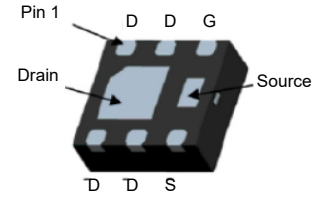


Description

The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

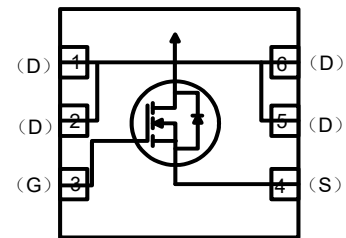
MOSFET Product Summary		
V _{DS} (V)	R _{DS(on)} (mΩ)	I _D (A)
30	<15 @ V _{GS} =10V	12
	<20 @ V _{GS} =4.5V	



DFN2*2-6L (Bottom View)

Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



Internal structure

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current- Continuous	I _D	12	A
Drain Current- Continuous (T _c =70°C)	I _D	9	A
Pulse Drain Current	I _{DM}	48	A
Total Power Dissipation	P _D (T _A =25°C)	1.4	W
	P _D (T _A =125°C)	1.0	W
Operating and Storage Junction Temperature Range ⁽¹⁾	T _J ,T _{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Max.	Units
Thermal Resistance, Junction to Ambient ⁽²⁾	R _{θJA}	75	°C/W

Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$	-	-	1.0	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage ⁽³⁾	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.8	2.5	V
Drain-Source On-State Resistance ⁽³⁾	$R_{DS(ON)}$	$V_{GS}=10V, I_D=8A$		12	15	m Ω
		$V_{GS}=4.5V, I_D=6A$		15.5	20	
Forward Transconductance ⁽³⁾	g_{FS}	$V_{DS}=5V, I_D=8A$	-	24	-	S
Input Capacitance ⁽⁴⁾	C_{ISS}	$V_{GS}=0V, V_{DS}=15V,$ $f=1MHz$	-	940	-	pF
Output Capacitance ⁽⁴⁾	C_{OSS}		-	131	-	
Reverse Transfer Capacitance ⁽⁴⁾	C_{RSS}		-	109	-	
Turn-On Delay Time ⁽⁴⁾	$t_{d(on)}$	$V_{DD}=15V, I_D=8A,$ $V_{GEN}=4.5V, R_G=1.5\Omega,$	-	4.2	-	ns
Turn-On Rise Time ⁽⁴⁾	t_r		-	8.2	-	
Turn-Off Delay Time ⁽⁴⁾	$t_{d(off)}$		-	31	-	
Turn-Off Fall Time ⁽⁴⁾	t_f		-	4	-	
Total Gate Charge ⁽⁴⁾	Q_g	$V_{DS}=15V, I_D=8A,$ $V_{GS}=4.5V$	-	9.63	-	nC
Gate-Source Charge ⁽⁴⁾	Q_{gs}		-	3.88	-	
Gate-Drain Charge ⁽⁴⁾	Q_{gd}		-	3.44	-	
Diode Forward Voltage ⁽³⁾	V_{SD}	$V_{GS}=0V, I_S=1A$	-	-	1	V
Diode Forward Current ⁽²⁾	I_S		-	-	9	A

Notes 1. Repetitive Rating: Pulse with limited by maximum junction temperature.

Notes 2. Surface mounted on FR4 board, $t \leq 10sec$.

Notes 3. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Notes 4. Guaranteed by design, not subject to production.

Typical Characteristics

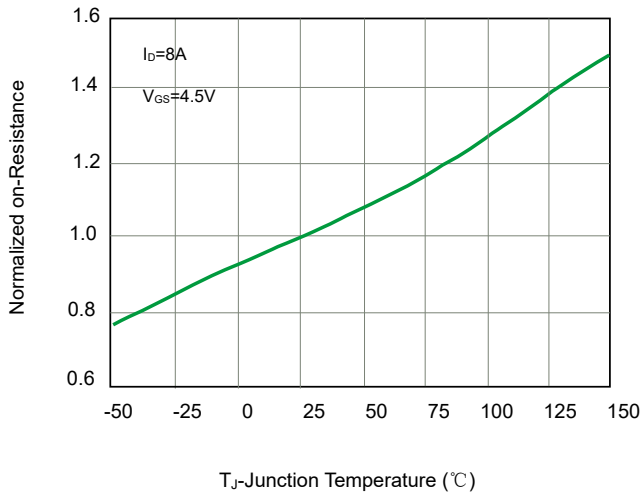


Fig.1 R_{dson} -Junction Temperature

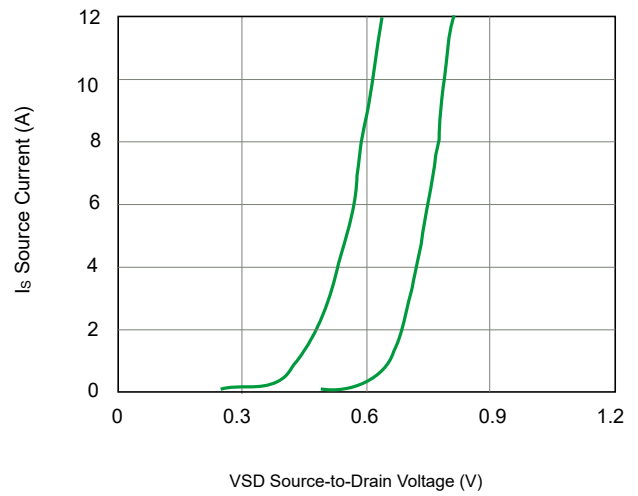


Fig.2 Transfer Characteristics

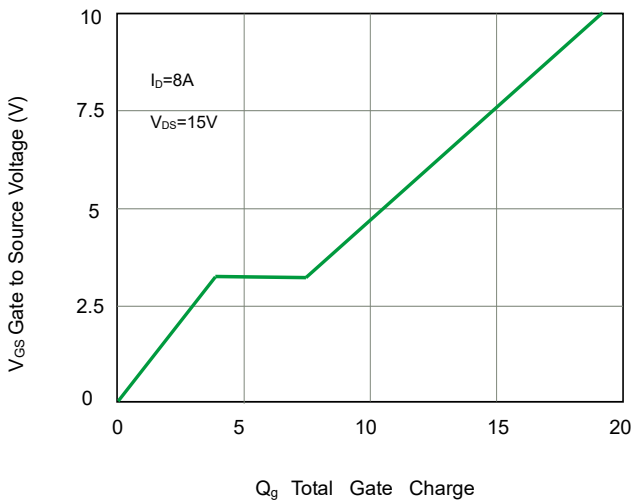


Fig.3 Gate Charge

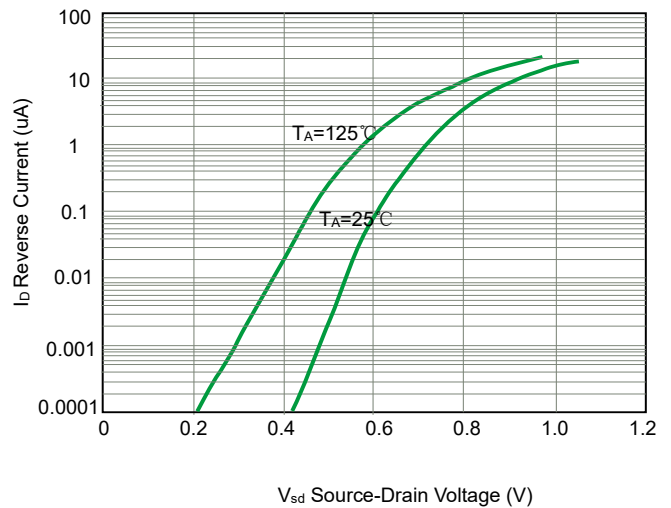


Fig.4 Source-Drain Diode

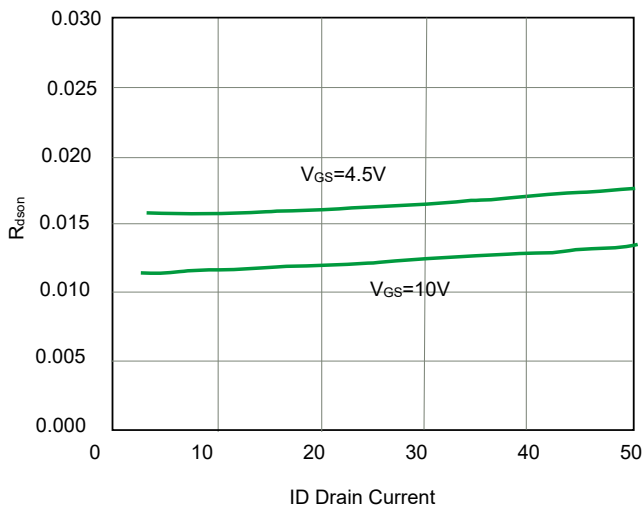


Fig.5 R_{dson} vs I_D

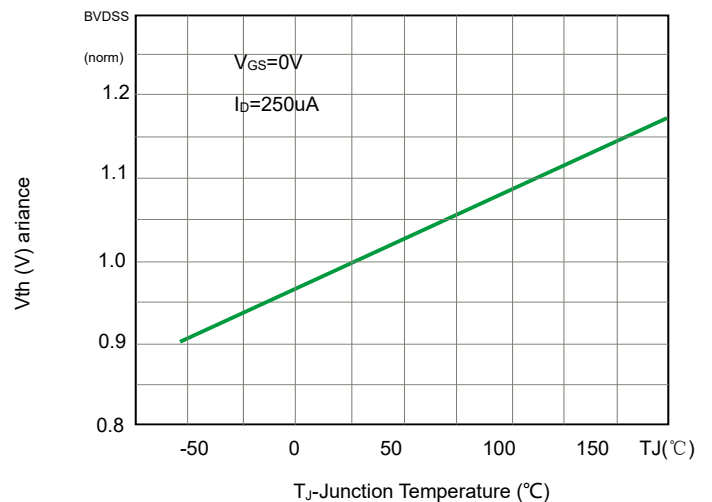


Fig.6 BV_{DSS} vs Junction Temperature

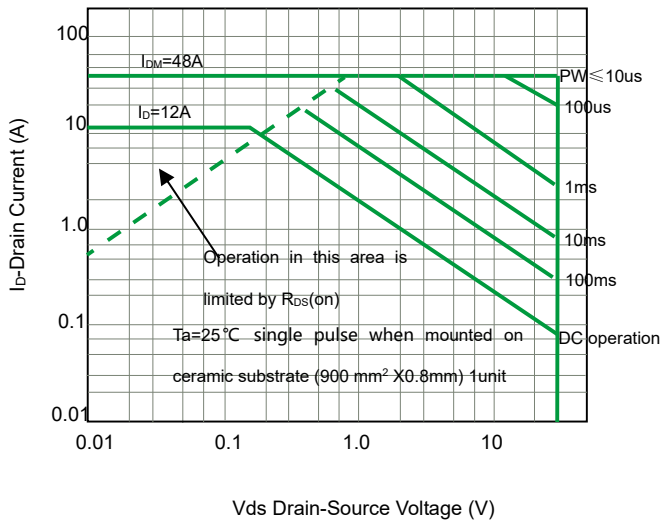


Fig.7 Safe Operation Area

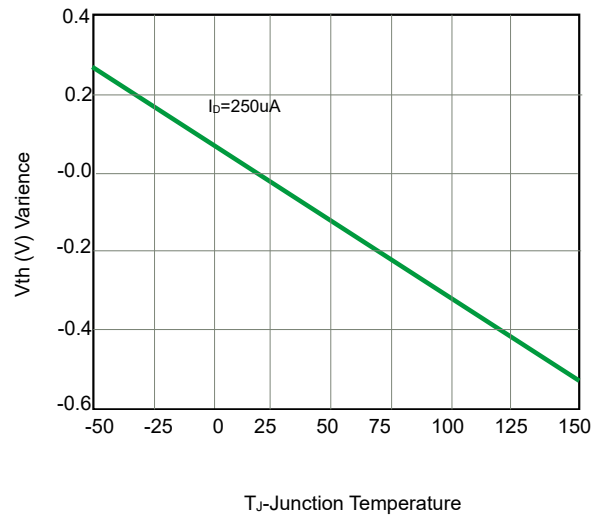


Fig.8 $V_{GS(th)}$ vs Junction Temperature

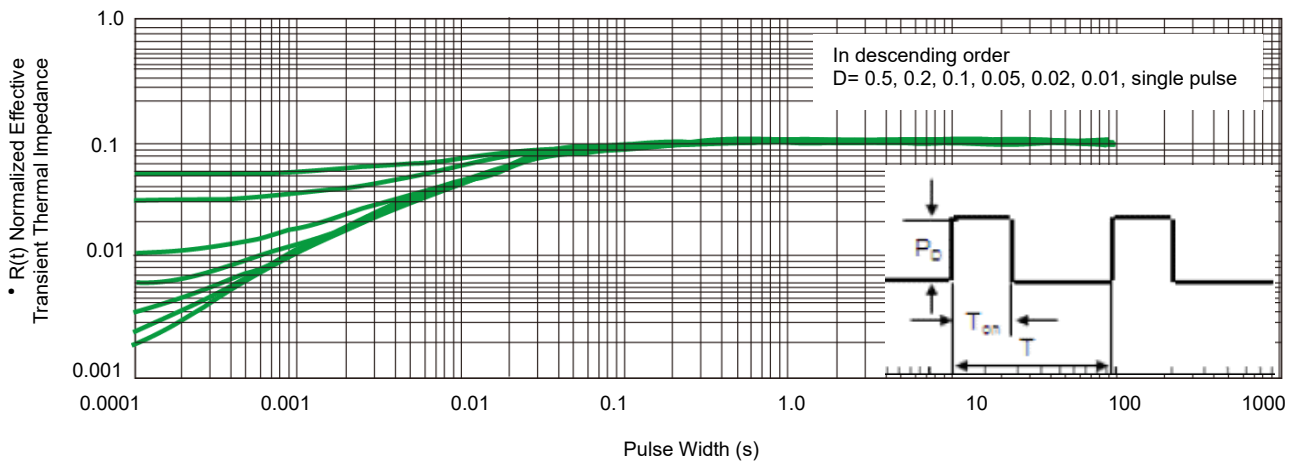


Fig.9 Normalized Maximum Transient Thermal Impedance

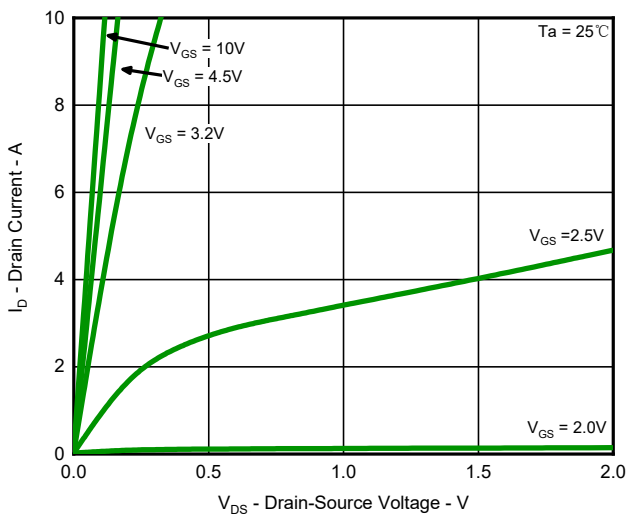
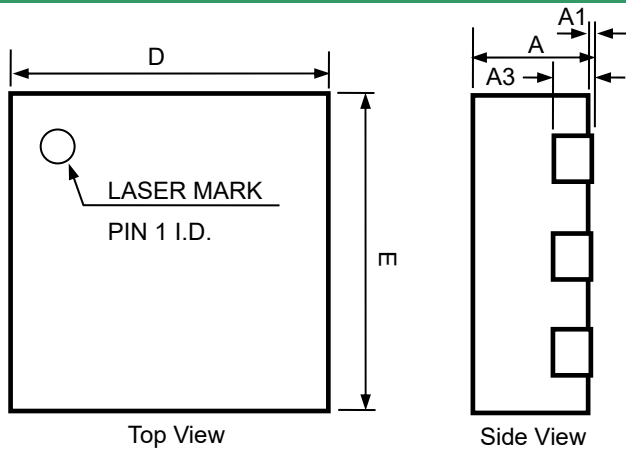
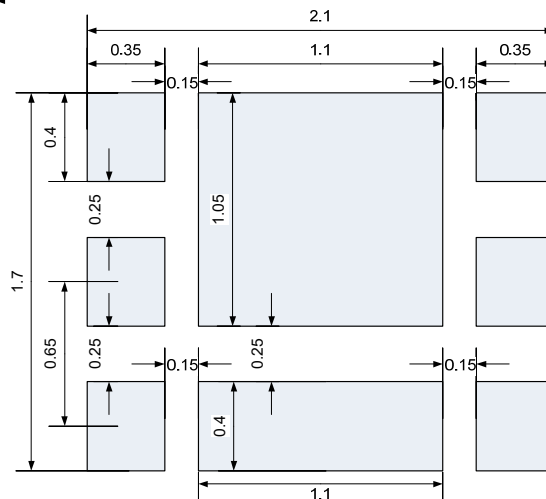
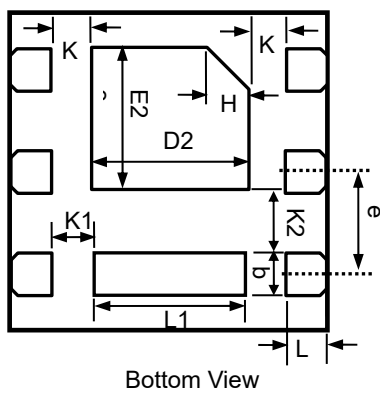


Fig.10 Output Characteristics

Product dimension (DFN2*2-6L)



Dim	Millimeters		
	MIN	NOM	MAX
A	0.45	0.60	0.80
A1	0.00	0.02	0.05
A3	0.20 Ref.		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.90	1.00	1.10
E2	0.80	0.90	1.00
e	0.55	0.65	0.75
H	0.25 Ref.		
K	0.15	--	--
K1	0.20	--	--
K2	0.25	--	--
L	0.20	0.25	0.30
L1	0.65	0.75	0.85

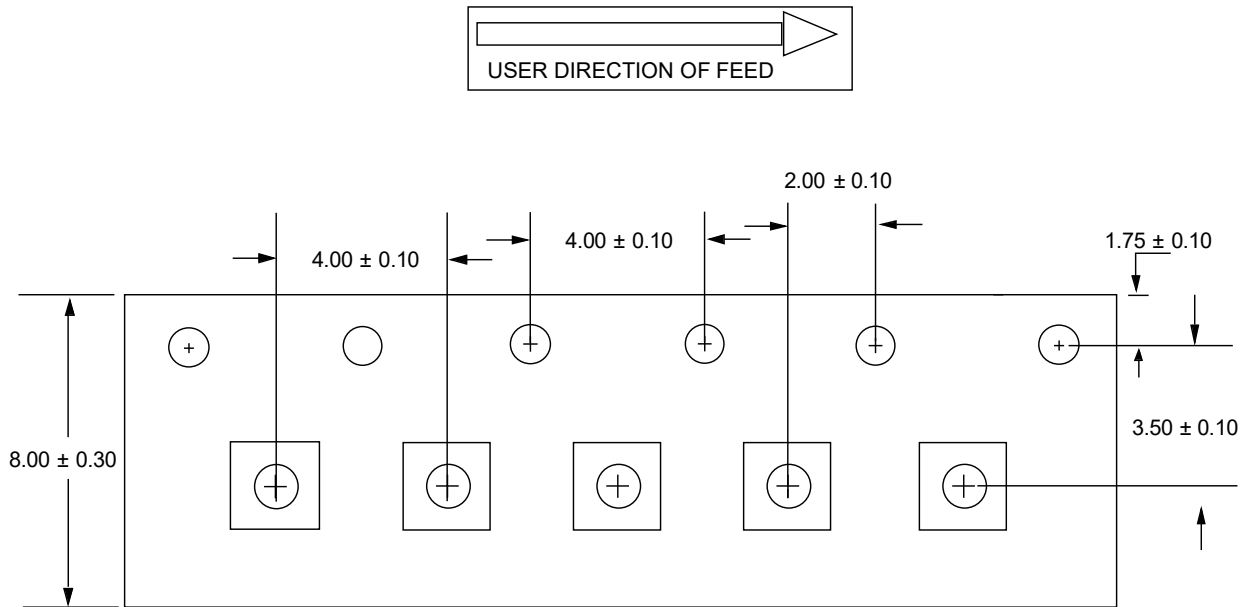


Suggested PCB Layout


Ordering information

Device	Package	Reel	MPQ
PNM6N30V12	DFN2*2-6L (Pb-Free)	7"	3000 / Tape & Reel

Load with information




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