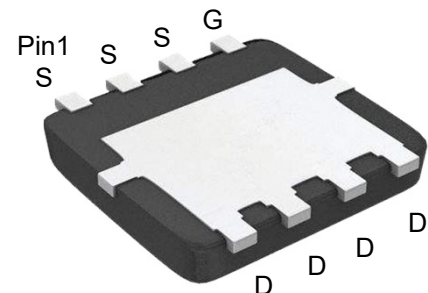


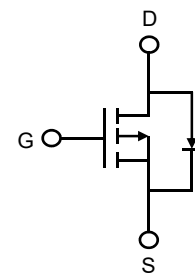
Description

The PPM8PN04R9L 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.

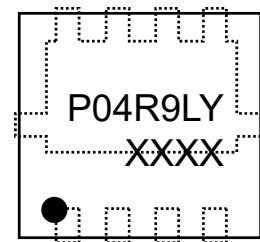
MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)(Typ)$	$I_D(A)$
-40	7.4@ $V_{GS} = -10V$	-50
	10.8@ $V_{GS} = -4.5V$	



PDFN3333-8L
(Bottom View)



Circuit Diagram



Pin1

Marking (Top View)

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

Absolute maximum rating@25°C

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous ¹⁾	$T_C=25^{\circ}C$	I_D	-50	A
	$T_C=100^{\circ}C$		-32	
Pulsed Drain Current ²⁾		I_{DM}	-200	A
Total Power Dissipation ³⁾		P_D	50	W
Avalanche Current ⁴⁾		I_{AS}	-60	A
Avalanche Energy ⁴⁾		E_{AS}	180	mJ
Thermal Resistance , Junction-to-Case ⁵⁾		$R_{\theta JC}$	2.5	$^{\circ}C/W$
Thermal Resistance , Junction-to-Ambient ⁵⁾		$R_{\theta JA}$	44.4	$^{\circ}C/W$
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 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	-40	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -40V, V _{GS} = 0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.6	-2.1	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = -10V, I _D = -20A	-	7.4	9.6	mΩ
		V _{GS} = -4.5V, I _D = -15A	-	10.8	13.4	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -20V, V _{GS} = 0V, f = 1.0MHz	-	2605	-	pF
Output Capacitance	C _{oss}		-	322	-	
Reverse Transfer Capacitance	C _{rss}		-	246	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} = -20V, V _{GS} = -10V, R _G = 3Ω, I _D = -20A	-	8.5	-	ns
Turn-on Rise Time	t _r		-	30	-	
Turn-Off Delay Time	t _{d(off)}		-	161	-	
Turn-Off Fall Time	t _f		-	106	-	
Total Gate Charge	Q _g	V _{DS} = -20V, V _{GS} = -10V, I _D = -20A	-	7.8	-	nC
Gate-Source Charge	Q _{gs}		-	18.6	-	
Gate-Drain Charge	Q _{gd}		-	48	-	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	14	-	Ω
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -20A	-	-0.9	-1.2	V
Reverse Recovery Time	t _{rr}	I _F = -20A, d _i /d _t =100A/μs	-	55	-	ns
Reverse Recovery Charge	Q _{rr}		-	36.4	-	nC

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. This single-pulse measurement was taken under the following condition ($L=0.1mH, V_{GS}=-10V, V_{DS}=-25V$)while it's value is limited by $T_{J_Max}=150^\circ C$.
5. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.
6. Guaranteed by design, not subject to production.

Typical Characteristics

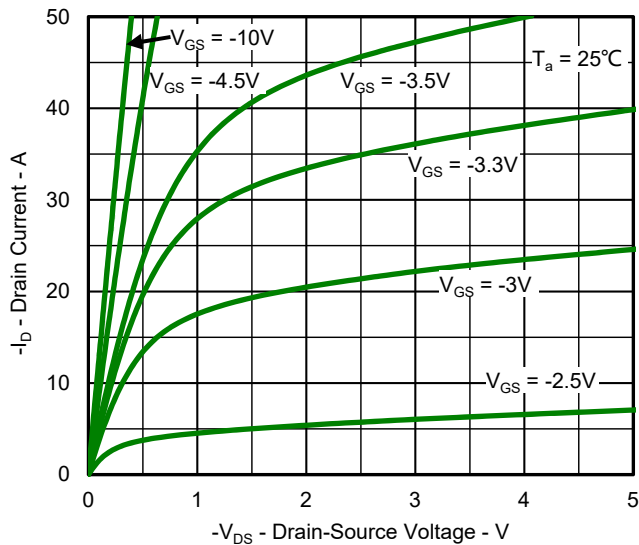


Fig.1 Output Characteristics

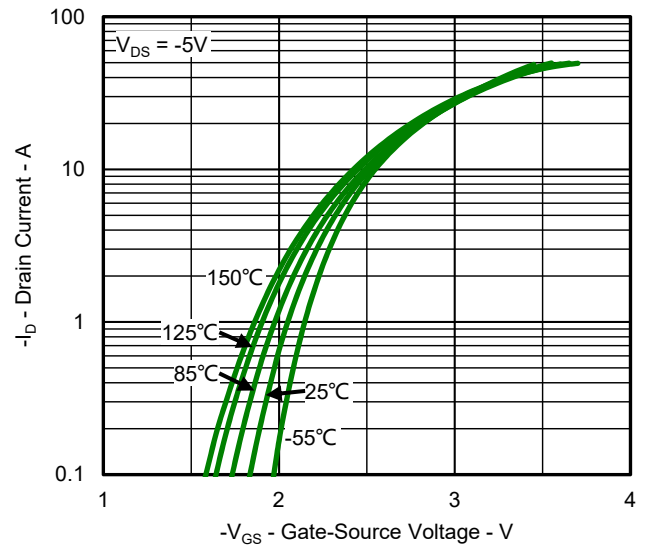


Fig.2 Typical Transfer Characteristic

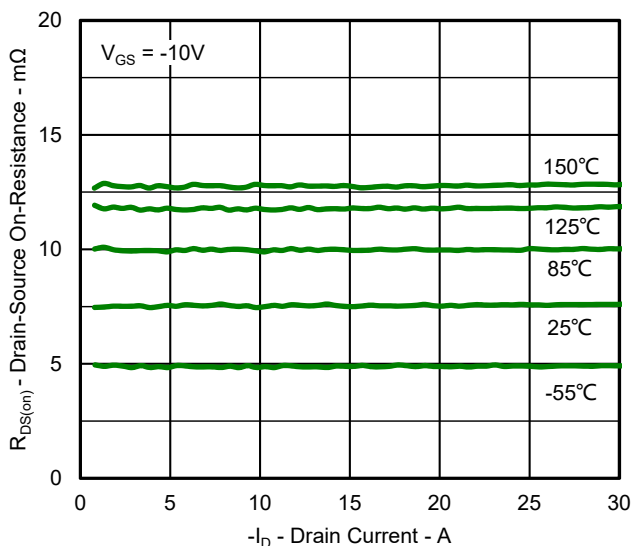


Fig.3 Typical On-Resistance vs Drain Current and Temperature

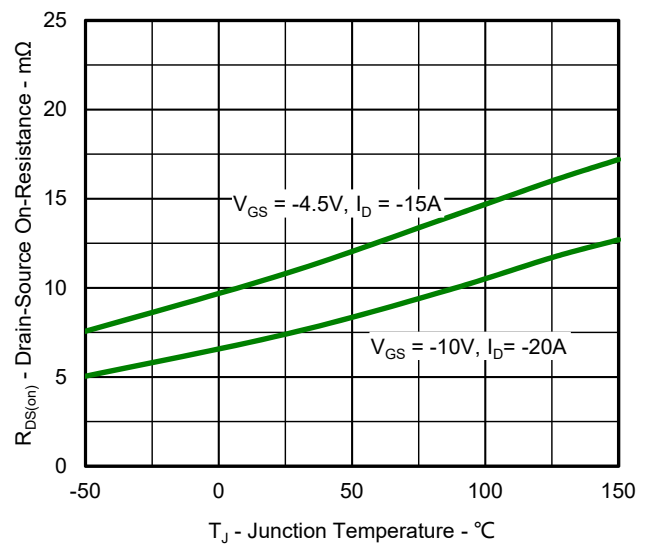


Fig.4 On-Resistance Variation with Temperature

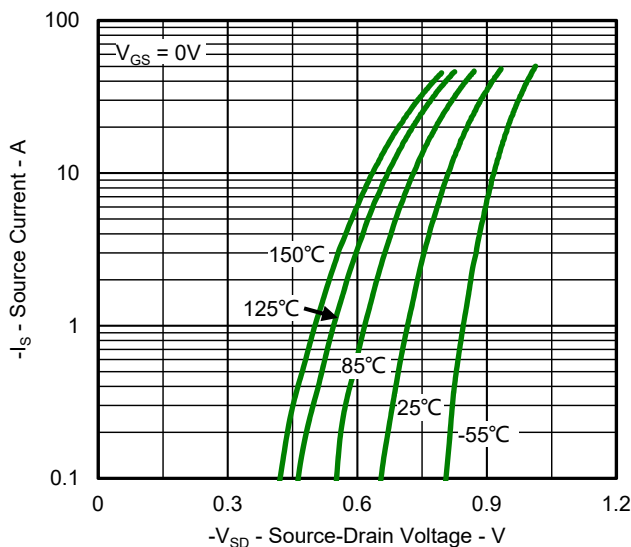


Fig.5 Diode Forward Voltage vs. Current

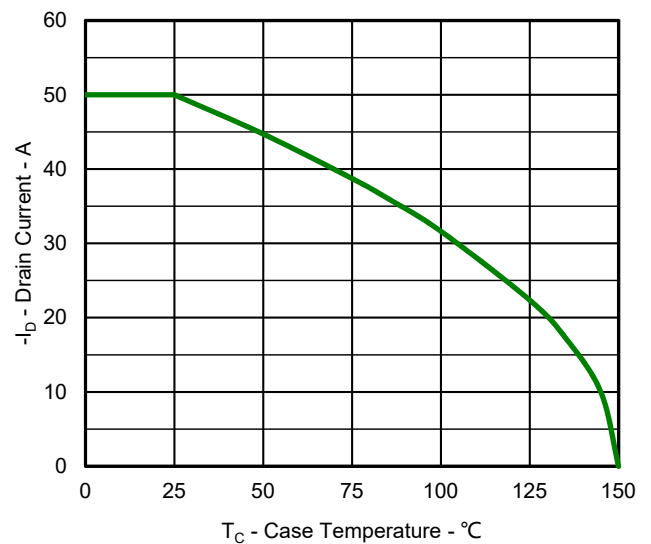


Fig.6 Maximum Drain Current vs. Case Temperature

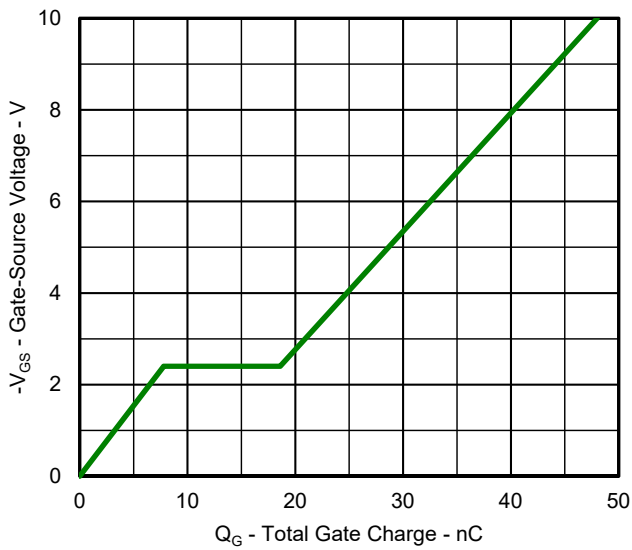


Fig.7 Gate Charge Characteristics

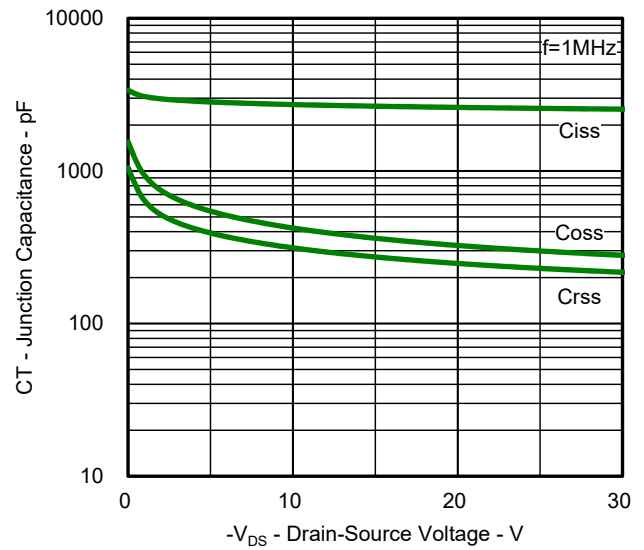


Fig.8 Typical Junction Capacitance

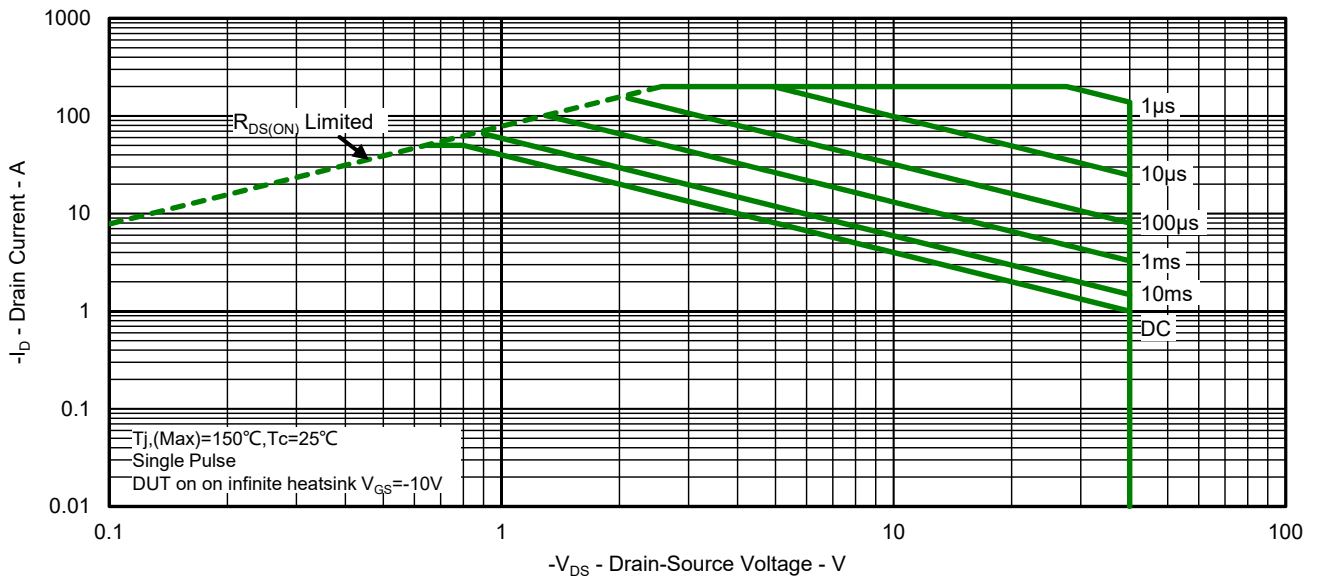


Fig.9 Safe Operation Area

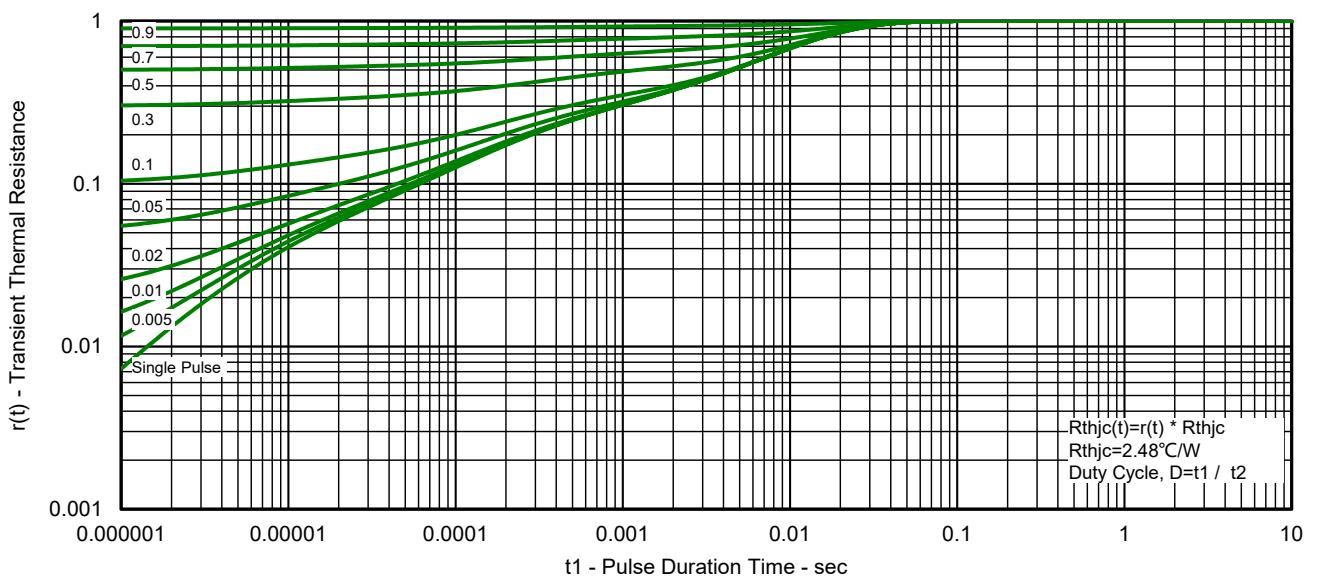
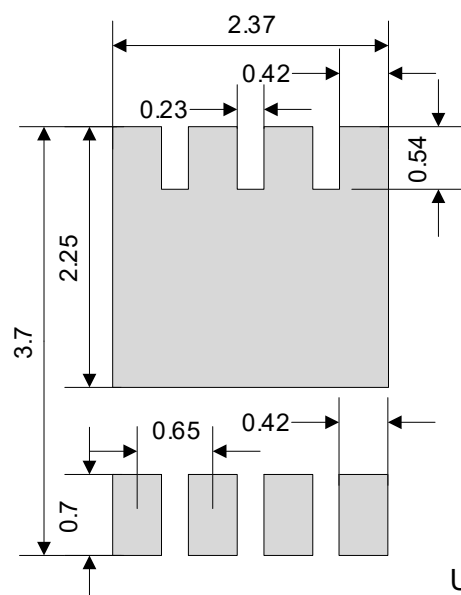
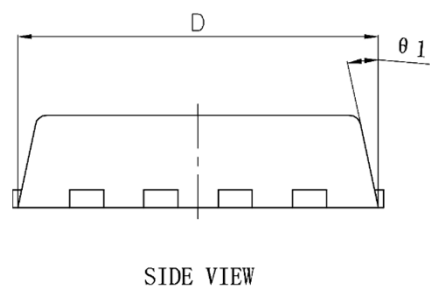
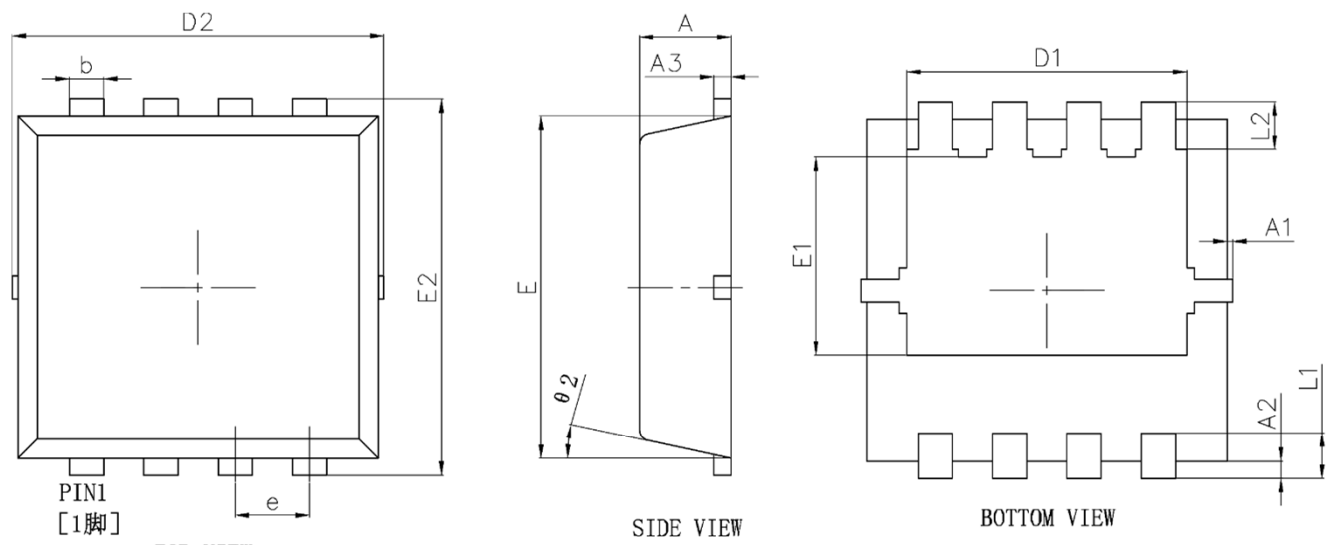


Fig.10 Transient Thermal Resistance

Product Dimension (PDFN3333-8L)



Unit: mm

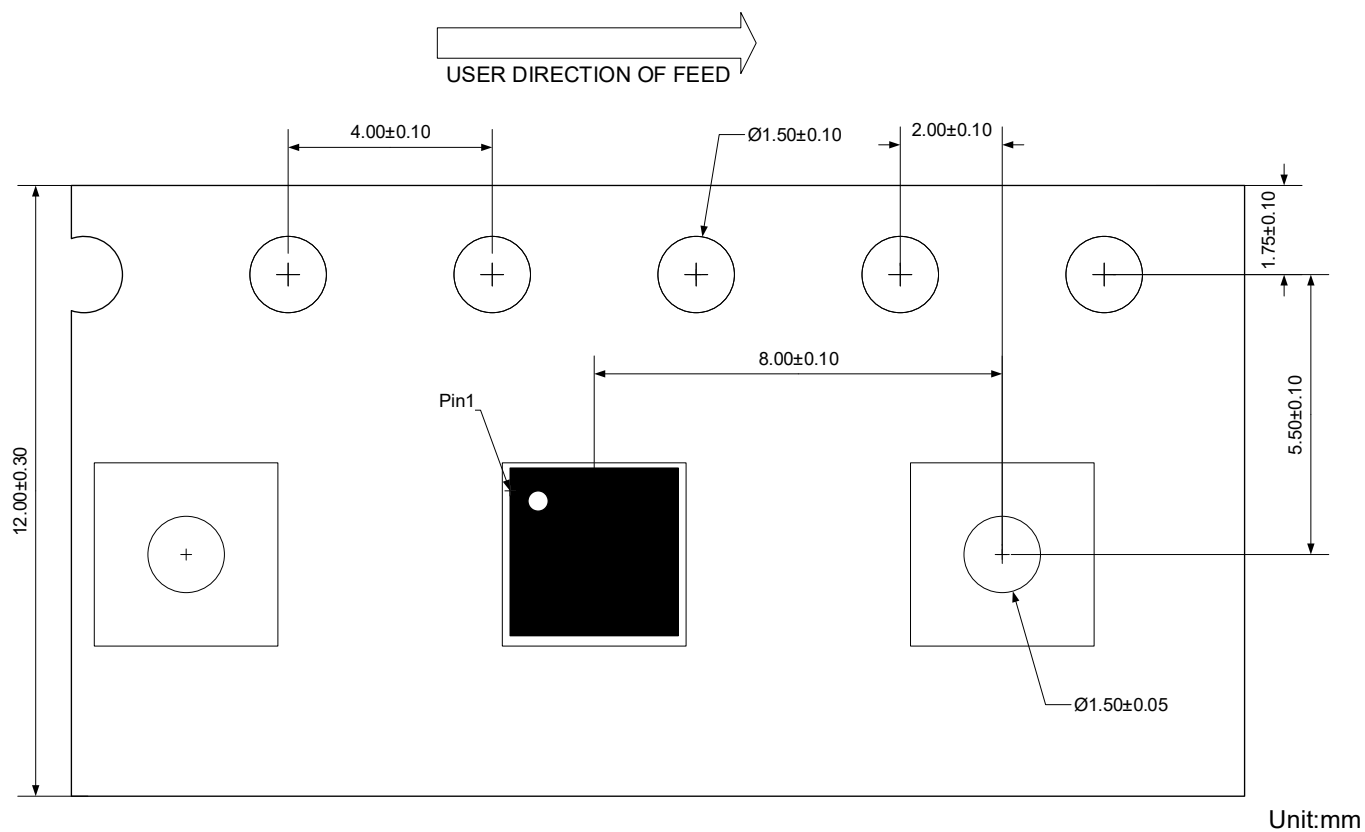
Suggested PCB Layout

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.60	0.85	0.024	0.033
A1	0.00	0.10	0.000	0.004
A2	0.10	0.20	0.004	0.008
A3	0.152 Ref.		0.006 Ref.	
D	2.95	3.25	0.116	0.128
D1	2.35	2.55	0.093	0.100
D2	2.95	3.40	0.116	0.134
E	2.90	3.10	0.114	0.122
E1	1.635	1.835	0.064	0.072
E2	3.15	3.40	0.124	0.134
b	0.20	0.40	0.008	0.016
e	0.625	0.675	0.025	0.027
L1	0.30	0.45	0.012	0.018
L2	0.36	0.50	0.014	0.020
$\theta 1$	5°	14°	5°	14°
$\theta 2$	5°	14°	5°	14°

Ordering Information

Package	Reel	Shipping
PDFN3333-8L	13"	5000 / Tape & Reel

Load With Information



IMPORTANT NOTICE

 and **Prisemi**[®] are registered trademarks of **Prisemi Electronics Co., Ltd** (Prisemi). Prisemi reserves the right to make changes without further notice to any products herein. Prisemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Prisemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in Prisemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Prisemi does not convey any license under its patent rights nor the rights of others. The products listed in this document are designed to be used with ordinary electronic equipment or devices, Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Website: <http://www.prisemi.com>

For additional information, please contact your local Sales Representative.

©Copyright 2009, Prisemi Electronics

 **Prisemi**[®] is a registered trademark of Prisemi Electronics.

All rights are reserved.