

## Description

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

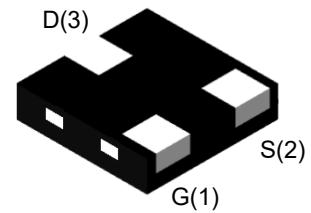
MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)(Typ)$	$I_D(A)$
-20	116 @ $V_{GS} = -4.5V$	-2.0
	146 @ $V_{GS} = -2.5V$	

## Feature

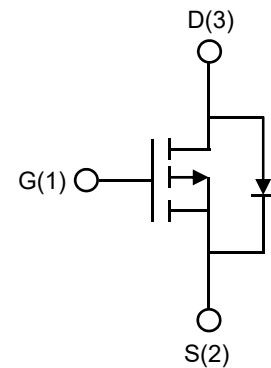
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

## Applications

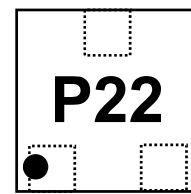
- PWM applications
- Load switch
- Power management



**DFN1212-3L  
(Bottom View)**



**Circuit Diagram  
D**



**Marking (Top View)**

## Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Drain-source Voltage	$V_{DS}$	-20	V
Gate-source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current	$I_D$	-2.0	A
Pulsed Drain Current	$I_{DP}$	-6.0	A
Total Power Dissipation	$P_D$	1.2	W
Channel to ambient <sup>1)</sup>	$R_{th(ch-a)}$	106.4	°C/W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	°C

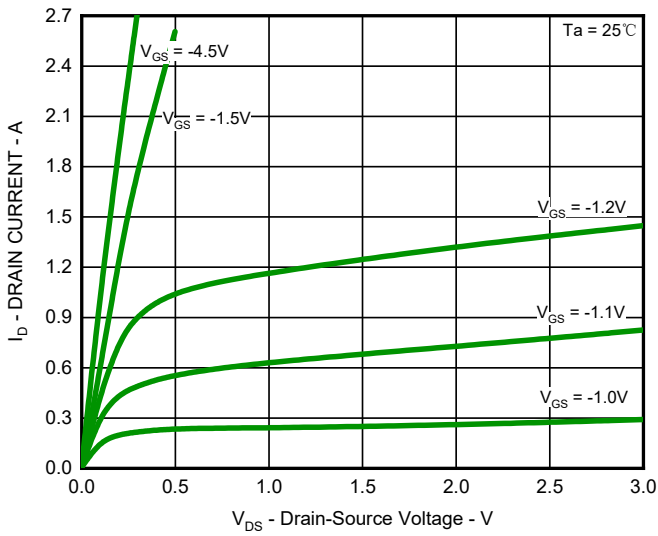
Note:

1) Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.

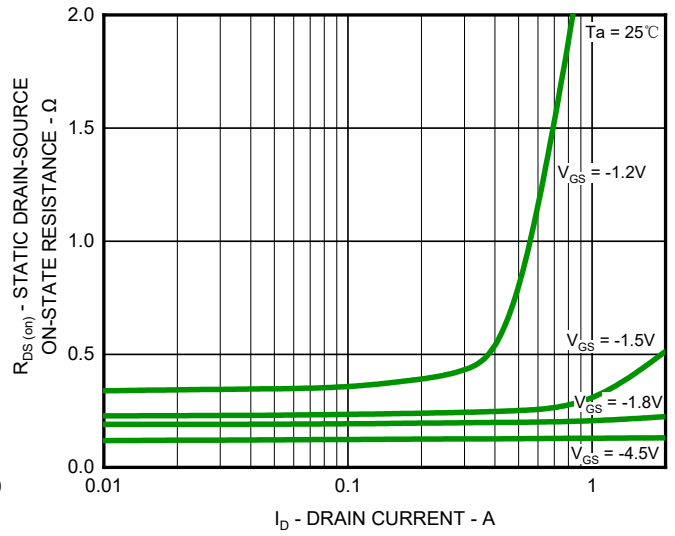
Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	$\pm 0.1$	$\mu A$
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.45	-0.65	-0.85	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -1.0A$	-	116	170	m $\Omega$
		$V_{GS} = -2.5V, I_D = -1.0A$	-	146	190	
Dynamic Parameters						
Input Capacitance	$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V,$ $f = 1MHz$	-	248	-	pF
Output Capacitance	$C_{oss}$		-	30	-	
Reverse Transfer Capacitance	$C_{rss}$		-	28	-	
Switching Parameters						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS} = -10V, V_{GS} = -4.5V,$ $R_G = 6\Omega, I_D = 450mA$	-	5.0	-	ns
Turn-on Rise Time	$t_r$		-	5.0	-	
Turn-Off Delay Time	$t_{d(off)}$		-	53	-	
Turn-Off Fall Time	$t_f$		-	34	-	
Total Gate Charge	$Q_g$	$V_{DS} = -10V, I_D = -450mA,$ $V_{GS} = -4.5V$	-	3.0	-	nC
Gate-Source Charge	$Q_{gs}$		-	0.2	-	
Gate-Drain Charge	$Q_{gd}$		-	0.8	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = -1A$	-0.5	-0.85	-1.1	V

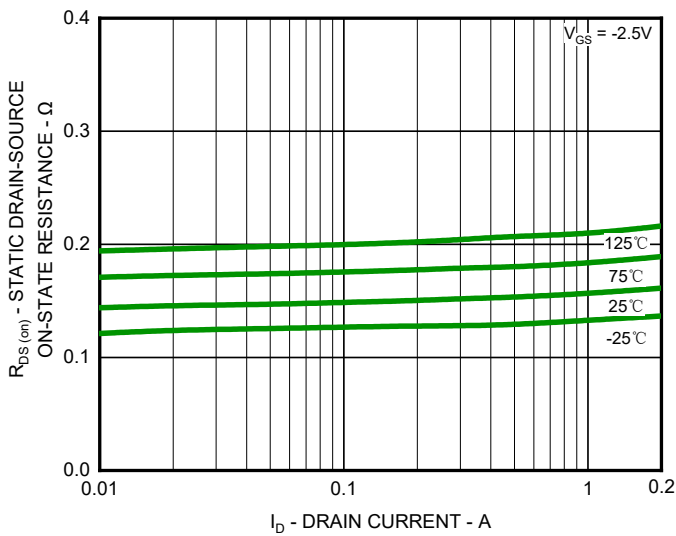
## Typical Characteristics



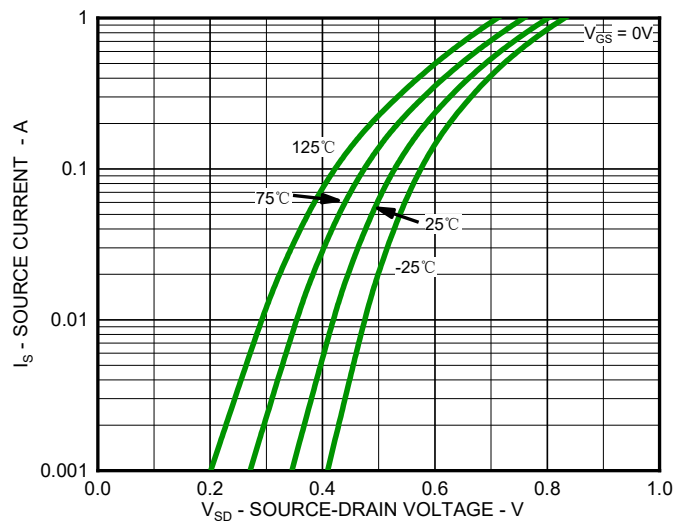
**Fig.1 Output Characteristics**



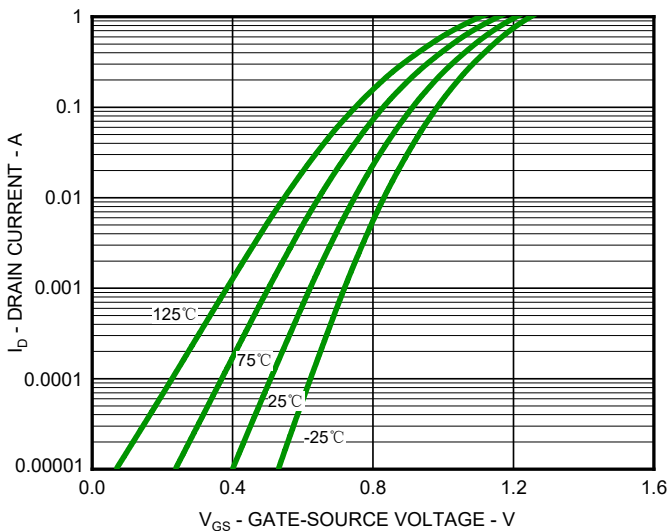
**Fig.2 On-Resistance vs. Drain Current (I)**



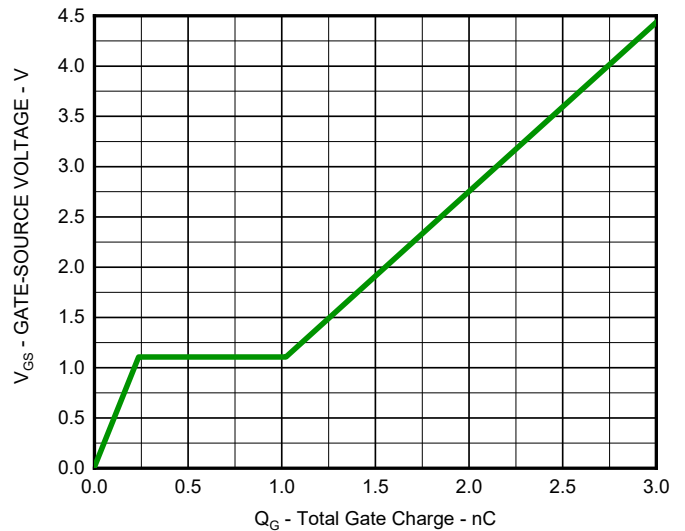
**Fig.3 On-Resistance vs. Drain Current (II)**



**Fig.4 Diode Forward Voltage vs. Current**



**Fig.5 Typical Transfer Characteristic**



**Fig.6 Gate Charge Characteristics**

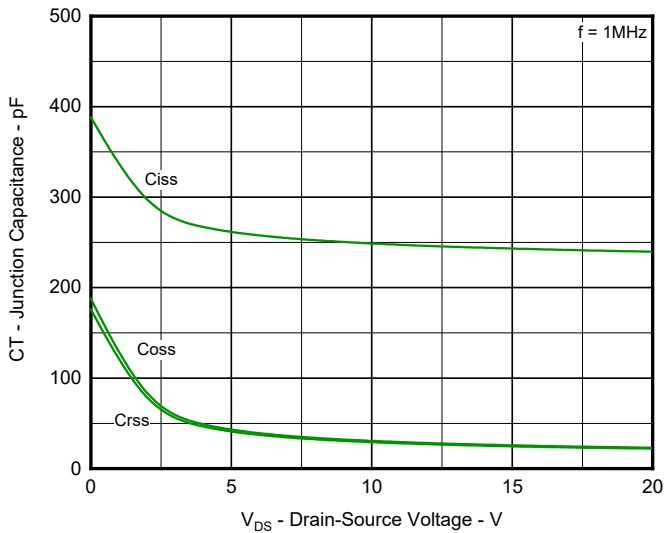


Fig.7 Typical Junction Capacitance

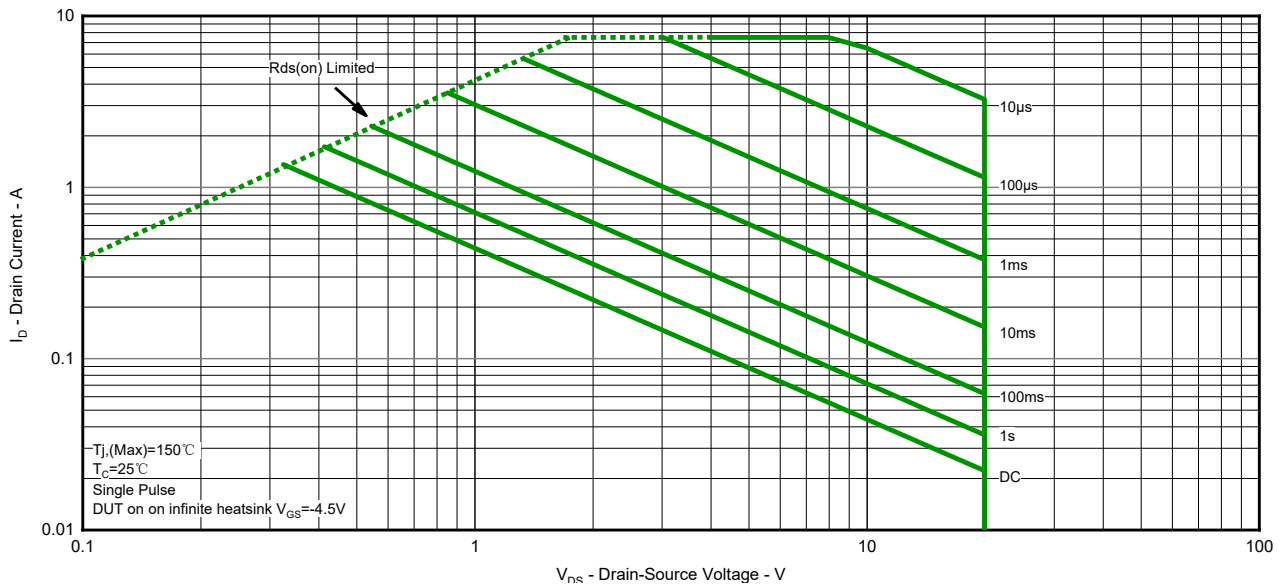


Fig.8 Safe Operation Area

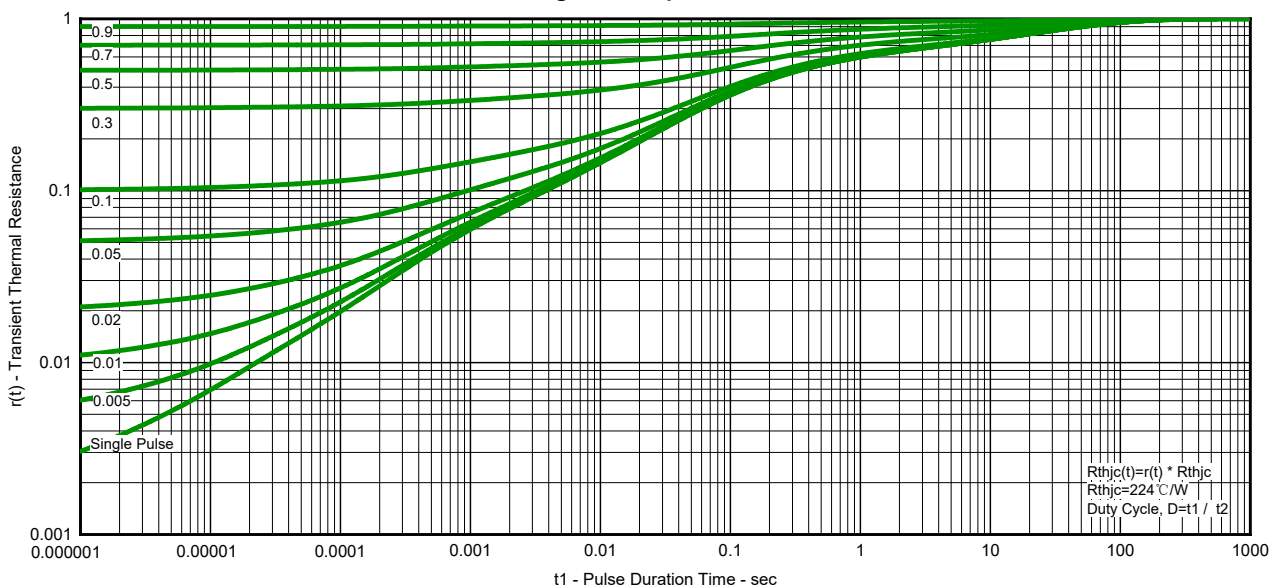
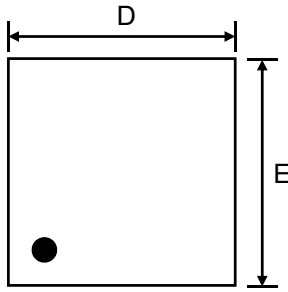
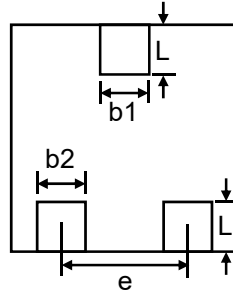


Fig.9 Transient Thermal Resistance

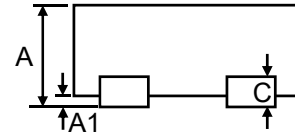
Product Dimension (DFN1212-3L)



Top View



Bottom View



Side View

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.45	0.55	0.018	0.022
A1	0.00	0.05	0.000	0.002
b1	0.27	0.37	0.011	0.015
b2	0.25	0.35	0.010	0.014
C	0.152 Ref.		0.006 Ref.	
D	1.15	1.25	0.045	0.049
E	1.15	1.25	0.045	0.049
L	0.30	0.40	0.012	0.016
e	0.75 Ref.		0.030 Ref.	

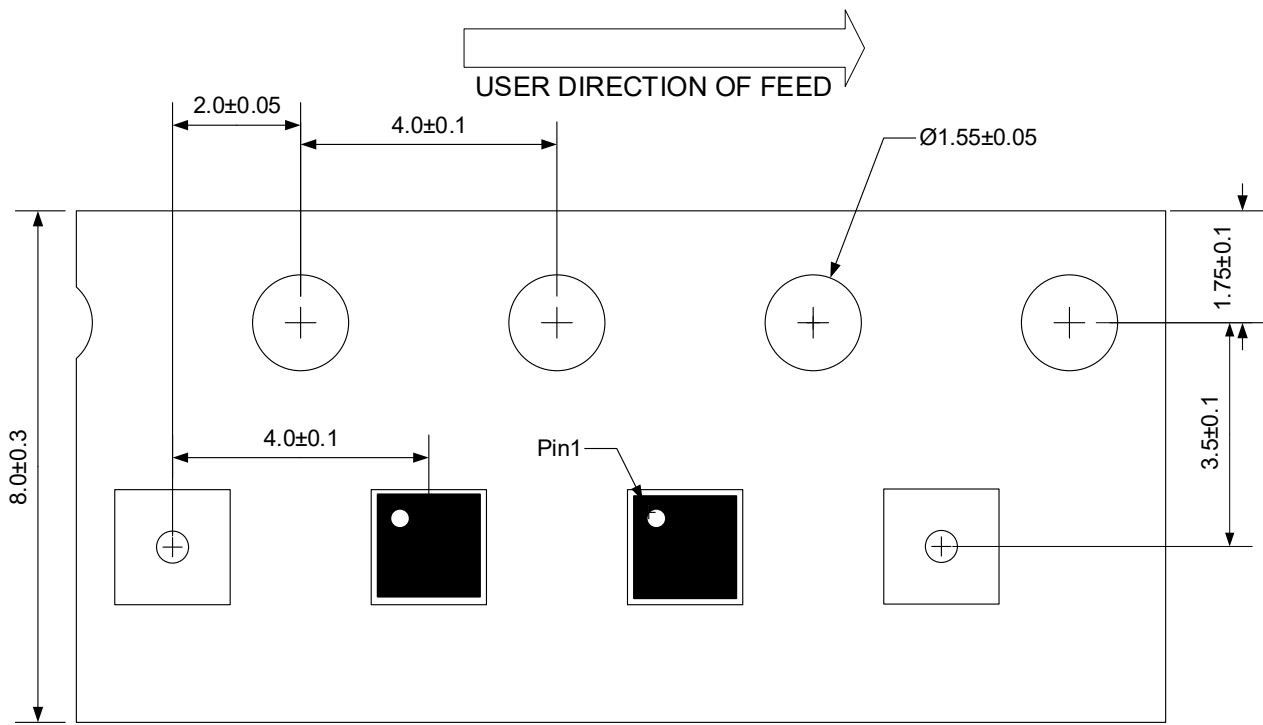
# P-Channel MOSFET

# PPM3GN20V2

## Ordering information


Device	Package	Reel	Shipping
PPM3GN20V2	DFN1212-3L	7"	5000 / Tape & Reel

## Load with information



Unit:mm


**IMPORTANT NOTICE**

 and **Prisemi**<sup>®</sup> 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 with 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**<sup>®</sup> is a registered trademark of Prisemi Electronics.

All rights are reserved.