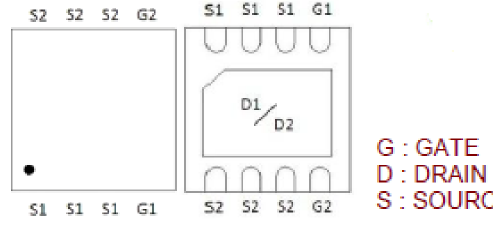
PE5A0DZ

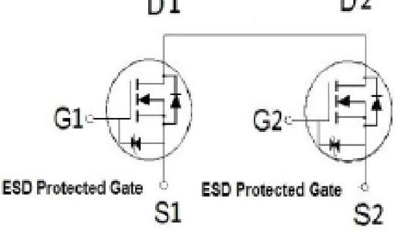
Dual N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	6mΩ @V_{GS} = 4.5V	55A



PDFN 3X3S



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current[2]	T_C = 25 °C	I_D	55	A
	T_C = 100 °C		35	
	T_A = 25 °C		19	
	T_A = 70 °C		15	
Pulsed Drain Current[1]		I_{DM}	100	
Avalanche Current		I_{AS}	32	
Avalanche Energy	L = 0.1mH	E_{AS}	51	mJ
Power Dissipation	T_C = 25 °C	P_D	31	W
	T_C = 100 °C		12.5	
	T_A = 25 °C		3.6	
	T_A = 70 °C		2.3	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient[3]	$R_{\theta JA}$		35	°C / W
Junction-to-case	$R_{\theta JC}$		4	

[1]Pulse width limited by maximum junction temperature.

[2]Package limitation current is 18A.

[3]The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

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ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.4	0.7	1	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V			±30	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	μA
		V_{DS} = 10V, V_{GS} = 0V , T_J = 125 °C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 3A	4	5	6	mΩ
		V_{GS} = 3.8V, I_D = 3A	4.2	5.2	7.2	
		V_{GS} = 3.1V, I_D = 3A	4.5	5.6	7.8	
		V_{GS} = 2.5V, I_D = 3A	4.8	5.8	8	
		V_{GS} = 1.8V, I_D = 3A	7.2	8.7	12	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 3A		43		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz		2111		pF
Output Capacitance	C_{oss}			320		
Reverse Transfer Capacitance	C_{rss}			282		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.7		Ω
Total Gate Charge[2]	$Q_{g(VGS=4.5V)}$	V_{DS} = 10V, I_D = 3A		29		nC
	$Q_{g(VGS=3.9V)}$			25.5		
Gate-Source Charge[2]	Q_{gs}			2.5		
Gate-Drain Charge[2]	Q_{gd}			7.3		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 15V I_D ≅ 3A, V_{GEN} = 4.5V, R_G = 6Ω		20		nS
Rise Time[2]	t_r			40		
Turn-Off Delay Time[2]	$t_{d(off)}$			72		
Fall Time[2]	t_f			18		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				25.8	A
Forward Voltage[1]	V_{SD}	I_F = 3A, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	I_F = 3A, dI_F/dt = 100A / μS		21		nS
Reverse Recovery Charge	Q_{rr}			8		nC

[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

[2]Independent of operating temperature.

[3]Package limitation current is 18A.

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Output Characteristics

VGS=1.5V
VGS=4.5V
VGS=3.9V
VGS=2.5V
VGS=1.8V
VGS=1.4V
VGS=1.3V

I_D, Drain-To-Source Current(A)

V_{DS}, Drain-To-Source Voltage(V)

Transfer Characteristics

125℃ 25℃ -20℃

I_D, Drain-To-Source Current(A)

V_{GS}, Gate-To-Source Voltage(V)

On-Resistance VS Temperature

VGS=4.5V
ID=3A

Normalized Drain to Source ON-Resistance

T_J , Junction Temperature(°C)

Capacitance Characteristic

CISS
COSS
CRSS

C , Capacitance(pF)

V_{DS}, Drain-To-Source Voltage(V)

Gate charge Characteristics

VDS=10V
ID=3A

V_{GS} , Gate-To-Source Voltage(V)

Qg , Total Gate Charge(nC)

Source-Drain Diode Forward Voltage

150℃ 25℃

I_S , Source Current(A)

V_{SD}, Source-To-Drain Voltage(V)

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Safe Operating Area

Operation in This Area is Limited by RDS(ON)

NOTE :
1.VGS= 4.5V
2.TA=25°C
3.RθJA = 35°C/W
4.Single Pulse

1ms, 10ms, 100ms, DC

I_D, Drain Current(A)

V_{DS}, Drain-To-Source Voltage(V)

Single Pulse Maximum Power Dissipation

Single Pulse
RθJA = 35°C/W
TA=25°C

Power(W)

Single Pulse Time(s)

Transient Thermal Response Curve

Duty cycle=0.5, 0.2, 0.1, 0.05, 0.02, 0.01, single pulse

Notes
1.Duty cycle, D= t1 / t2
2.RthJA = 35 ℃/W
3.TJ-TA = P*RthJA(t)
4.RthJA(t) = r(t)*RthJA

r(t) , Normalized Effective Transient Thermal Resistance

T_1 , Square Wave Pulse Duration[sec]

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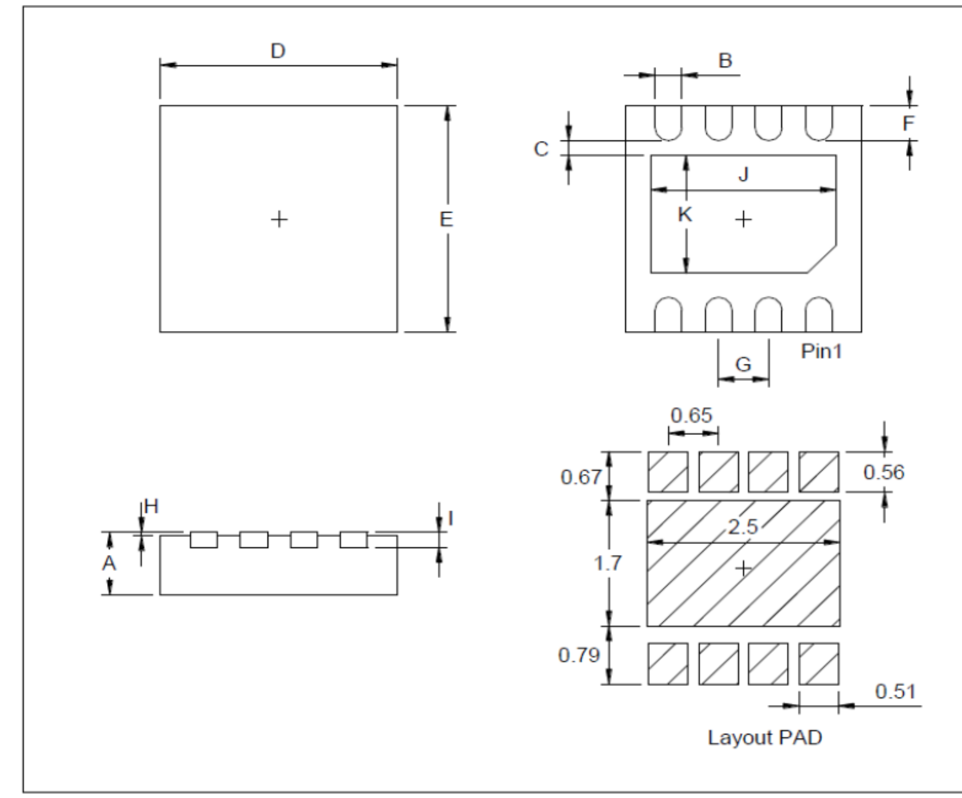
Package Dimension

PDFN 3x3S MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.70		0.90	I	0.195		0.211
B	0.25		0.35	J	2.20		2.40
C	0.25		0.45	K	1.40		1.60
D	2.90		3.10				
E	2.90		3.10				
F	0.324		0.476				
G	0.55	0.65	0.75				
H	0		0.05				



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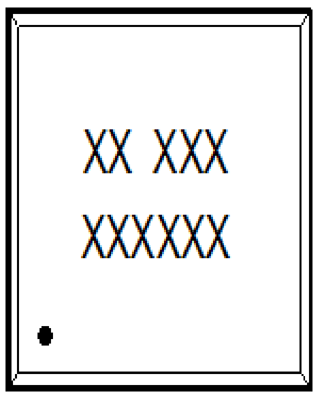
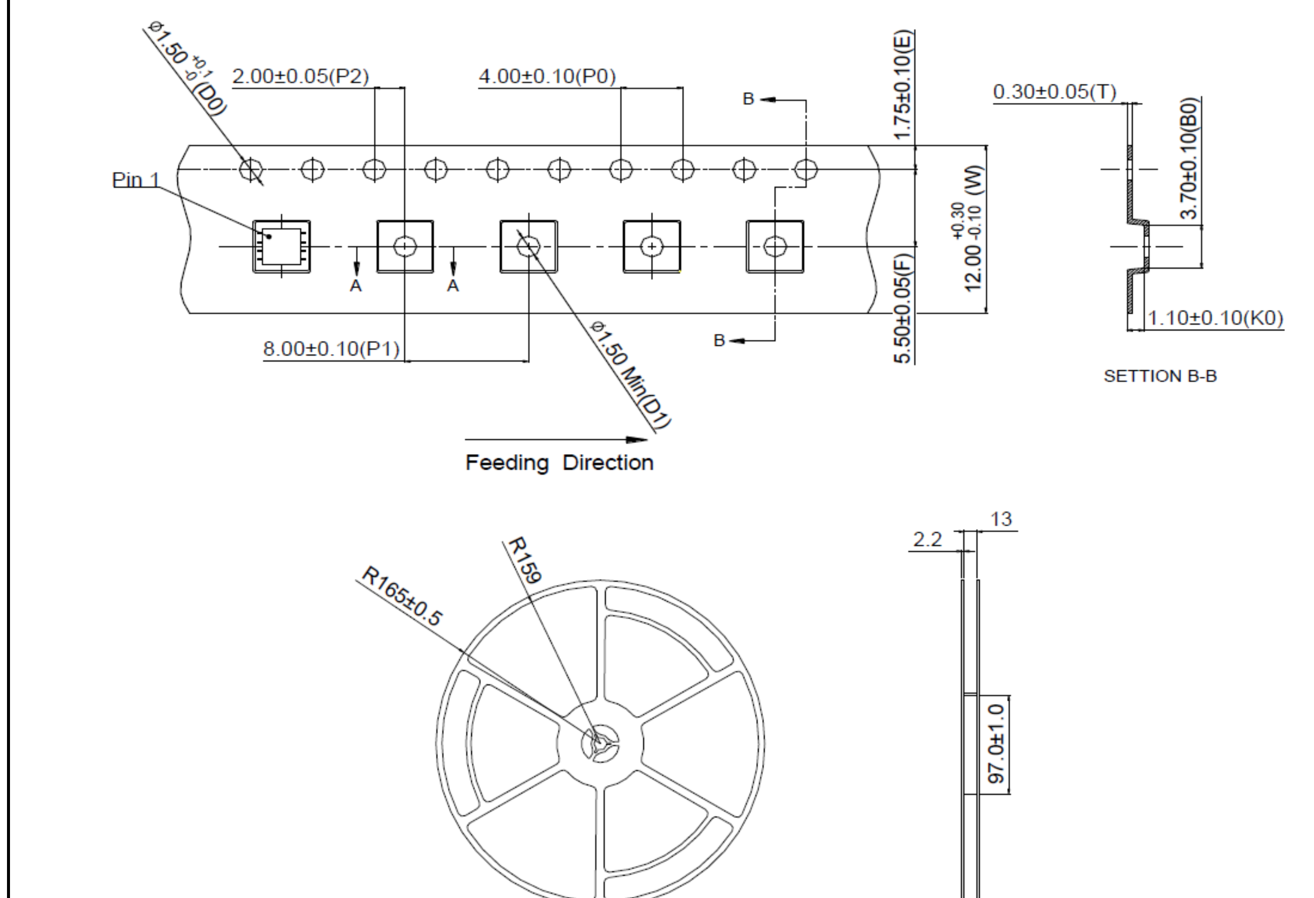
A. Marking Information(此产品代码为：H2)



XX(前两码):产品代码

XXX
XXXXXX(后九码):LOT.NO

B. Tape&Reel Information:5000pcs/Reel



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C. Lot No.&Date Code rule

1.Lot No.

M N XXXXX XX

- XX → Sub-lot No
- XXXXX → Order series no.
- N → Foundry site
- M → Assembly site

2.Date Code

D Y M X XXX

- XXX → Order series no.& Sub-lot No
- X → Week
- M → Month (A:Jan ,B:Feb ,C:Mar ,D:Apr ,E:May, F:Jun,G:Jul,H:Aug,I:Sep,J:Oct,K:Nov,L:Dec)
- Y → Year (N:2011 ,O:2013 ,P:2014 ,R:2015 , S:2016 ,T:2017 ,U:2018…etc)
- D → Assembly site

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D.Label rule

标签内容(Label content)

U-NIKC
Package: TO-252
2009/01/01
Device:P3055LDG
D/C: GLA0101
LOT: GNA2LA101
QTY: 2500

3, 4, 5, 6, 7, 8, 9, 10、11, 12

1	Label Size	30 * 90 mm
2	Font style	Times New Roman or Arial （或可区分英文” O” 和数字” 0” ，” G 和” Q” 的字型即可）
3	Great Power	Height: 4 mm
4	Package	Height: 2 mm
5	Date	Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12
6	Device	Height: 3 mm (Max: 16 Digit)
7	Lot	Height: 3 mm (Max: 9 Digit) Sub lot
8	D/C	Height: 3 mm (Max: 7 Digit)
9	QTY	Height: 3 mm (Max: 6 Digit) Thousand mark is no needed
10	Pb Free label	Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
11	Halogen Free label	Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
12	Scan info	Device / Lot / D/C / QTY , Insert “ / “ between every parts. for example: P3055LDG/G12345601/GGG2301/2000 DPI (Dots per inch): Over 300 dpi Code : Code 128 Height: 6 mm at least