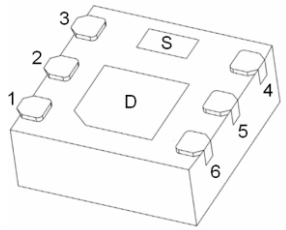
GPM040N03LMB

30V N-Channel MOSFET

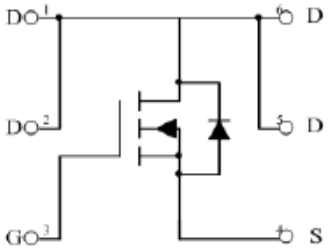
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	3.9mΩ@10V	23A
	6.3mΩ@4.5V	

PLP2X2-6L



Schematic diagram



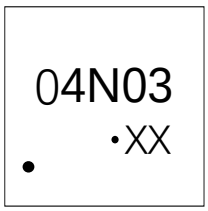
Feature

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

Application

- Load Switch
- DC/DC Converter

MARKING:



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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	30	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1,5]	T_A = 25℃	I_D	23	A
Pulsed Drain Current[2]		I_{DM}	92	A
Single Pulsed Avalanche Current[3]		I_{AS}	23	A
Single Pulsed Avalanche Energy[3]		E_{AS}	132	mJ
Power Dissipation[4,5]	T_A = 25℃	P_D	1.8	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	70	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 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	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.8	3	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 15A		3.9	5.5	mΩ
		V_{GS} = 4.5V, I_D =10A		6.3	12	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		1716		pF
Output Capacitance	C_{oss}			215		
Reverse Transfer Capacitance	C_{rss}			170		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		1.5		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 15V, V_{GS} = 10V, I_D = 15A		35.7		nC
Gate-source Charge	Q_{gs}			4.4		
Gate-drain Charge	Q_{gd}			10		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 15V, V_{GS} = 10V, R_L = 1Ω, R_G = 6Ω		2.4		ns
Turn-on Rise Time	t_r			2.5		
Turn-off Delay Ttime	$t_{d(off)}$			12.7		
Turn-off Fall Time	t_f			6.9		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = 10A			1.2	V

Notes :

1.The maximum current rating is limited by package.

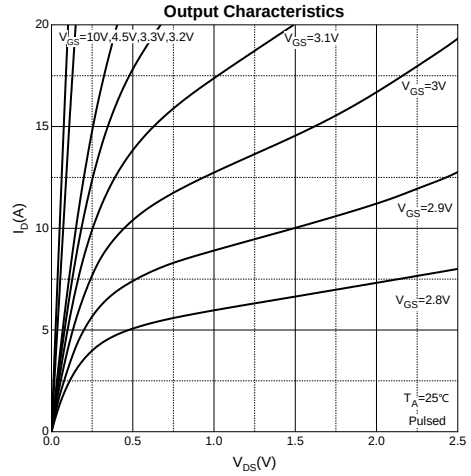
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

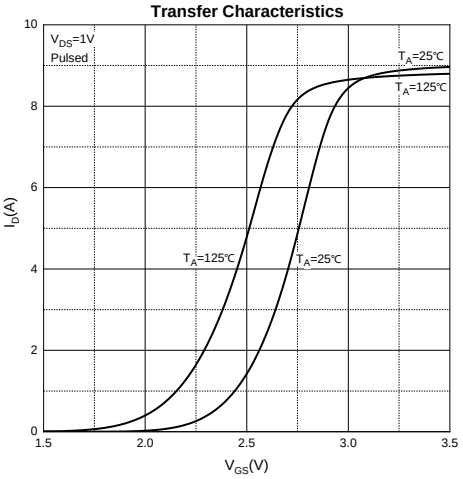
3. 3.E_{AS} condition: V_{DD} = 15V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

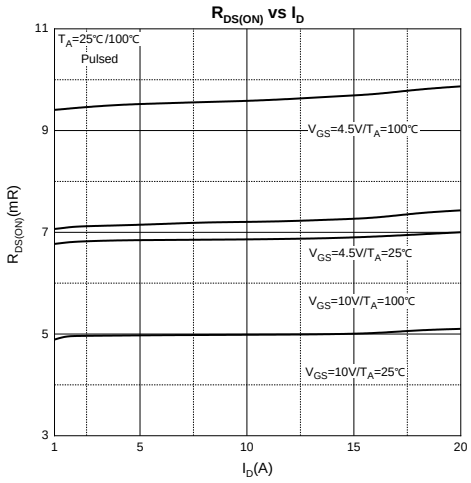
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

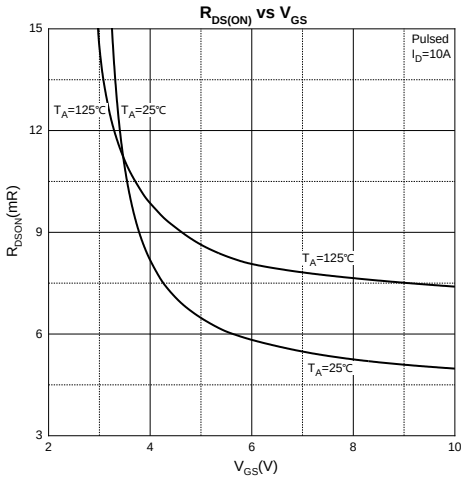
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

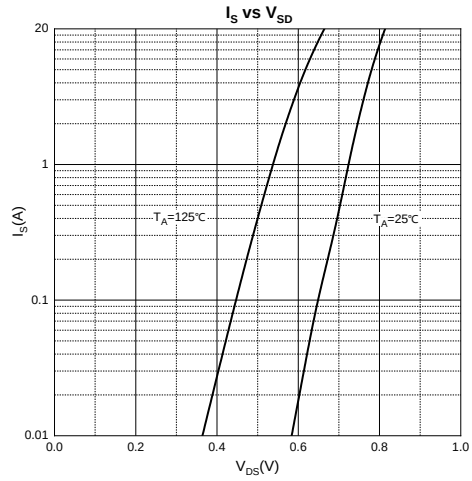
Typical Characteristics

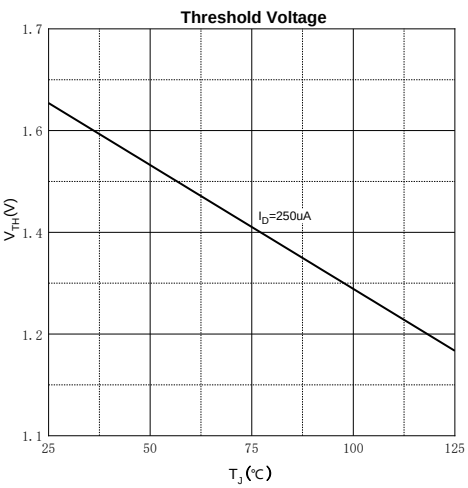




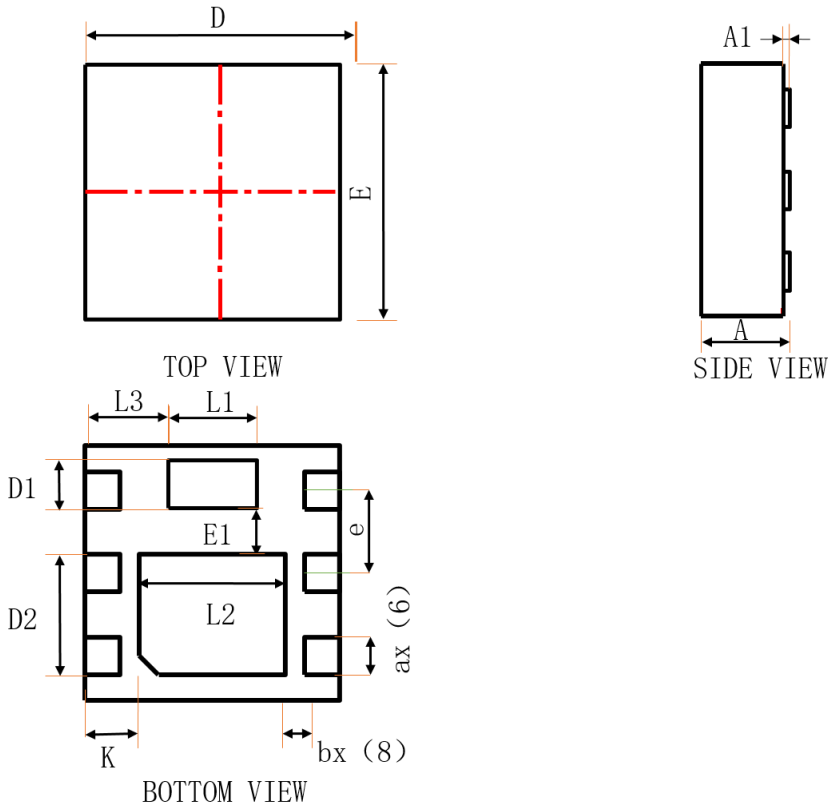








PLP2X2-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.750	0.026	0.030
A1	0.025	0.075	0.001	0.003
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.330	0.420	0.013	0.017
D2	0.900	1.000	0.035	0.039
e	0.650REF		0.026REF	
ax(6)	0.250	0.350	0.010	0.014
bx(8)	0.225	0.325	0.009	0.013
L1	0.650	0.750	0.026	0.030
L2	1.100	1.200	0.043	0.047
L3	0.600	0.700	0.024	0.028
K	0.375	0.475	0.015	0.019
E1	0.310	0.410	0.012	0.016