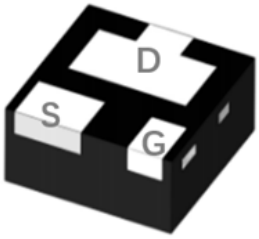
GPM500P02UEM

20V P-Channel MOSFET

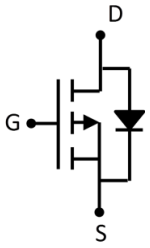
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	45mΩ@-4.5V	-3A
	64mΩ@-2.5V	

DFN1212-3L



Schematic diagram



Feature

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

Application

- Power Switching Application

MARKING:

PIN1

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[1,5]	T_A = 25℃	I_D	-3	A
	T_A = 100℃	I_D	-2	
Pulsed Drain Current[2]		I_{DM}	-12	A
Power Dissipation[5]	T_A = 25℃	P_D	1.3	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	96	℃/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} = -20V, V_{GS} = 0V			-1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V			±100	nA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.4	-0.7	-1.0	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -3.0A		45	65	mΩ
		V_{GS} = -2.5V, I_D = -2.0A		64	90	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		376		pF
Output Capacitance	C_{oss}			85		
Reverse Transfer Capacitance	C_{rss}			78		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		4.8		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3A		5.8		nC
Gate-source Charge	Q_{gs}			0.6		
Gate-drain Charge	Q_{gd}			2.1		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -10V, V_{GS} = -4.5V, I_D = -1A, R_G = 3Ω		8		ns
Turn-on Rise Time	t_r			23		
Turn-off Delay Time	$t_{d(off)}$			38		
Turn-off Fall Time	t_f			35		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = -1.3A			-1.2	V

Notes :

1.The maximum current rating is limited by package.

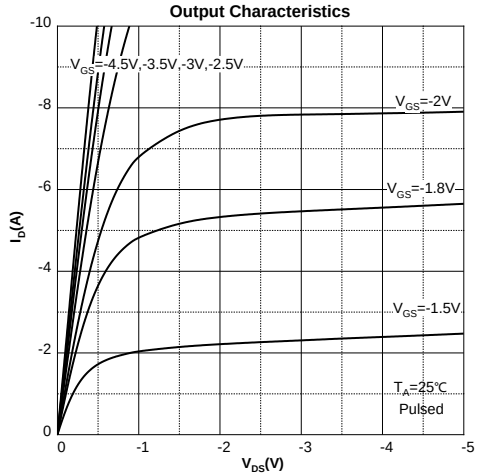
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

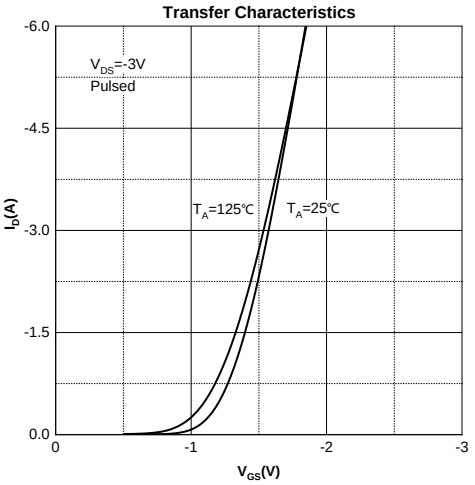
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

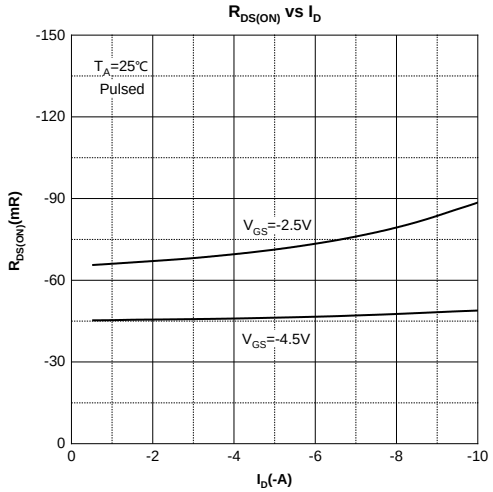
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

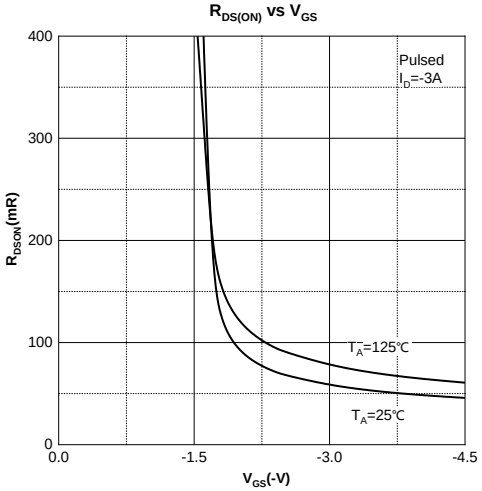
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

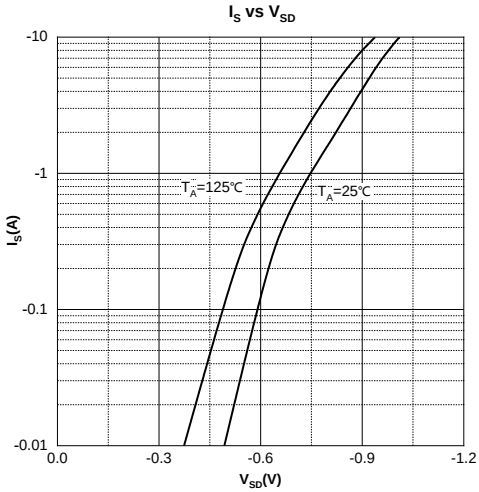
Typical Characteristics

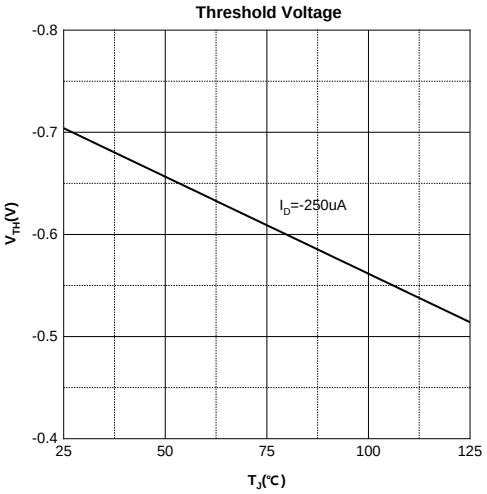




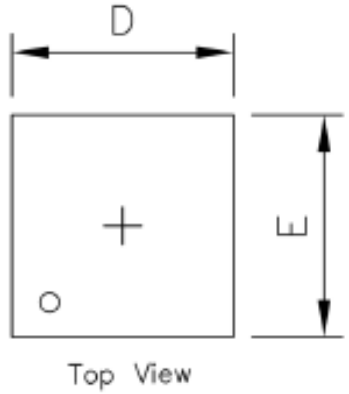


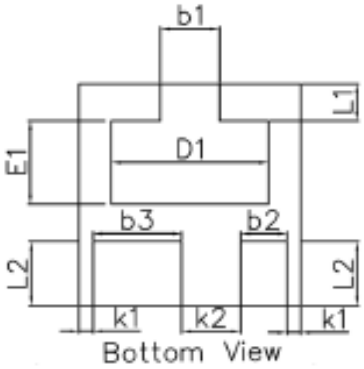


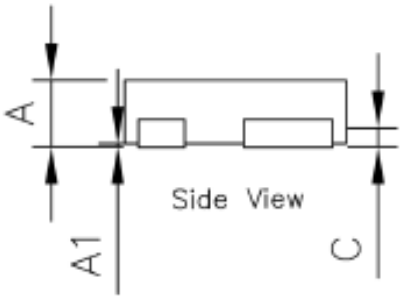




DFN1212-3L Package Information







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.018	0.022
A1	0	0.050	0.000	0.002
c	0.152 TYP		0.006TYP	
b1	0.270	0.370	0.011	0.015
L1	0.150	0.250	0.006	0.010
D	1.150	1.250	0.045	0.049
D1	0.800	0.900	0.031	0.035
E	1.150	1.250	0.045	0.049
E1	0.400	0.500	0.016	0.020
b2	0.200	0.300	0.008	0.012
b3	0.430	0.500	0.017	0.020
L2	0.300	0.400	0.012	0.016
k1	0.075 TYP		0.003 TYP	
k2	0.320 TYP		0.013 TYP	