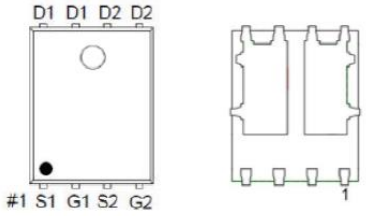
GPM075ND04LND

40V Dual N-Channel MOSFET

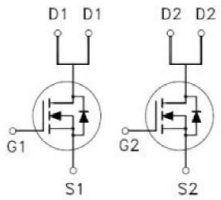
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	7.5mΩ@10V	42A
	10mΩ@4.5V	

PDFN5X6-8L



Schematic diagram



Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

- Power Switching Application
- DC/DC Converter

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPM075ND04LND	PDFN5X6-8L	M075ND04L	Reel & Tape	330mm	12mm	5000pcs

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	40	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25℃	I_D	42	A
	T_C = 100℃	I_D	29	A
Pulsed Drain Current[2]		I_{DM}	168	A
Single Pulsed Avalanche Current[3]		I_{AS}	25	A
Single Pulsed Avalanche Energy[3]		E_{AS}	156	mJ
Power Dissipation[5]	T_C = 25℃	P_D	28	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	65	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	4.5	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	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[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.7	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 12A		7.5	9.8	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 10A		10	15	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz		2646		pF
Output Capacitance	C_{oss}			180		
Reverse Transfer Capacitance	C_{rss}			157		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		1.7		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 20V, V_{GS} = 10V, I_D = 12A		50		nC
Gate-Source Charge	Q_{gs}			7.9		
Gate-Drain Charge	Q_{gd}			10.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 20V, V_{GS} = 10V, I_D = 20A, R_G = 1.6Ω		6		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			25		
Turn-Off Fall Time	t_f			4		
Source-Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 10A			1.2	V

Notes :

1.The maximum current rating is limited by package，and device mounted on a large heatsink.

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

3.E_{AS} condition: V_{DD} = 40V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.

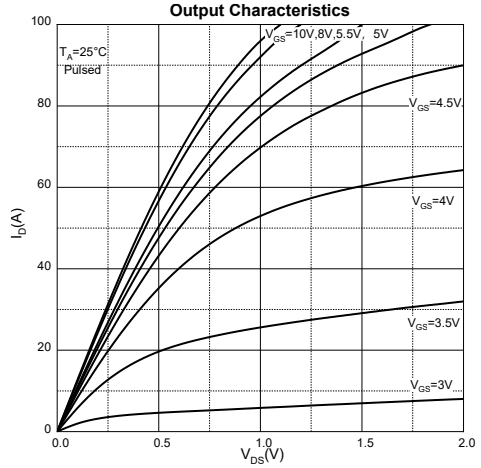
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink.

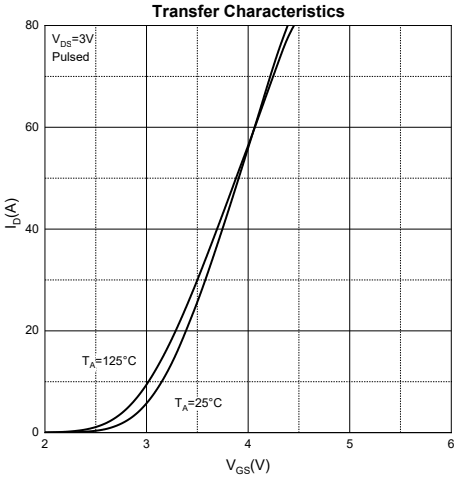
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics

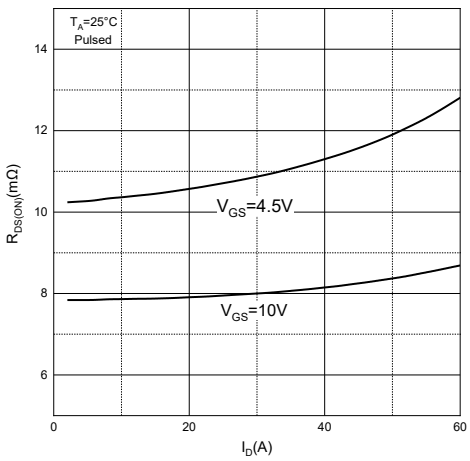
Output Characteristics



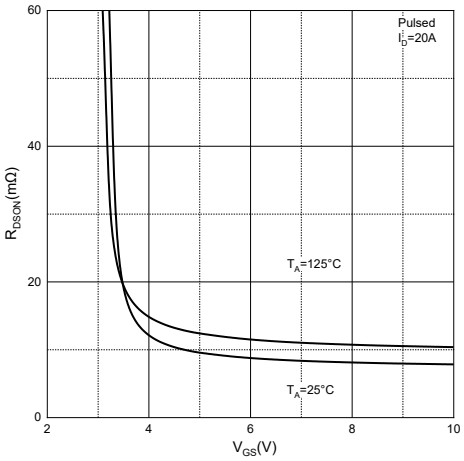
Transfer Characteristics



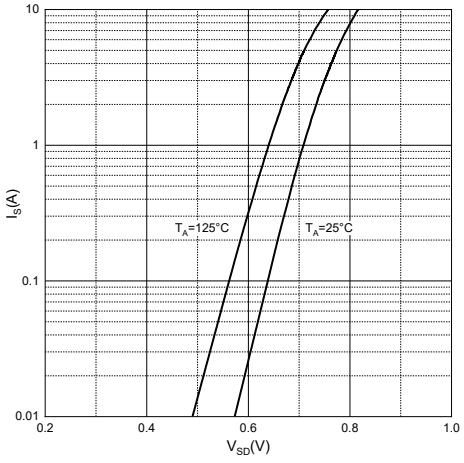
$R_{DS(ON)}$ vs I_D



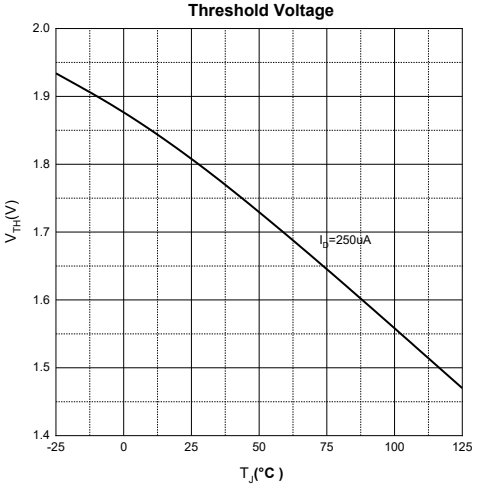
$R_{DS(ON)}$ vs V_{GS}

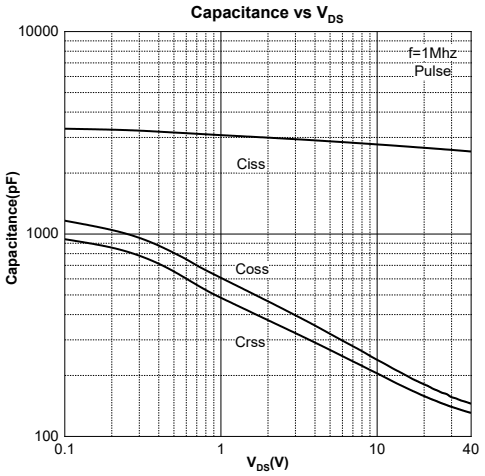


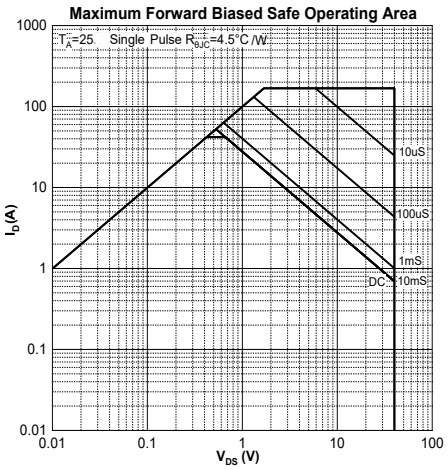
I_S vs V_{SD}

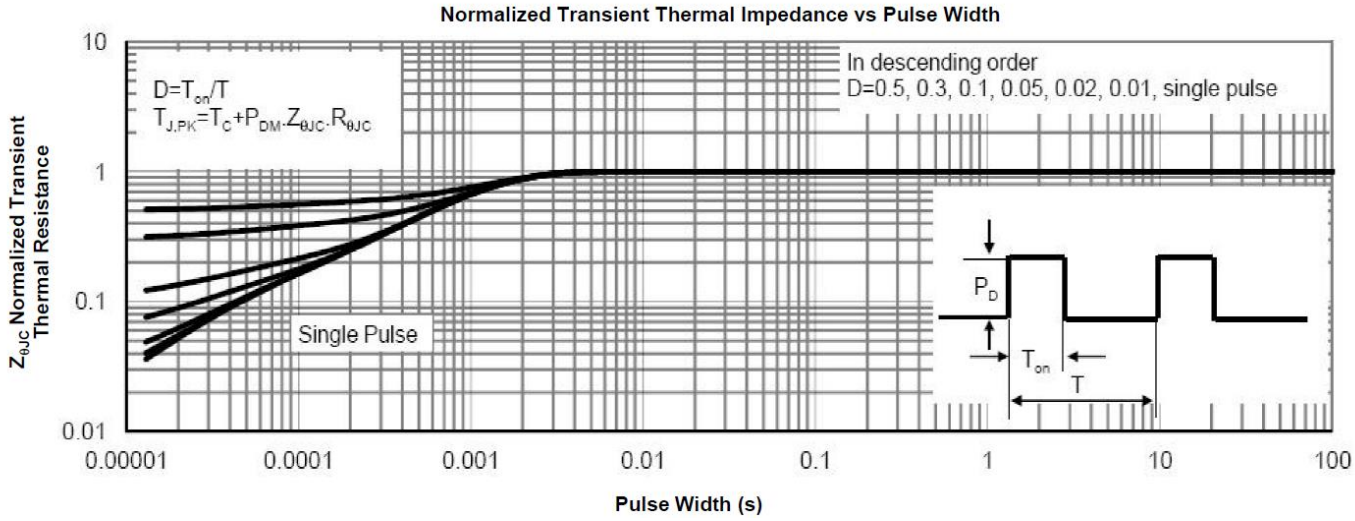


Threshold Voltage

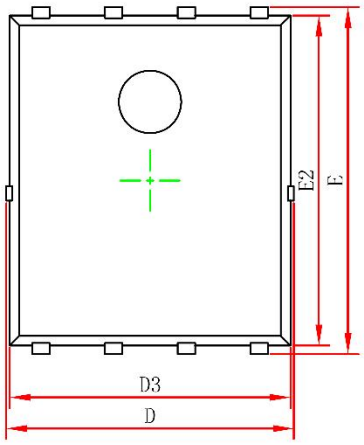



Capacitance vs V_{DS}
f=1Mhz
Pulse
Ciss
Coss
Crss
Capacitance(pF)
V_{DS}(V)
10000
1000
100
0.1
1
10
40

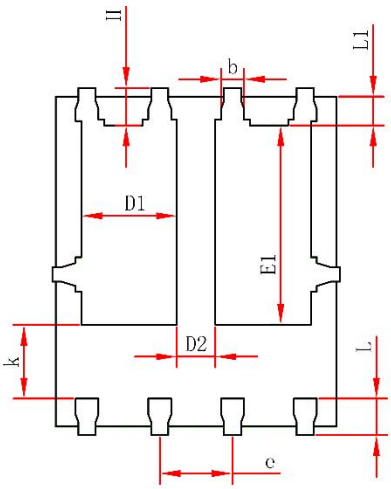

Maximum Forward Biased Safe Operating Area
T_A=25 Single Pulse $R_{\theta JC}$=4.5°C /W
10uS
100uS
1mS
DC
10mS
I_D(A)
V_{DS} (V)
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100


Normalized Transient Thermal Impedance vs Pulse Width
D=T_{on}/T
$T_{J,PK}$=T_C+P_{DM}.$Z_{\theta JC}$.$R_{\theta JC}$
In descending order
D=0.5, 0.3, 0.1, 0.05, 0.02, 0.01, single pulse
Single Pulse
P_D
T_{on}
T
$Z_{\theta JC}$ Normalized Transient Thermal Resistance
Pulse Width (s)
10
1
0.1
0.01
0.00001
0.0001
0.001
0.01
0.1
1
10
100

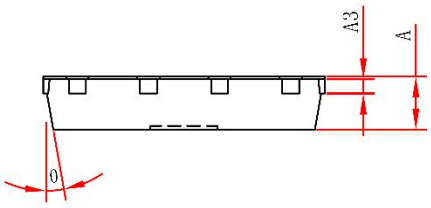
PDFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A3	0.210	0.340	0.008	0.013
D	4.800	5.400	0.193	0.201
E	5.850	6.150	0.232	0.240
D1	1.470	1.870	0.058	0.074
D2	0.450	0.870	0.019	0.034
E1	3.340	3.640	0.131	0.143
D3	4.800	5.000	0.189	0.197
E2	5.650	5.850	0.223	0.229
k	1.100	-	0.043	-
b	0.300	0.500	0.012	0.020
e	1.270TYB		0.050TYB	
L	0.510	0.710	0.020	0.028
L1	0.424	0.576	0.017	0.023
H	0.549	0.726	0.022	0.029
θ	8°	12°	8°	12°

Attention：

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- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
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