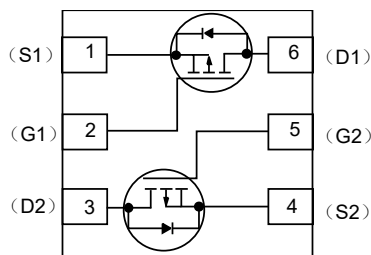


## Description

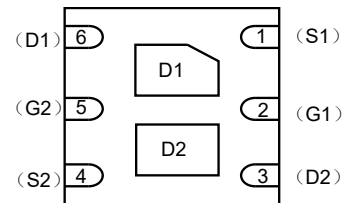
The enhancement mode MOS is extremely high density cell and low on-resistance.

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(m\Omega)$	$I_D(A)$
-20	110 @ $V_{GS}=-4.5V$	-3

Internal structure



Bottom View



## Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current- Continuous	$I_D$	-3	A
Drain Current- Pulsed	$I_{DM}$	-10	A
Total Power Dissipation	$P_D$	1	W
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

## Thermal Characteristics

Parameter	Symbol	Max.	Units
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	°C/W

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = -250\mu A, V_{GS} = 0V$	-20	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1.0	$\mu A$
Gate-to-Source Forward Leakage	$I_{GSS}$	$V_{GS} = \pm 12V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -3A$	-	64	110	m $\Omega$
		$V_{GS} = -2.5V, I_D = -2A,$	-	89	140	m $\Omega$
Forward Trans conductance	$g_{FS}$	$V_{DS} = -5V, I_D = -2.8A$	-	9.5	-	S
Total Gate Charge	Qg	$I_D = -3A, V_{DS} = -10V,$ $V_{GS} = -2.5V$	-	3.3	12	nC
Gate-to-Source Charge	Qgs		-	0.7		
Gate-to-Drain(Miller) Charge	Qgd		-	1.3		
Input Capacitance	$C_{ISS}$	$V_{GS} = 0V, V_{DS} = -10V,$ $f = 1MHz$	-	405		pF
Output Capacitance	$C_{DSS}$		-	75		pF
Reverse Transfer Capacitance	$C_{RSS}$		-	55		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10V, I_D = -1A,$ $V_{GS} = -4.5V, R_{GEN} = 10\Omega,$	-	11		ns
Rise Time	$t_r$		-	35		
Turn-Off Delay Time	$t_{d(off)}$		-	30		
Fall Time	$t_f$		-	10		
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = -1.3A$			-1.2	V
Diode Forward Current	$I_S$				-1.3	A

Typical Characteristics

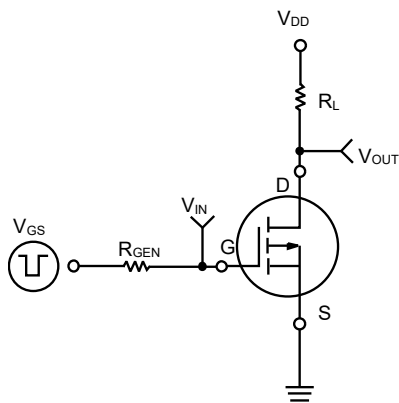


Figure 1. Switching Test Circuit

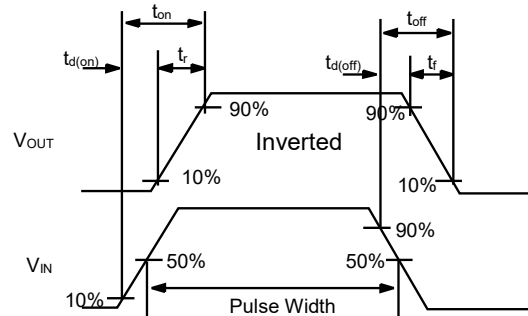


Figure 2. Switching Waveforms

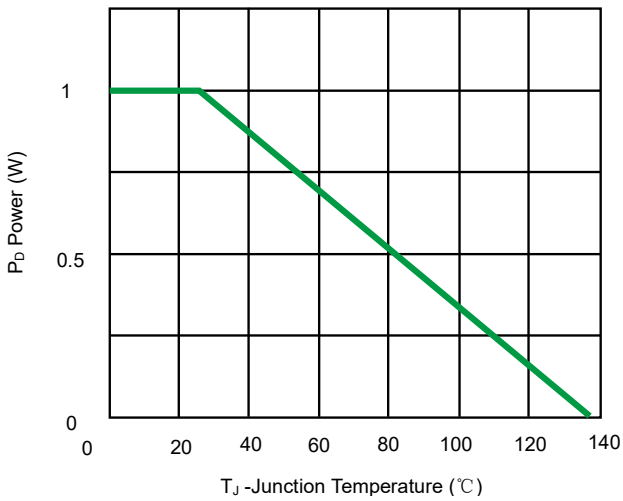


Fig 3. Power Dissipation

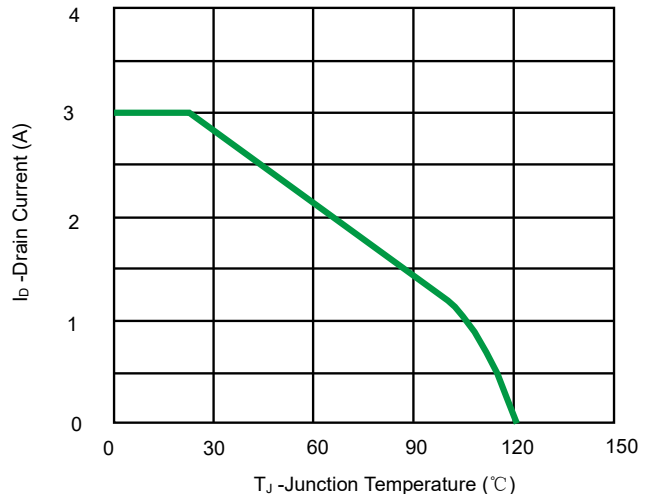


Fig 4. Drain Current

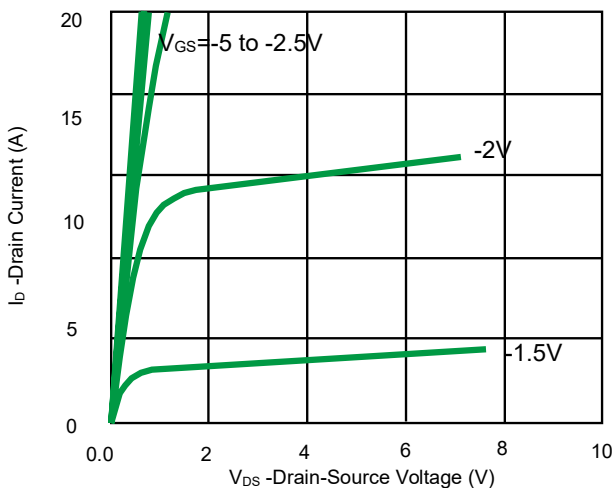


Fig 5. Output Characteristics

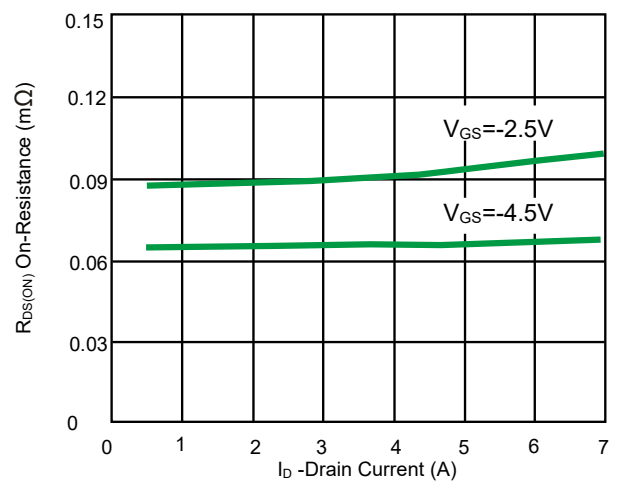


Fig 6. Drain-Source On-Resistance

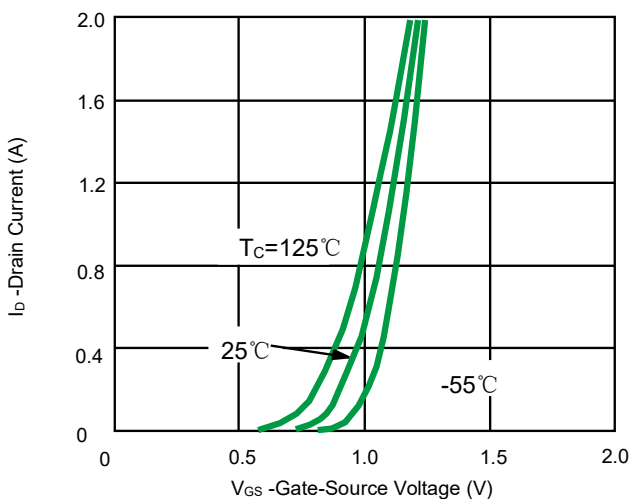


Fig 7. Transfer Characteristics

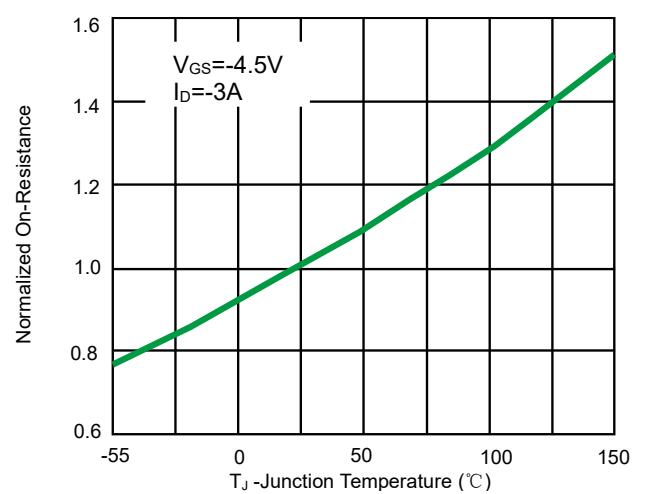


Fig 8. Drain-Source On-Resistance

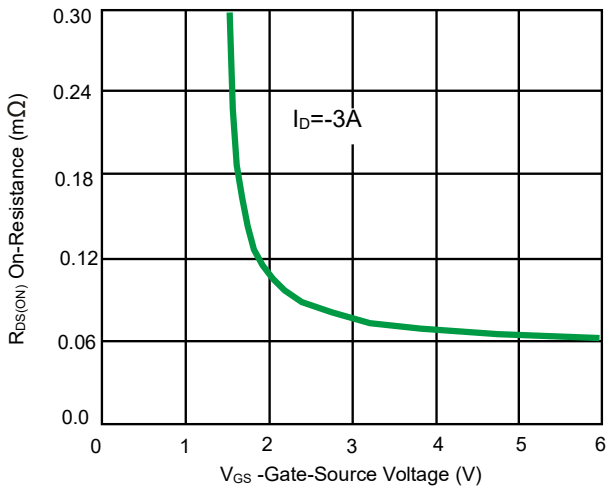


Fig 9.  $R_{DS(ON)}$  vs.  $V_{GS}$

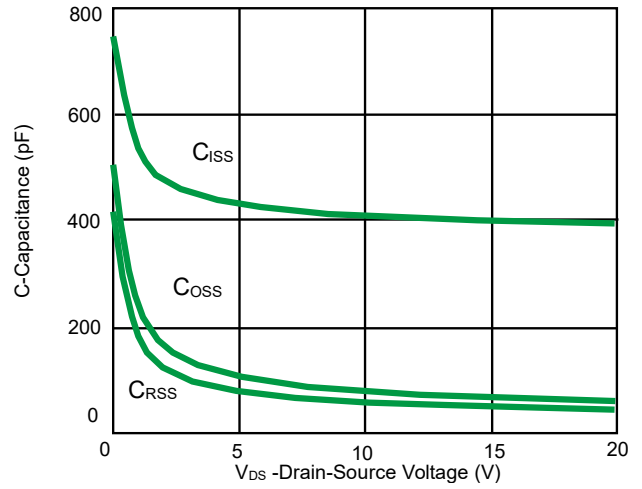


Fig 10. Capacitance vs.  $V_{DS}$

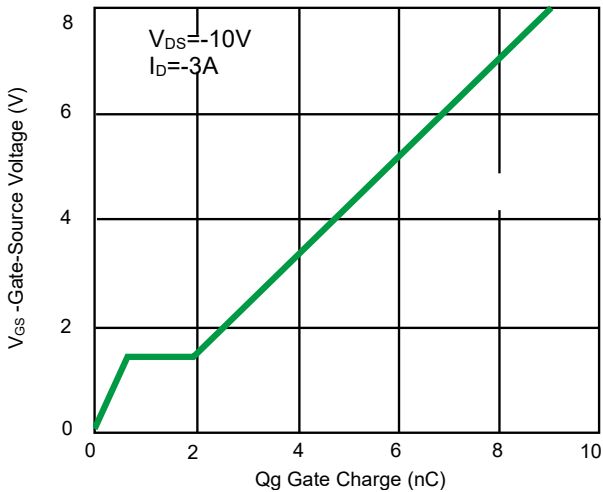


Fig 11. Gate Charge

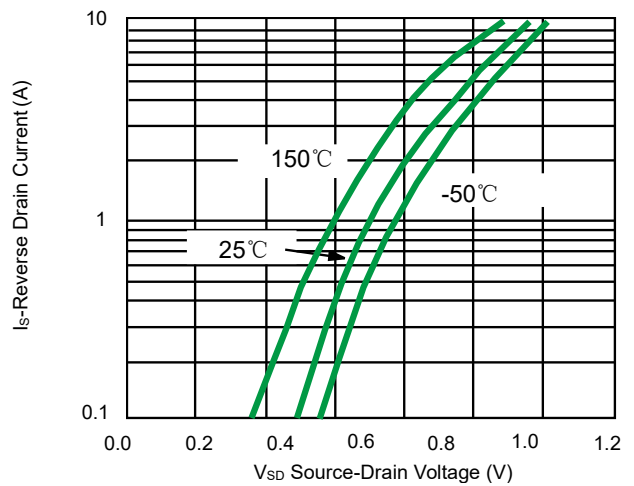


Fig 12. Source-Drain Diode Forward

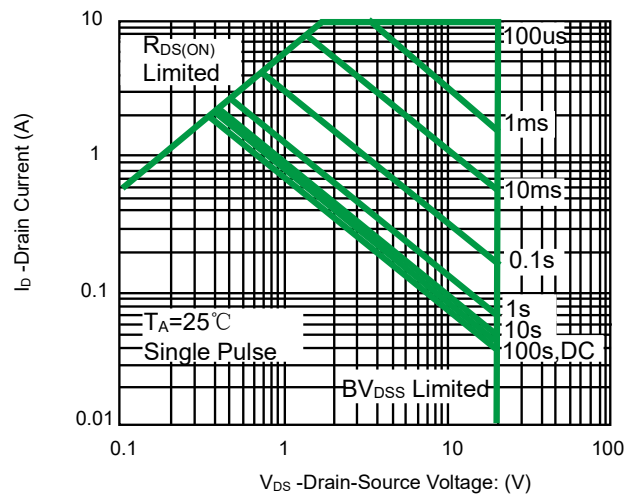


Figure 13. Safe Operation Area

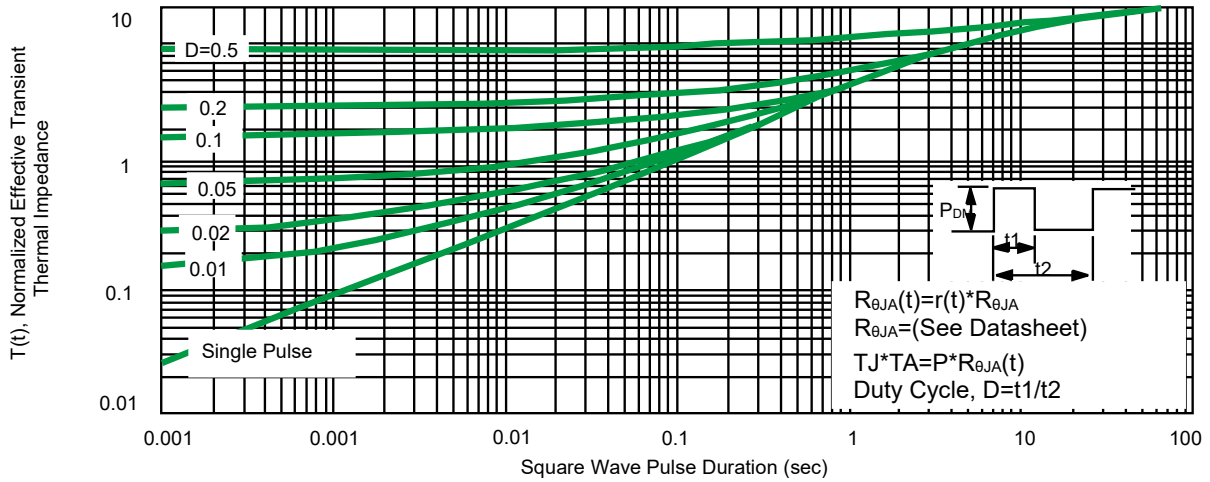
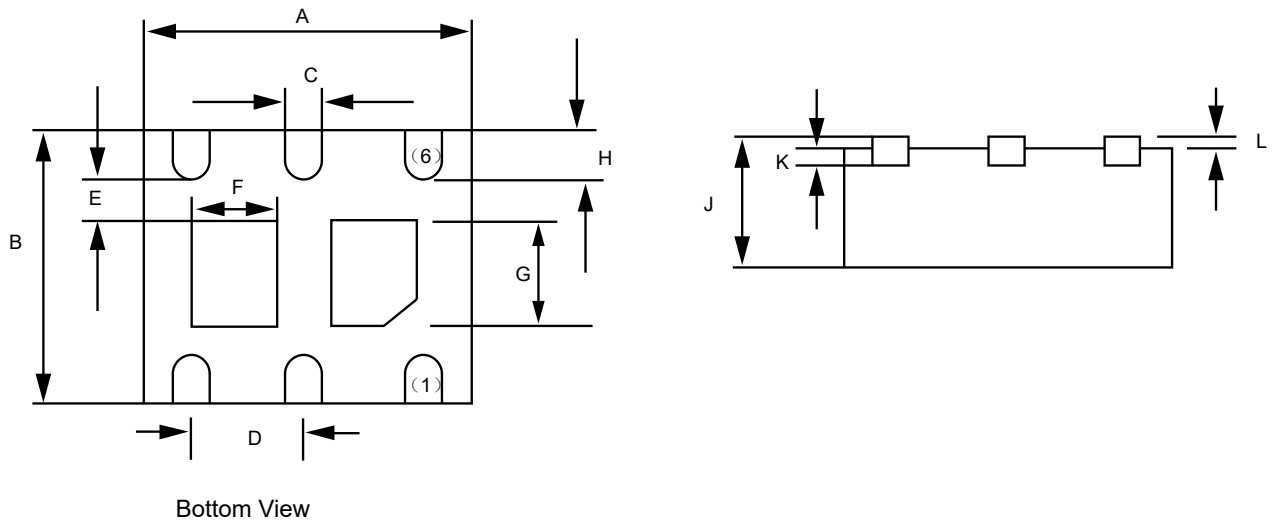
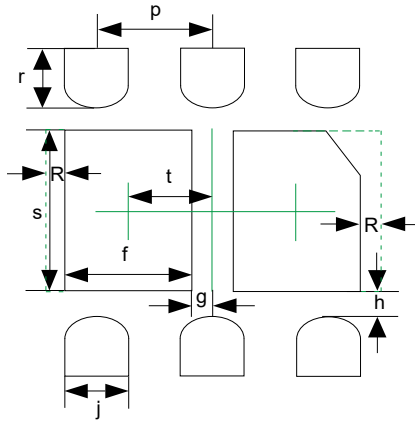


Fig 14. Normalized Maximum Transient Thermal Impedance

Product dimension (DFN-6L—2\*2)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.924	2.076	0.076	0.082
B	1.924	2.076	0.076	0.082
C	0.250	0.350	0.010	0.014
D	0.650 (typ.)		0.026 (typ.)	
E	0.200 MIN.		0.008 MIN.	
F	0.520	0.720	0.020	0.028
G	0.900	1.100	0.035	0.043
H	0.174	0.326	0.007	0.013
J	0.700	0.800	0.028	0.031
K	0.206 REF		0.206 REF	
L	0.203 REF		0.203 REF	




If there is enough place in PCB. It can be mounted with copper along the dotted line in order to optimize thermal design.

Dim	Millimeters	
	MIN	MAX
p	0.60	0.70
r	0.40	0.50
s	1.05	1.15
t	0.42	0.52
f	0.67	0.77
g	0.06	0.16
h	0.1	0.2
j	0.35	0.45
R	0.1	0.2

**Ordering information**

Device	Package	Shipping
PDPM6N20V3	DFN-6L (2*2)	3000 / Tape & Reel


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