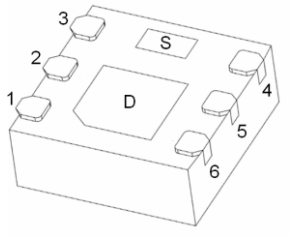
P-Channel Enhancement Mode Power MOSFET

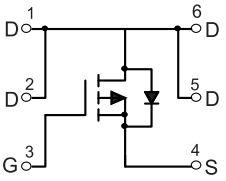
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	19mΩ@-10V	-9A
	27mΩ@-4.5V	

DFN2×2-6L



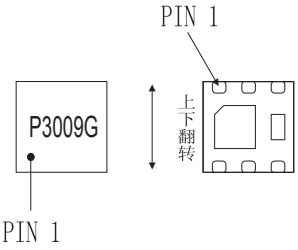
Schematic diagram



DESCRIPTION

The EPMP3009G uses advanced trench technology to provide excellent $R_{DS(on)}$, low gate charge and operation with low gate voltage.This device is suitable for use as a load switching applicationand a wide variety of other applications.

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	I_D	-9	A
Plused Drain Current(1)	I_{DM}	-36	A
Power Dissipation(2)	P_D	0.75	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	165	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

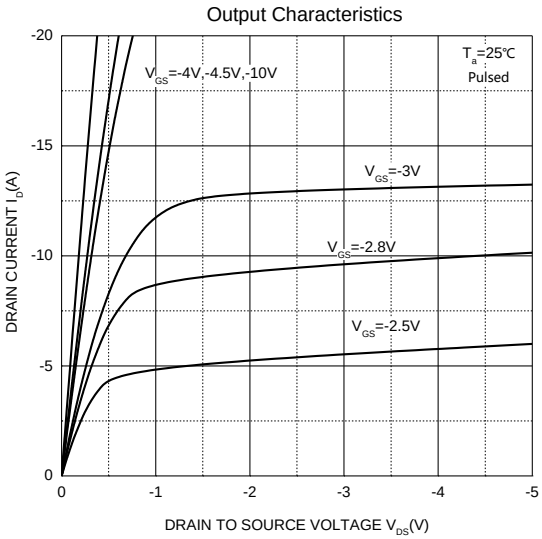
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

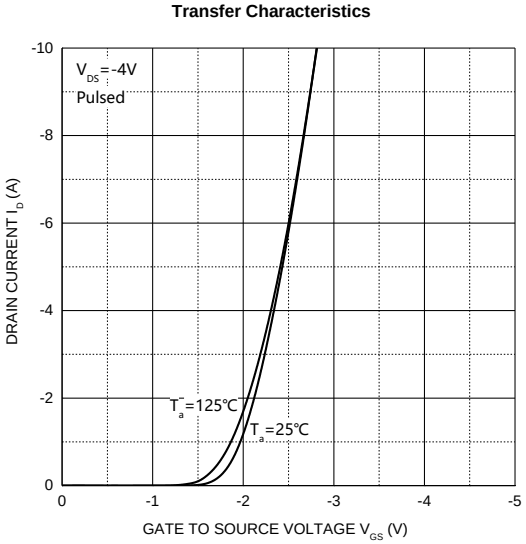
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
On Characteristics(3)						
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.5	-3.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-9A		19	25	mΩ
		V_{GS} =-4.5V, I_D =-7A		27	35	
Forward tranconductance	g_{FS}	V_{DS} =-10V, I_D =-9.1A		12		S
Dynamic characteristics(4)						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		1400		pF
Output Capacitance	C_{oss}			163		
Reverse Transfer Capacitance	C_{rss}			145		
Total Gate Charge	Q_g	V_{DS}=-15V, V_{GS}=-4.5V, I_D=-9.1A			25	nC
Gate-Source Charge	Q_{gs}				7	
Gate-Drain Charge	Q_{gd}				12	
SWITCHING CHARACTERISTICS(4)						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V,I_D=-1A,V_{GS}=-10V,R_G=1Ω,R_L=15Ω			15	ns
Turn-on rise time	t_r				15	
Turn-off delay time	$t_{d(off)}$				70	
Turn-off fall time	t_f				25	
Drain-Source Diode Characteristics						
Diode Forward Current	I_S				-9	A
Diode Forward Voltage(3)	V_{SD}	V_{GS} =0V, I_{SD}=-2A			-1.2	V

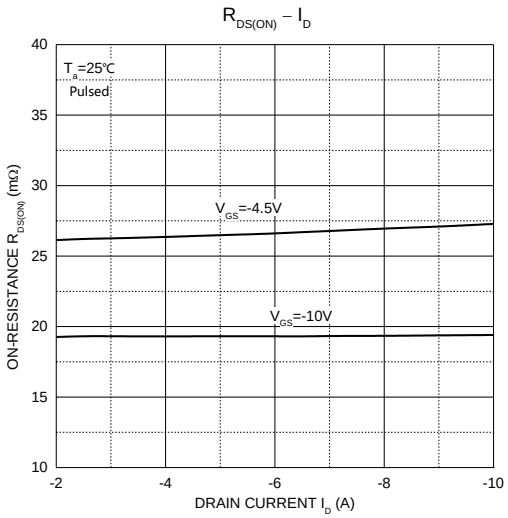
Notes:

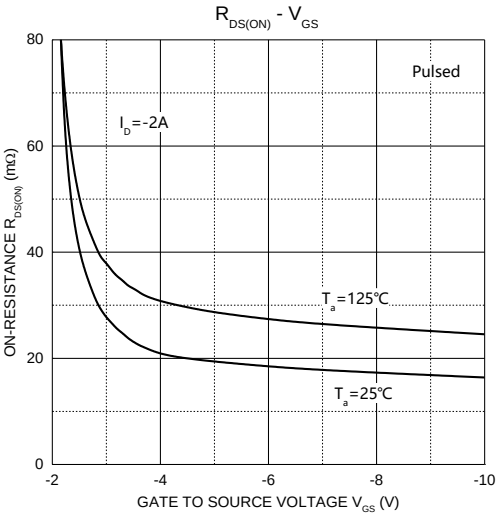
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at Ta=25℃.
3. Pulse Test: Pulse With ≤300μs,Duty Cycle≤2%.
4. Guaranteed by design, not subject to production testing.

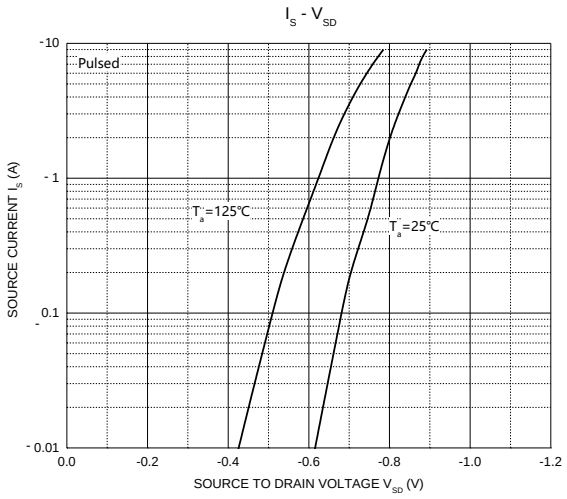
Typical Electrical and Thermal Characteristics

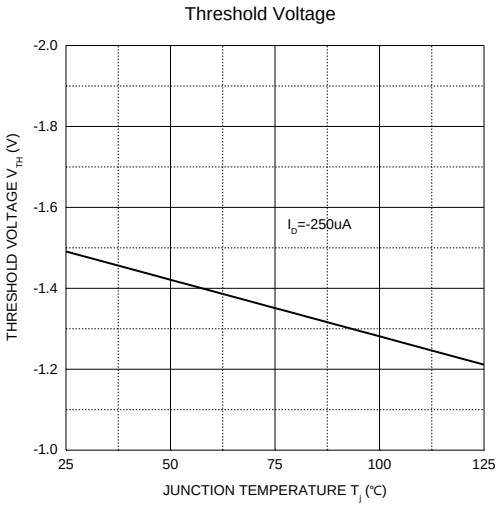




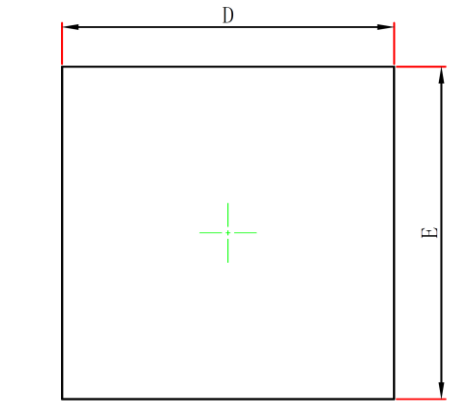




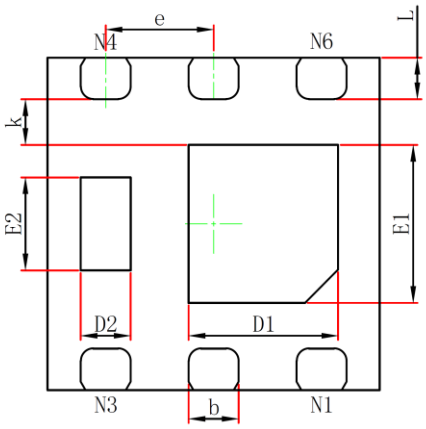




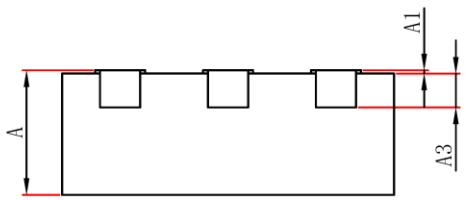
DFN2×2-6L Package Information



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