

Description

The PNM8PN30V70 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. This device is suitable for use as a load switch or in PWM applications..

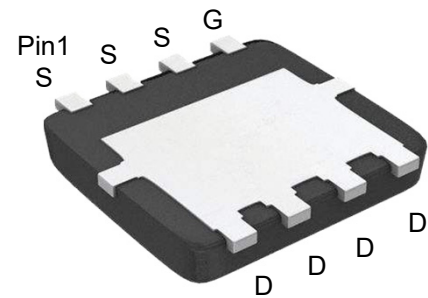
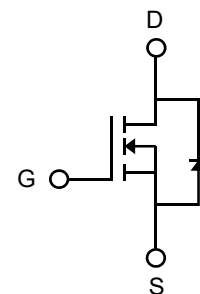
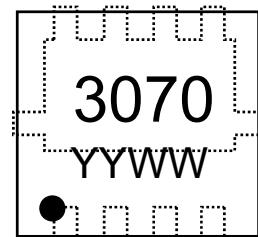
MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
30	4 @ $V_{GS} = 10V$	70
	5 @ $V_{GS} = 4.5V$	

Feature

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

Applications

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


Bottom View

Circuit Diagram

**Pin1
Marking (Top View)**

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Drain-source Voltage	V_{DS}	30	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	I_D	70	A
Pulsed Drain Current ¹⁾	I_{DM}	200	A
Total Power Dissipation ²⁾	P_D	860	mW
Thermal Resistance Junction-to-Ambient @ Steady State ²⁾	$R_{\theta JA}$	146	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°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}	$V_{GS} = 0V, I_D = 250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics ³⁾						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6	1.0	1.4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 30A$	-	4.0	4.5	m Ω
		$V_{GS} = 4.5V, I_D = 30A$	-	5.0	5.7	
Dynamic Parameters ⁴⁾						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V,$ $f = 1MHz$	-	2900	-	pF
Output Capacitance	C_{oss}		-	260	-	
Reverse Transfer Capacitance	C_{rss}		-	250	-	
Switching Parameters ⁴⁾						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, R_L = 15\Omega,$ $V_{GEN} = 10V, R_{GEN} = 6\Omega,$ $I_D = 1A$	-	14	-	ns
Turn-on Rise Time	t_r		-	44	-	
Turn-Off Delay Time	$t_{d(off)}$		-	19	-	
Turn-Off Fall Time	t_f		-	17	-	
Total Gate Charge	Q_g	$V_{DS} = 15V, I_D = 12A,$ $V_{GS} = 4.5V$	-	30	-	nC
Gate-Source Charge	Q_{gs}		-	5	-	
Gate-Drain Charge	Q_{gd}		-	10	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ³⁾	V_{SD}	$V_{GS} = 0V, I_S = 2A$	-	0.7	1.1	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Characteristics

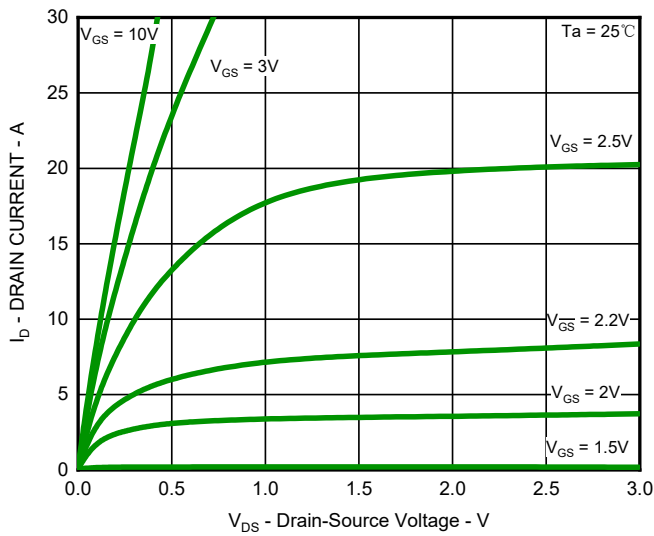


Fig.1 Output Characteristics

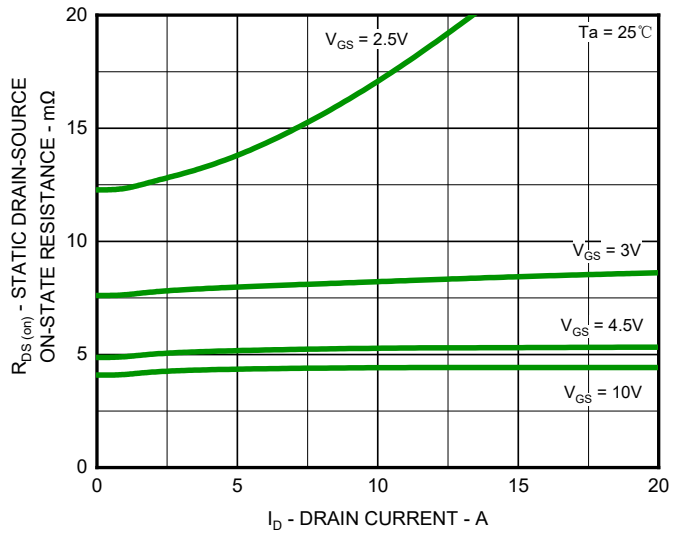


Fig.2 On-Resistance vs. Drain Current (I)

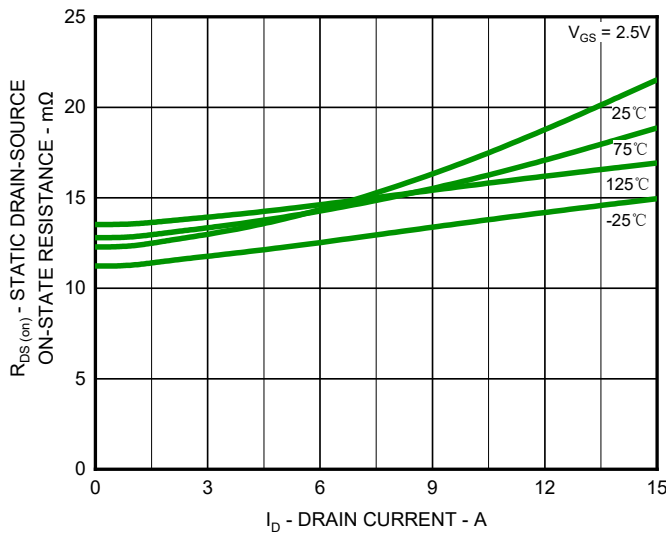


Fig.3 On-Resistance vs. Drain Current (II)

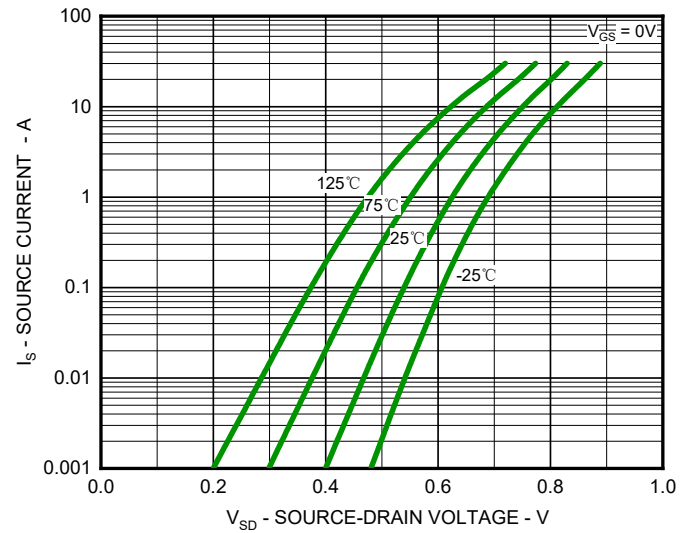


Fig.4 Diode Forward Voltage vs. Current

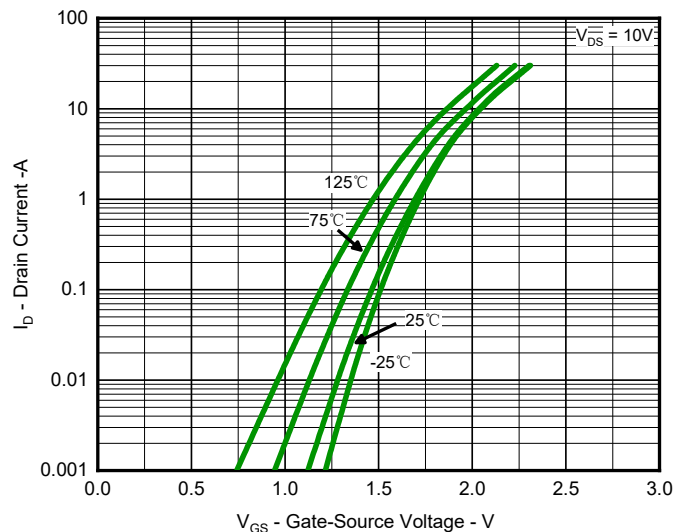


Fig.5 Typical Transfer Characteristic

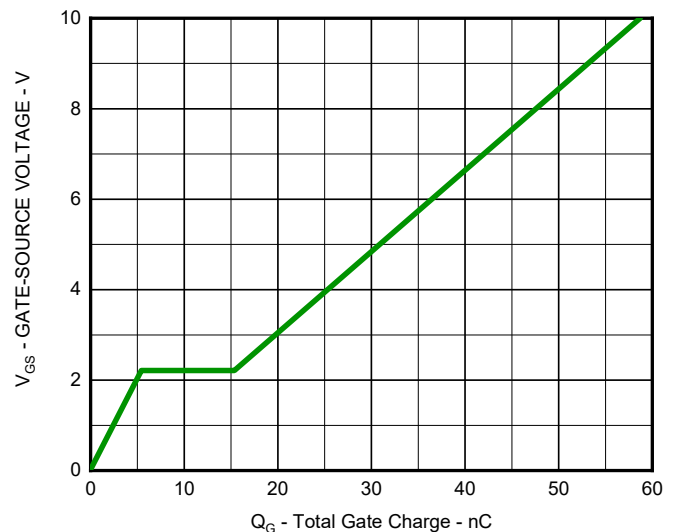


Fig.6 Gate Charge Characteristics

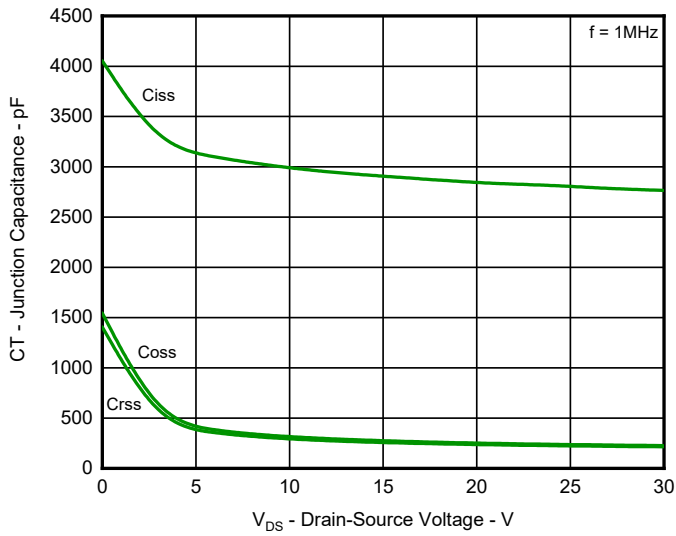
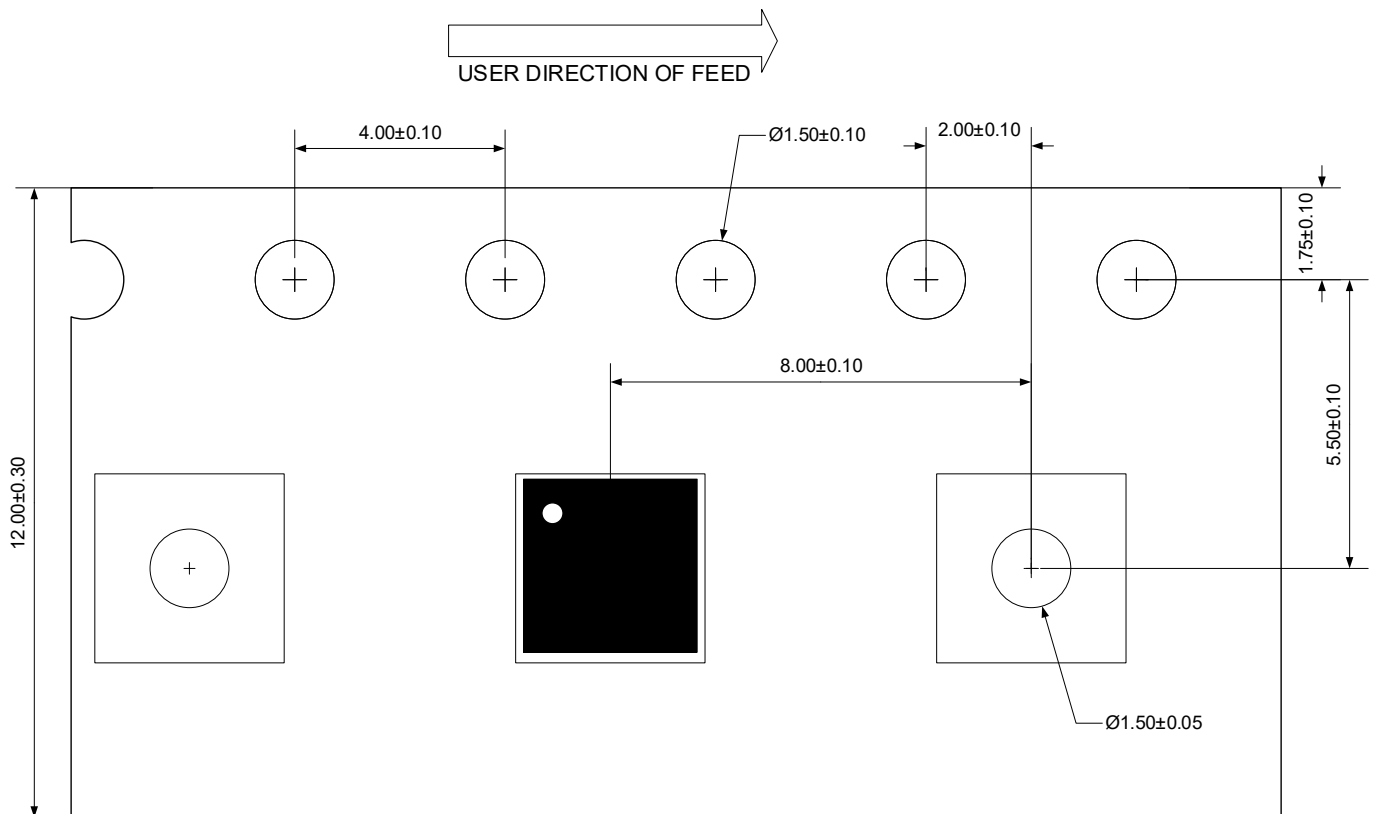


Fig.7 Typical Junction Capacitance

Ordering information

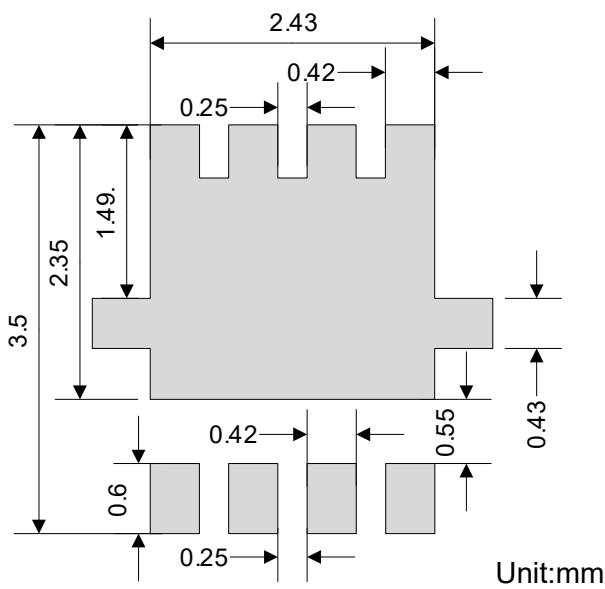
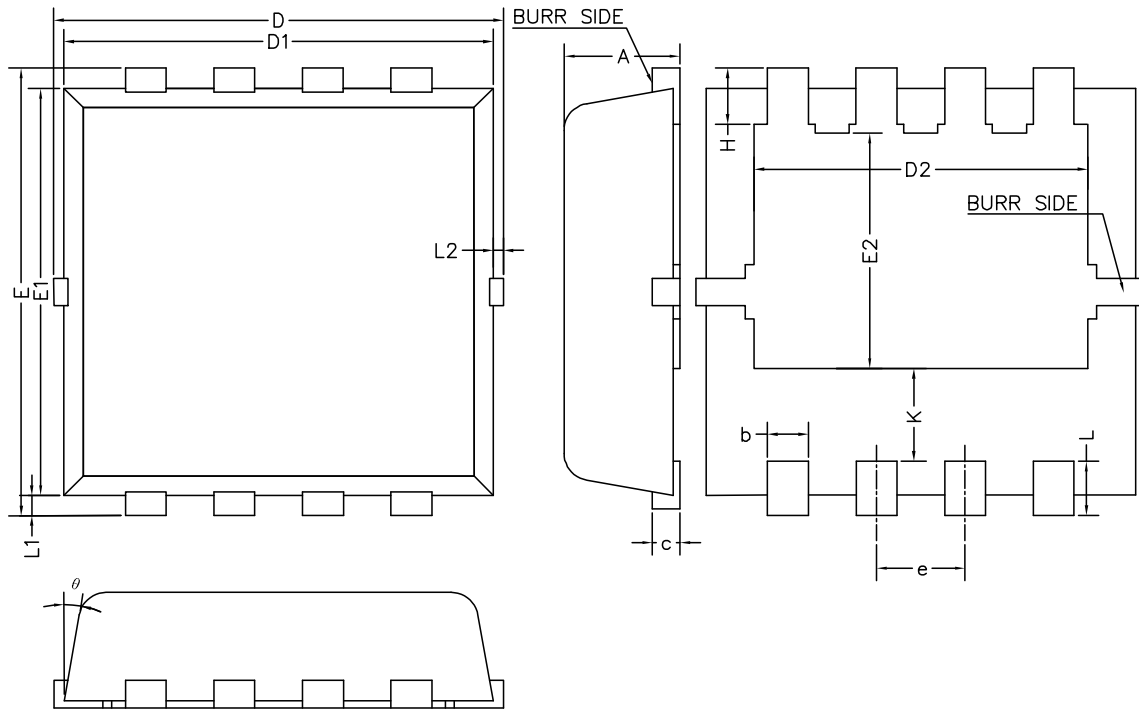
Device	Package	Reel	Shipping
PNM8PN30V70	DFN3333-8L (Pb-Free)	13"	5000 / Tape & Reel

Load with information



Unit:mm


Product dimension (DFN3333-8L)



Suggested PCB Layout

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.70	0.90	0.028	0.035
b	0.25	0.35	0.010	0.014
c	0.14	0.20	0.006	0.008
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.55	0.093	0.100
e	0.55	0.75	0.022	0.030
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.84	0.065	0.072
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022
L1	0.10	0.20	0.004	0.008
L2	-	0.15	-	0.006
θ	8°	12°	8°	12°


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