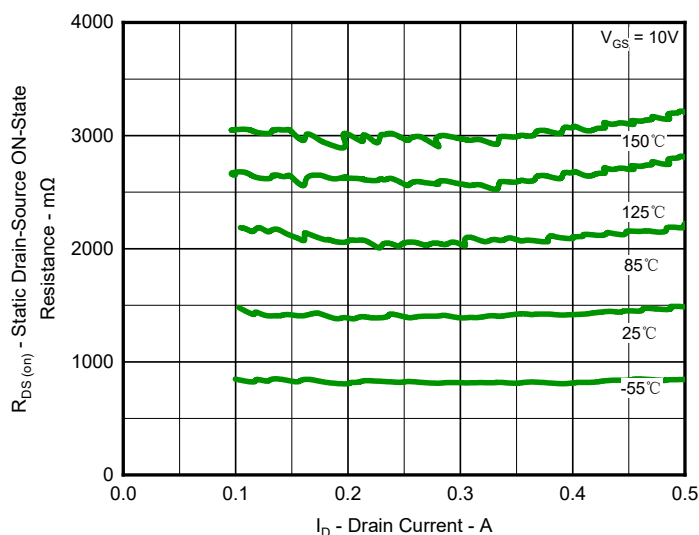


Fig.3 Typical On-Resistance vs Drain Current and Temperature

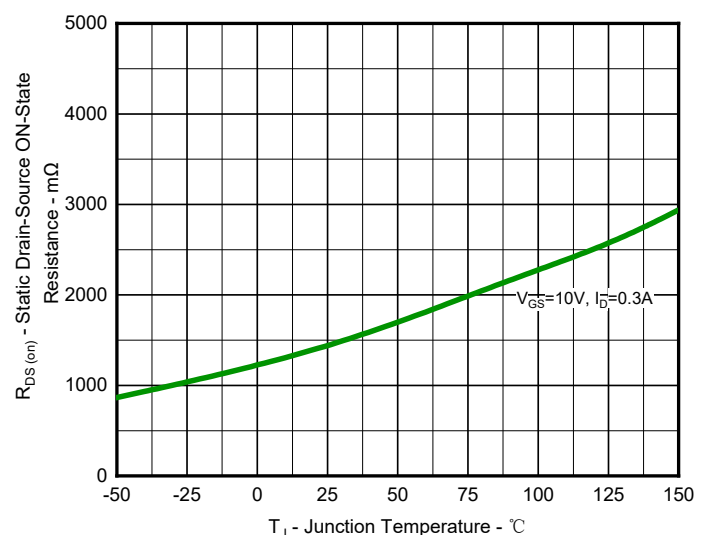


Fig.4 On-Resistance Variation with Temperature

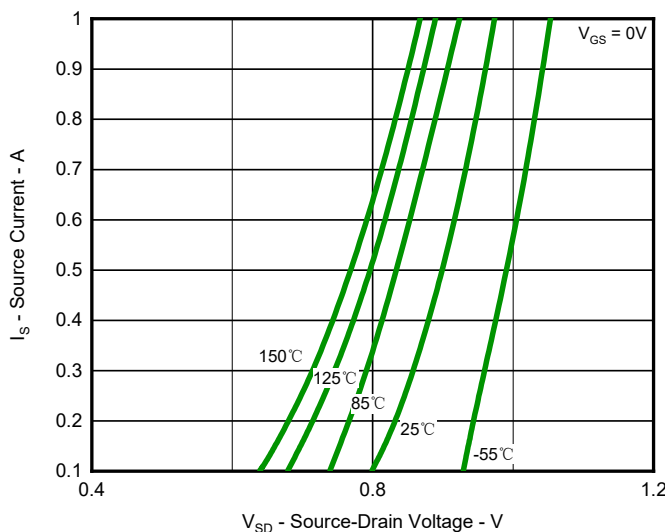


Fig.5 Diode Forward Voltage vs. Current

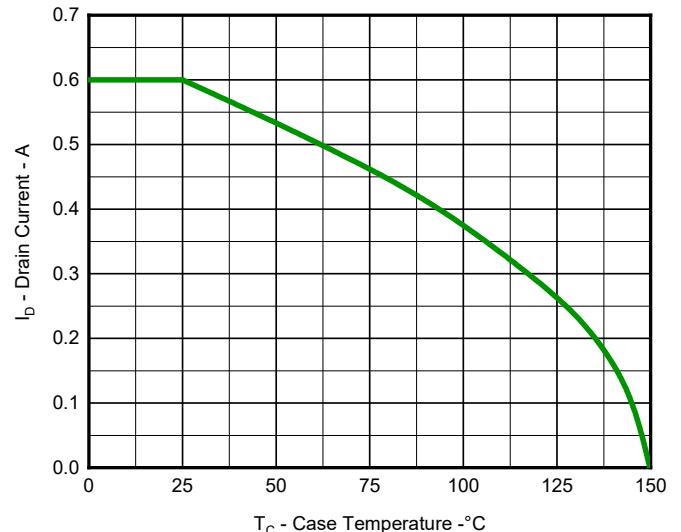
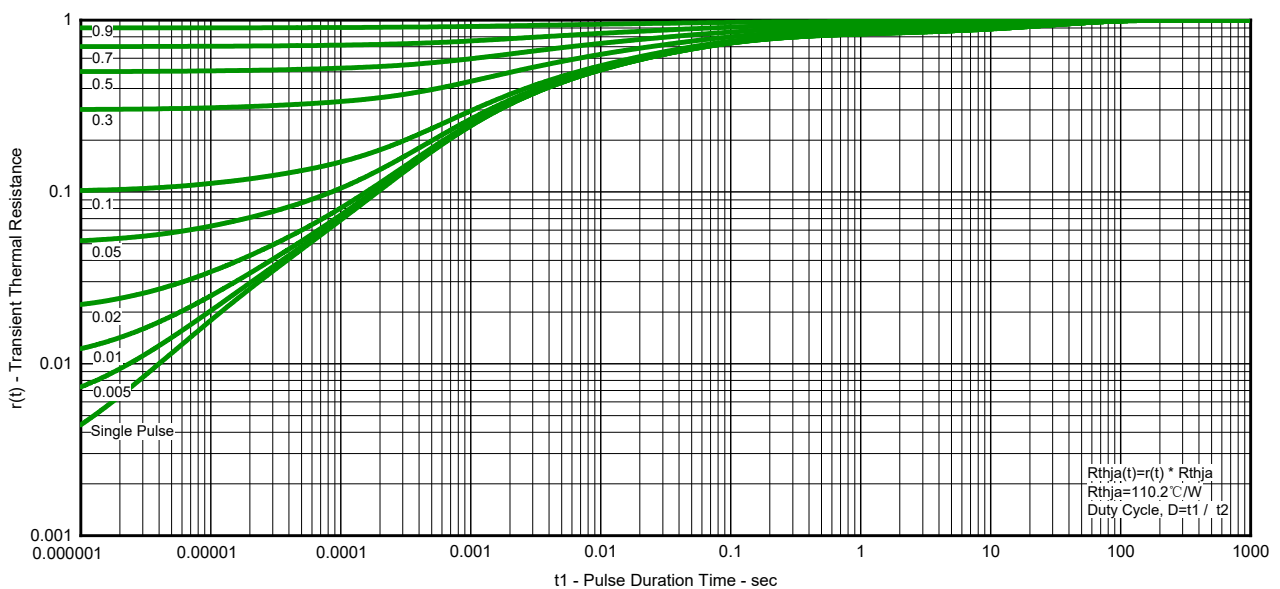
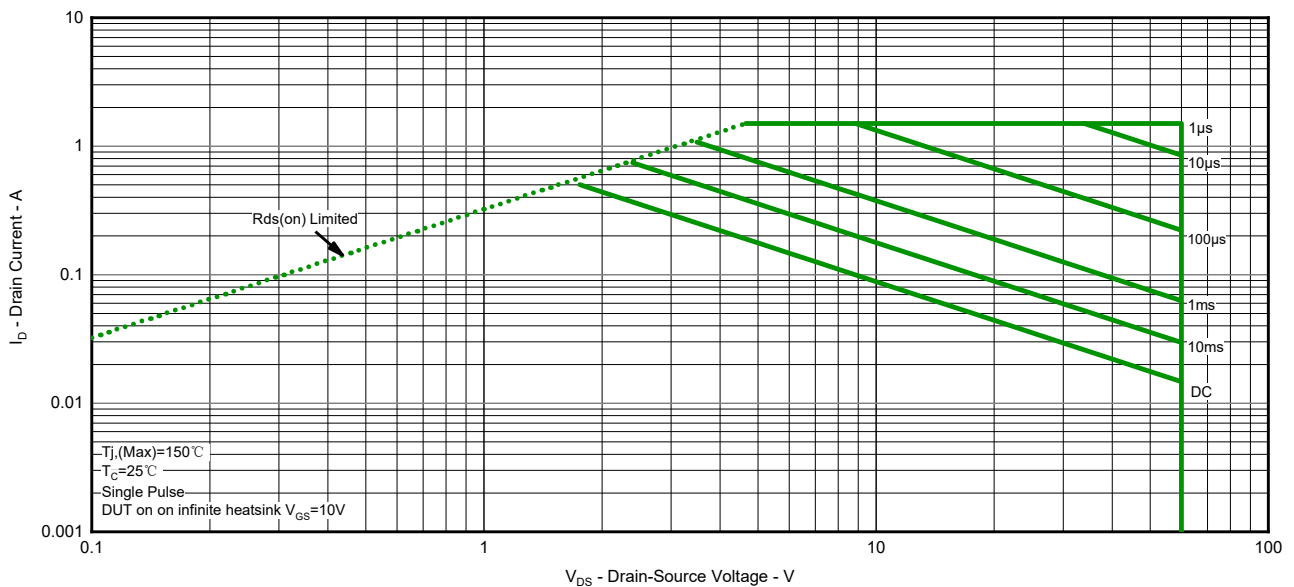
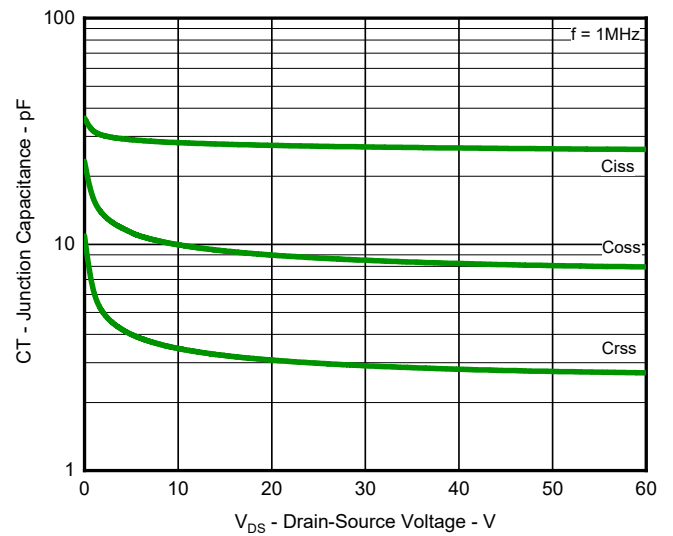
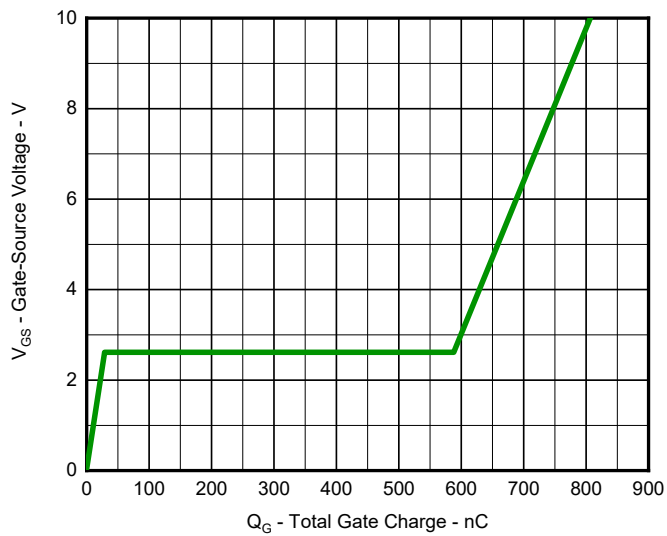
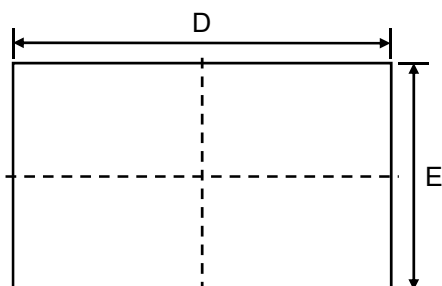


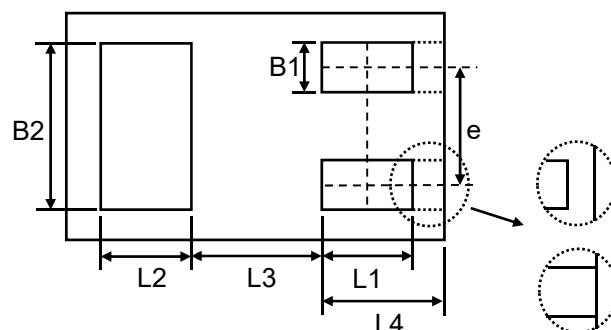
Fig.6 Maximum Drain Current vs. Case Temperature



Product Dimension (DFN1006-3L)



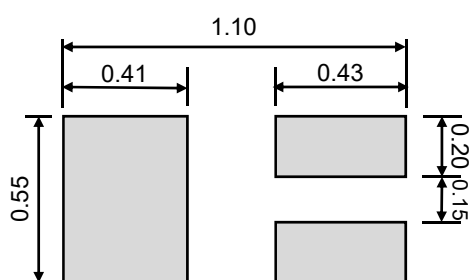
Top View



Bottom View



Side View



Suggested PCB Layout

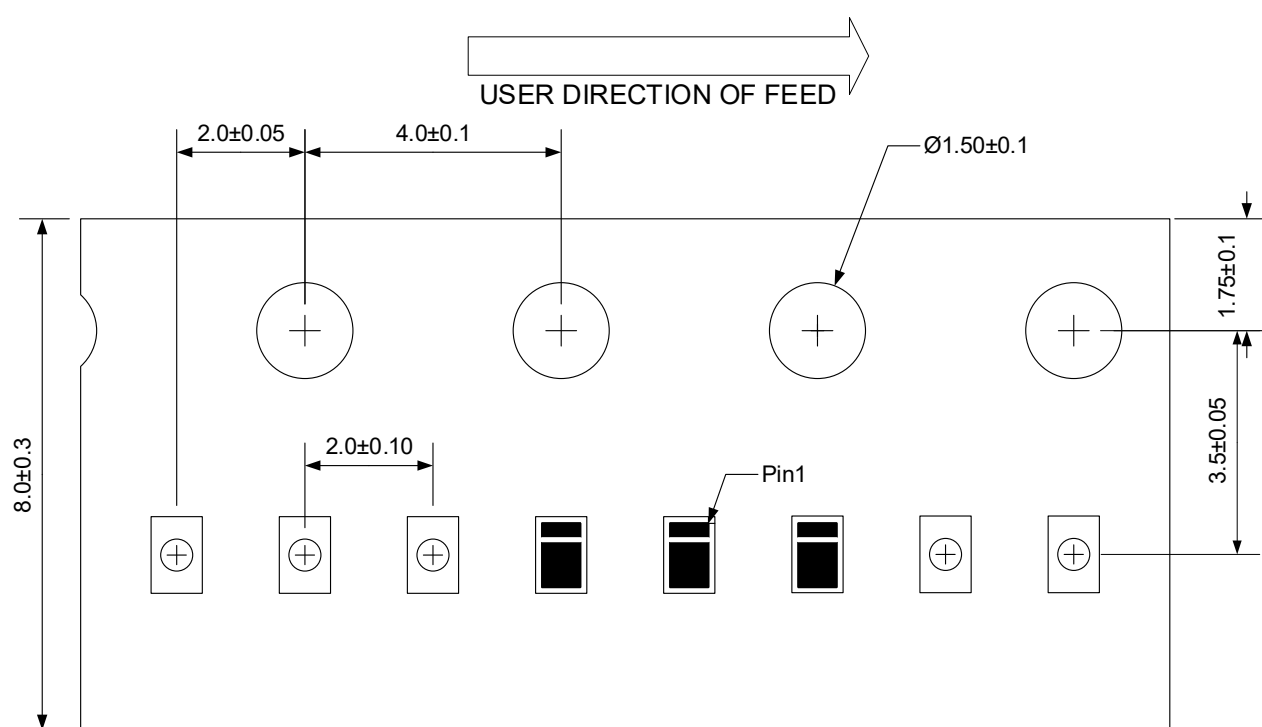
Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.33	0.55	0.013	0.022
B	0.00	0.05	0.000	0.002
B1	0.10	0.20	0.004	0.008
B2	0.45	0.55	0.018	0.022
D	0.90	1.05	0.035	0.041
E	0.50	0.65	0.020	0.026
e	0.35		0.014	
L1	0.20	0.30	0.008	0.012
L2	0.20	0.30	0.008	0.012
L3	0.39		0.015	
L4	0.25	0.35	0.010	0.014

Unit: mm

Ordering information

Package	Reel	Shipping
DFN1006-3L	7"	10000 / Tape & Reel

Load with information



Unit:mm

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