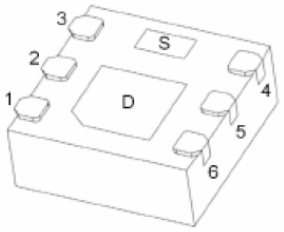
GPEMN2012

20V N-Channel MOSFET

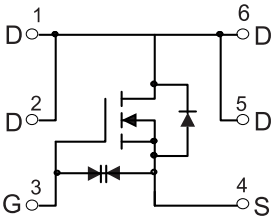
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	9mΩ@4.5V	12A
	11.5mΩ@2.5V	
	20mΩ@1.8V	

DFN2×2-6L



Schematic diagram



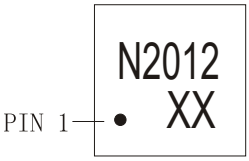
Feature

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

Application

- Load Switch for Portable Application

MARKING:



N2012 = Device Code

XX = Date Code

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}	±10	V
Continuous Drain Current[1]	T_A = 25℃	I_D	12	A
Pulsed Drain Current[2]		I_{DM}	40	A
Power Dissipation[4]	T_A = 25℃	P_D	2.5	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	50	℃/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	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±10V, V_{DS} = 0V			±3.5	μA
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 = 5.0A		9	15	mΩ
		V_{GS} = 2.5V, I_D = 5.0A		11.5	18	
		V_{GS} = 1.8V, I_D = 5.0A		20	30	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 0.1MHz		648		pF
Output Capacitance	C_{oss}			157		
Reverse Transfer Capacitance	C_{rss}			10		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 10V, V_{GS} = 4.5V, I_D = 8A		18		nC
Gate-source Charge	Q_{gs}			2		
Gate-drain Charge	Q_{gd}			7		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 10V, V_{GS} = 4.5V, R_L = 1.2Ω R_G = 3Ω		2.5		ns
Turn-on Rise Time	t_r			7.2		
Turn-off Delay Ttime	$t_{d(off)}$			49		
Turn-off Fall Time	t_f			10.8		
Source - Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 5.0A			1.2	V

Notes :

1.The maximum current rating is limited by package.

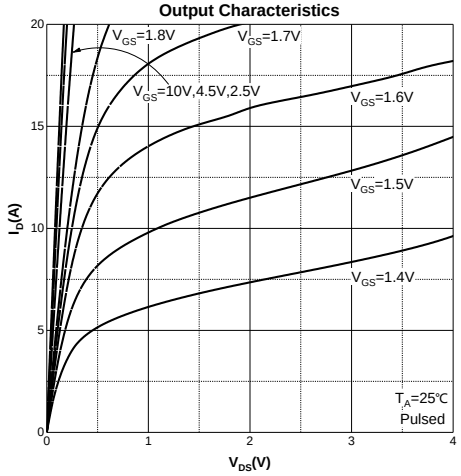
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

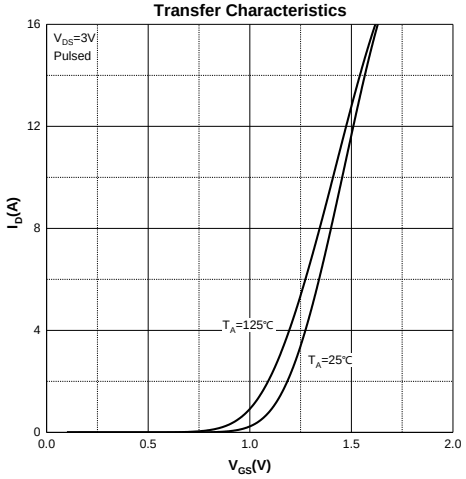
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

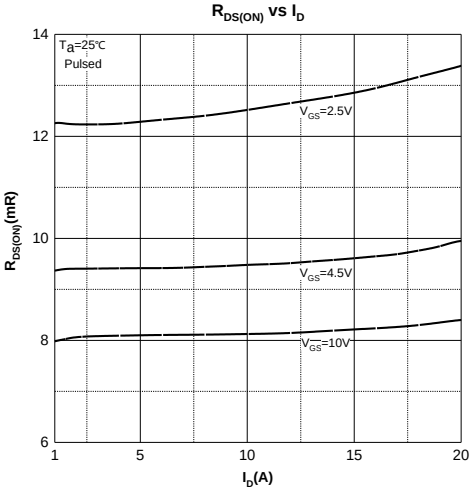
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

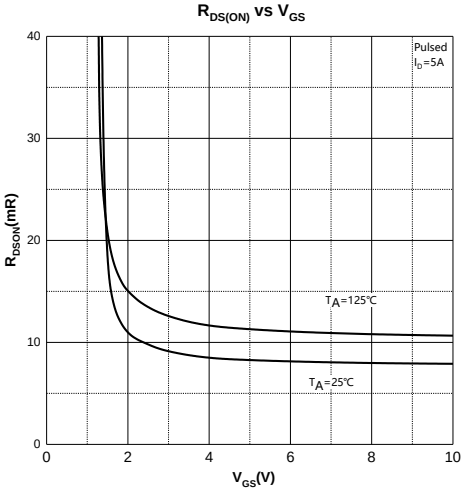
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

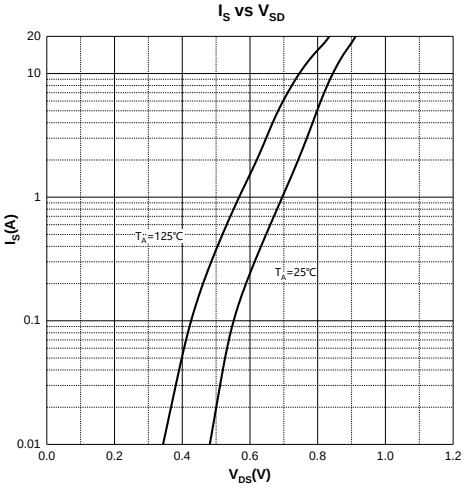
Typical Characteristics

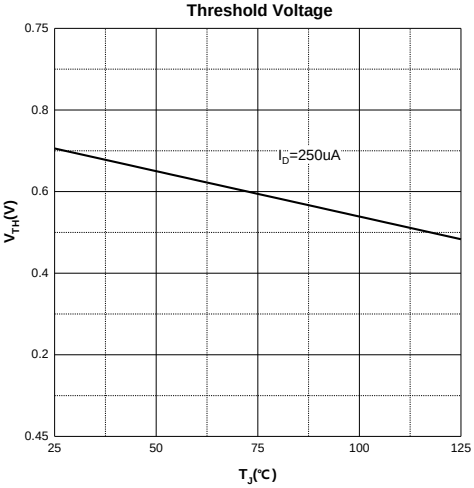




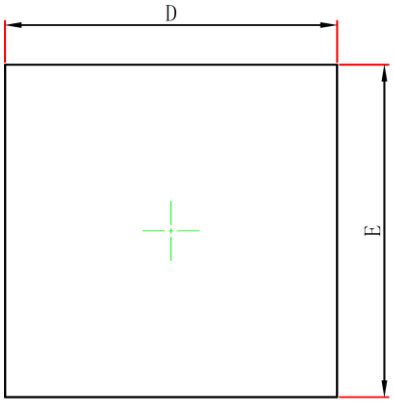




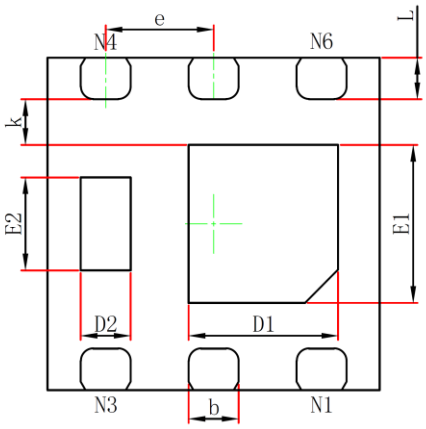




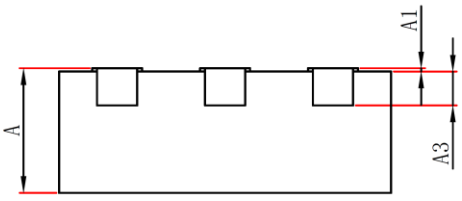
DFN2×2-6L Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0	0.050	0	0.002
A3	2.03REF		0.008REF	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN		0.008MIN	
b	0.250	0.350	0.010	0.014
e	0.65BSC		0.026TYP	
L	0.174	0.326	0.007	0.013