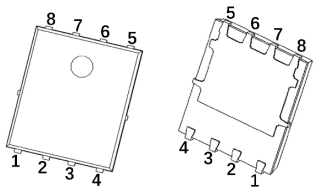
GPM025P02UNC

20V P-Channel MOSFET

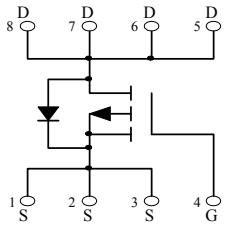
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	2.1mΩ@-4.5V	-85A
	2.8mΩ@-2.5V	
	4.3mΩ@-1.8V	

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

MARKING:

M025P02U = Device Code
XX = Date Code
Solid Dot = Green Indicater

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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	-20	V
Gate - Source Voltage		V_{GS}	±12	V
Continuous Drain Current[1]	T_C = 25℃	I_D	-85	A
	T_C = 100℃	I_D	-55	A
Pulsed Drain Current[2]		I_{DM}	-340	A
Single Pulsed Avalanche Current[3]		I_{AS}	30.5	A
Single Pulsed Avalanche Energy[3]		E_{AS}	465	mJ
Power Dissipation[5]	T_C = 25℃	P_D	33	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	58	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	3.8	℃/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	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -18V, V_{GS} = 0V			-1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.4	-0.7	-1	V
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -20A		2.1	3	mΩ
		V_{GS} = -2.5V, I_D = -20A		2.8	4	
		V_{GS} = -1.8V, I_D = -20A		4.3	9	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		14735		pF
Output Capacitance	C_{oss}			2190		
Reverse Transfer Capacitance	C_{rss}			2189		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		2.4		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -10V, V_{GS} = -4.5V, I_D = -25A		163		nC
Gate-Source Charge	Q_{gs}			21		
Gate-Drain Charge	Q_{gd}			42		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -10V, V_{GS}= -4.5V, R_L = 0.5Ω, R_G = 3Ω		23		ns
Turn-On Rise Time	t_r			55		
Turn-Off Delay Time	$t_{d(off)}$			110		
Turn-Off Fall Time	t_f			46		
Source - Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = -20A			-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%.

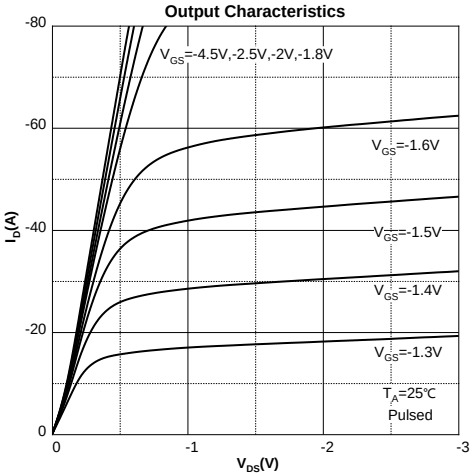
3.E_{AS} condition: V_{DD} = -20V,V_{GS} = -10V, L = 1mH, R_G = 25Ω Starting T_J = 25℃.

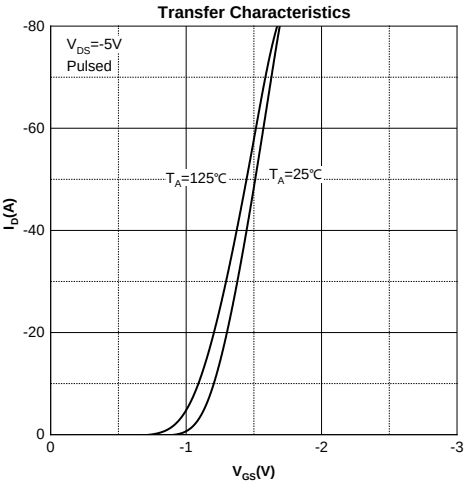
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

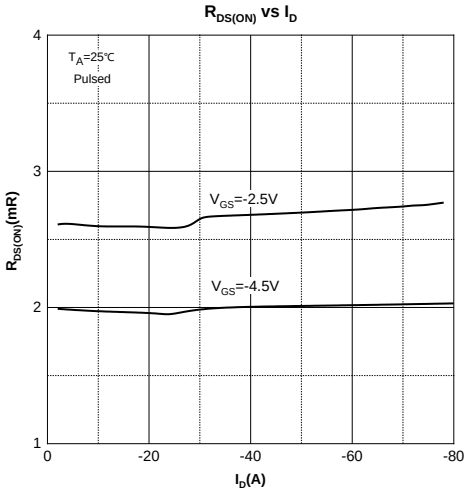
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink

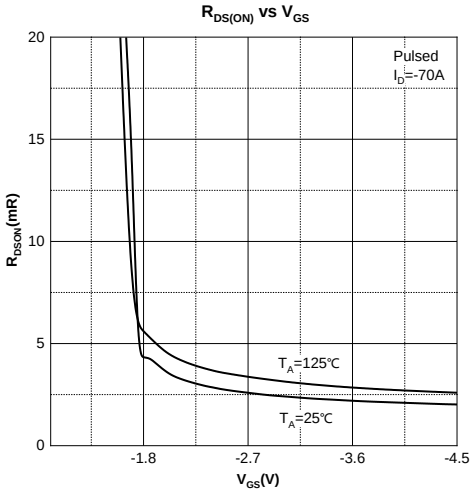
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

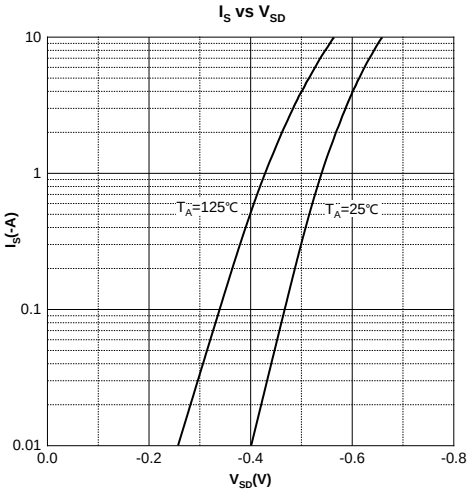
Typical Characteristics

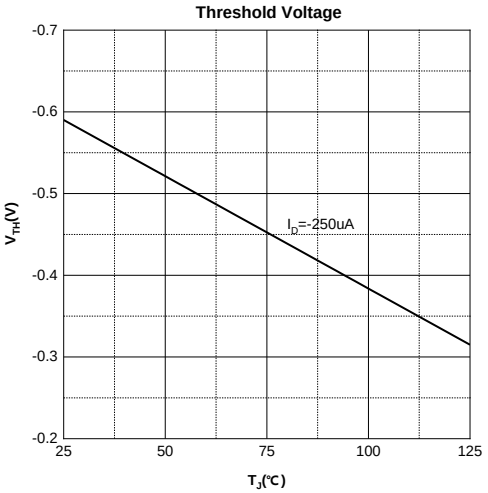




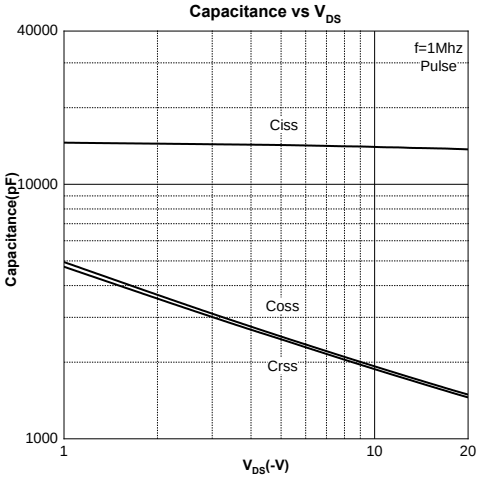




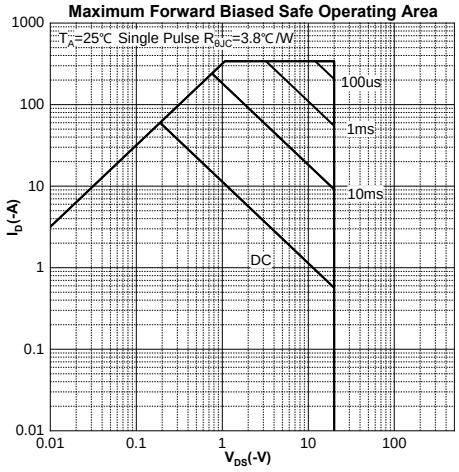




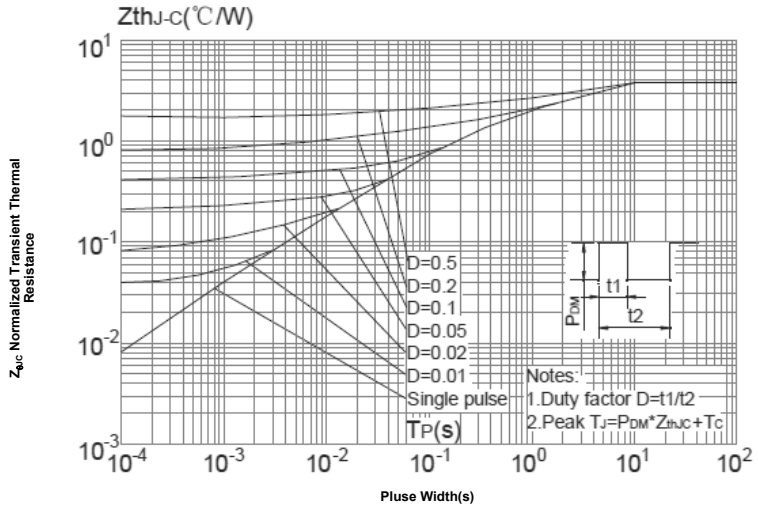
Capacitance vs V_{DS}



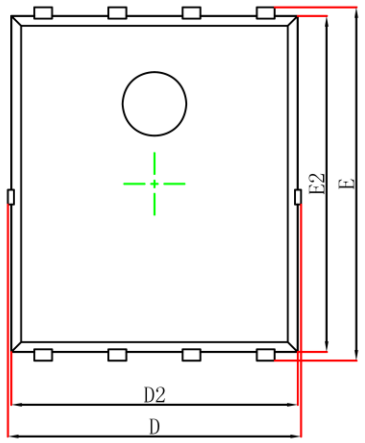
Maximum Forward Biased Safe Operating Area



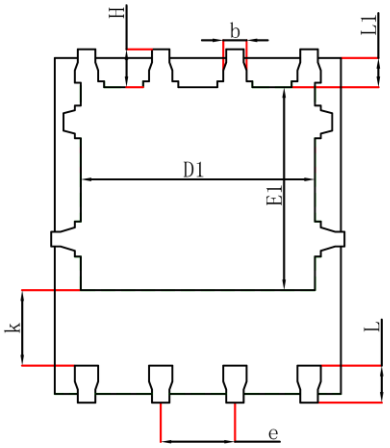
Normalized Transient Thermal Impedance vs Pulse Width



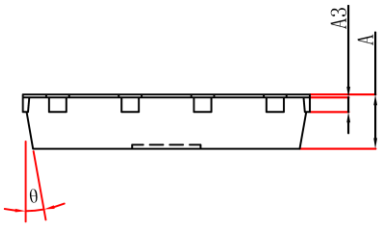
PDFN5X6-8L Package Information



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	1.10	0.035	0.043
A3	0.254REF		0.010REF	
D	4.700	5.260	0.185	0.207
E	5.750	6.250	0.226	0.246
D1	3.560	4.500	0.140	0.177
E1	3.180	3.660	0.125	0.144
D2	4.700	5.100	0.185	0.201
E2	5.600	6.000	0.220	0.236
k	1.100	-	0.043	-
b	0.300	0.500	0.012	0.020
e	1.270TYP		0.050TYP	
L	0.510	0.710	0.020	0.028
L1	0.424	0.576	0.017	0.023
H	0.510	0.710	0.020	0.028
θ	8°	12°	8°	12°

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