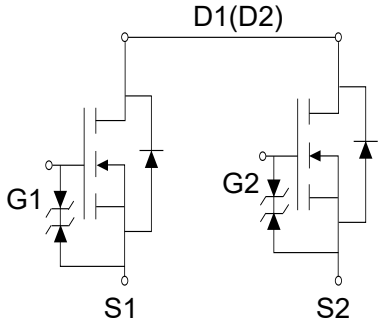
Description

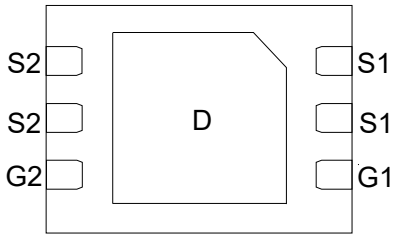
The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
20	6.0@ VGS=4.5V	12
	7.5@ VGS=3.8V	
	9.2@ VGS=2.5V	

Internal Structure



Top View(DFN2*3-6L)



Absolute maximum rating@25℃

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	12	A
Drain Current-Pulsed (Note 1)	I_{DM}	70	A
Maximum Power Dissipation	P_D	1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	℃

Thermal Characteristic

Parameter	Typical	Maximum	Units
Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	83	℃/W

Electrical characteristics per line@25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	I_D =250μA,V_{GS}=0V	20		-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0V,V_{GS}=±12V	-	-	±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.45	0.8	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D =5.5A		6.0	7.5	mΩ
		V_{GS}=3.8V, I_D =5.5A		7.5	8.5	
		V_{GS}=2.5V, I_D =5.0A		9.2	11	
Forward Transconductance	G_{FS}	V_{DS}=5V, I_D =5A		20		S
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =10V, f=1MHz	-	1310		pF
Output Capacitance	C_{OSS}		-	264		pF
Reverse Transfer Capacitance	C_{RSS}		-	235		pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD} =10V, R_{GEN} =3Ω, V_{GS}=5V,R_L=1.35Ω	-	6		nS
Turn-On Rise Time	t_r		-	13		nS
Turn-Off Delay Time	$t_{d(off)}$		-	52		nS
Turn-Off Fall Time	t_f		-	16		nS
Total Gate Charge	Q_g	V_{DS} =10V, I_D =7A, V_{GS}=4.5V		15		nC
Gate-Source Charge	Q_{gs}			0.8		nC
Gate-Drain Charge	Q_{gd}			3.2		nC
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1A			1.2	V
Diode Forward Current	I_S				7	A

Note 1: Repetitive Rating: Pulse width lidth limited by maximum junction temperature.

Note 2: Surface Mounted on FR4 Board,t≤ 10 sec.

Typical Characteristics

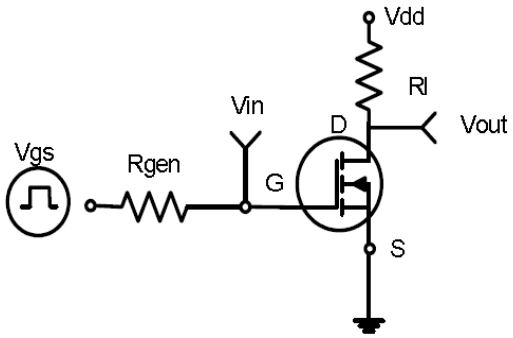


Fig 1. Switching Test Circuit

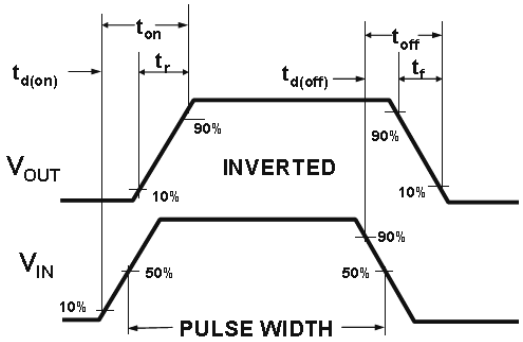


Fig 2.Switching Waveforms

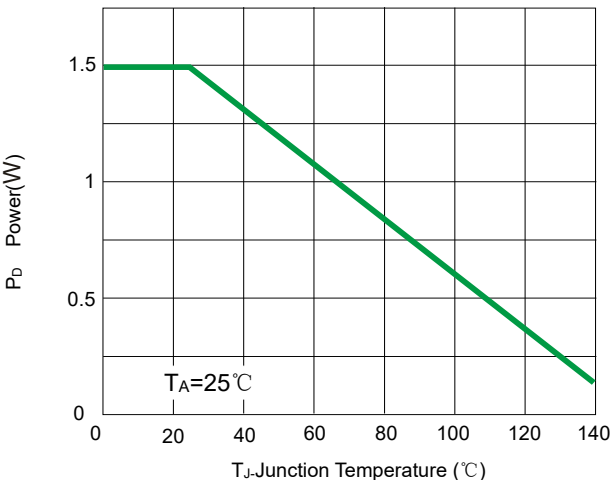


Fig 3. Power Dissipation

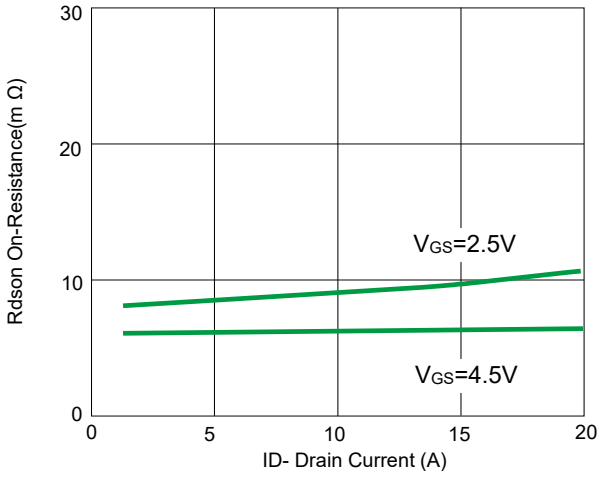


Fig 4. Transfer Characteristics

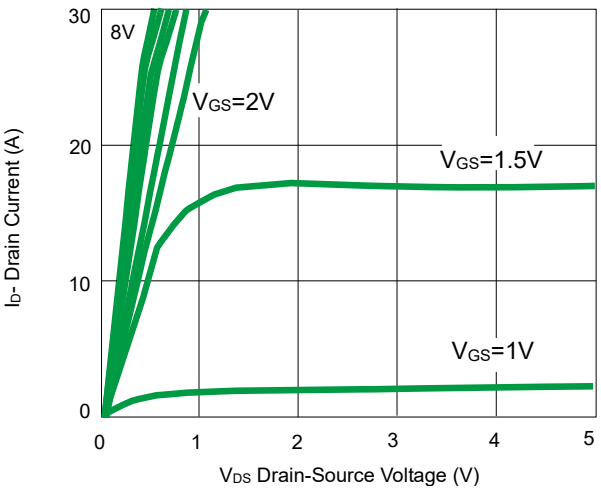


Fig 5. Output CHARACTERISTICS

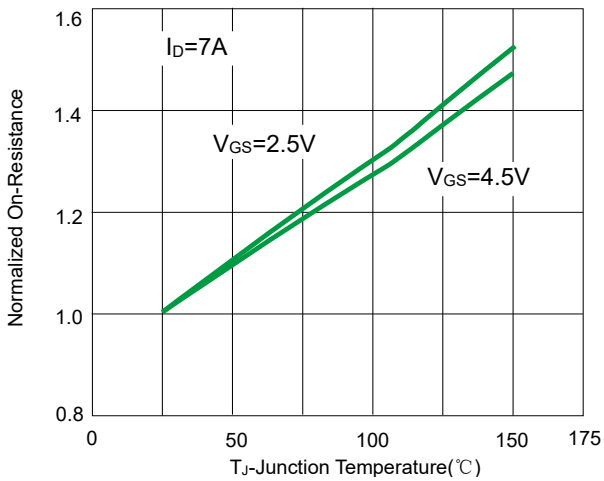


Fig 6. Drain-Source On-Resistance

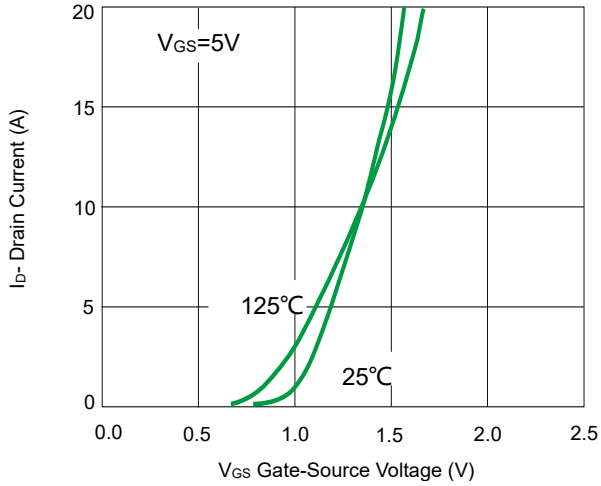


Fig 7. Transfer Characteristics

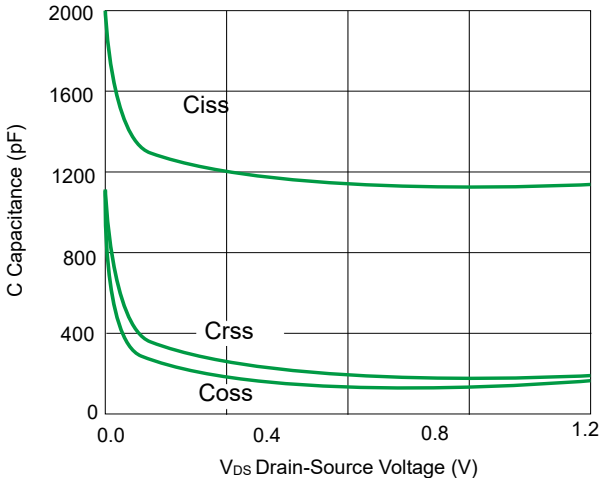


Fig 8. Capacitance vs V_{DS}

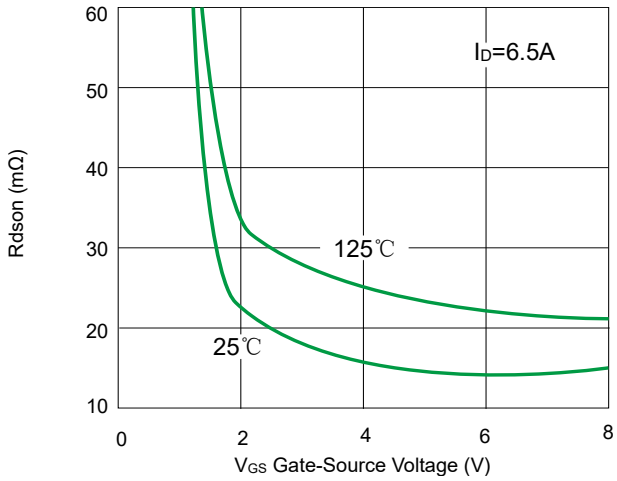


Fig 9. Rdson vs Vgs

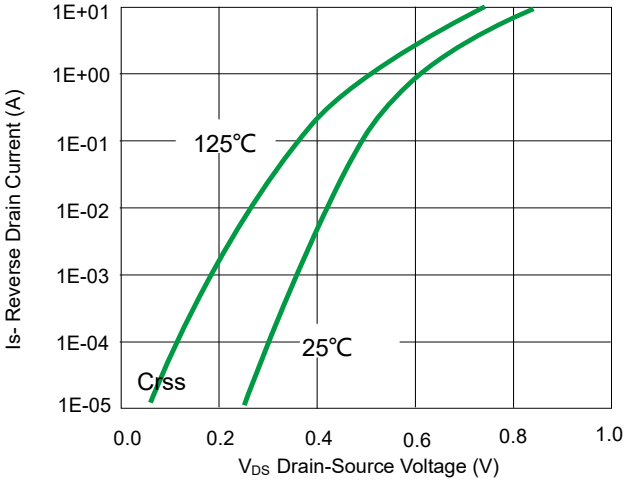


Fig 10. Capacitance vs Vds

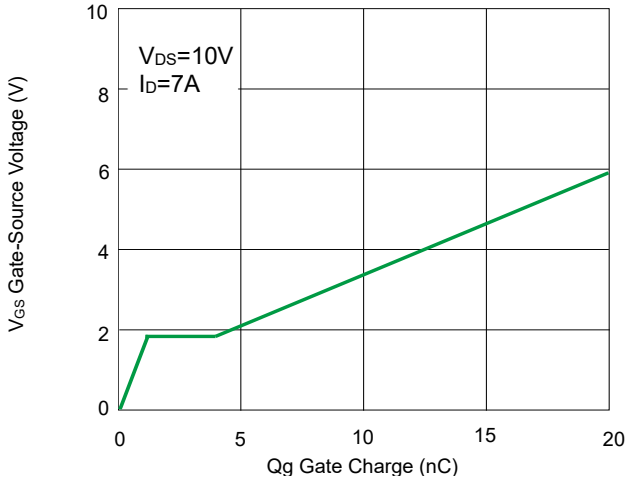


Fig 11. Gate Charge

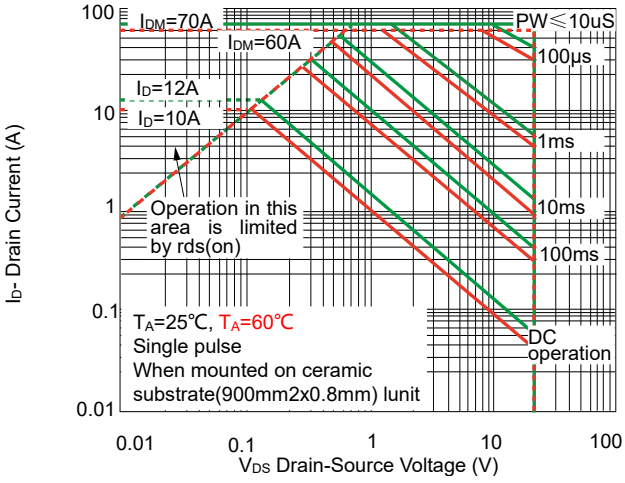


Fig 12. Safe Operation Area

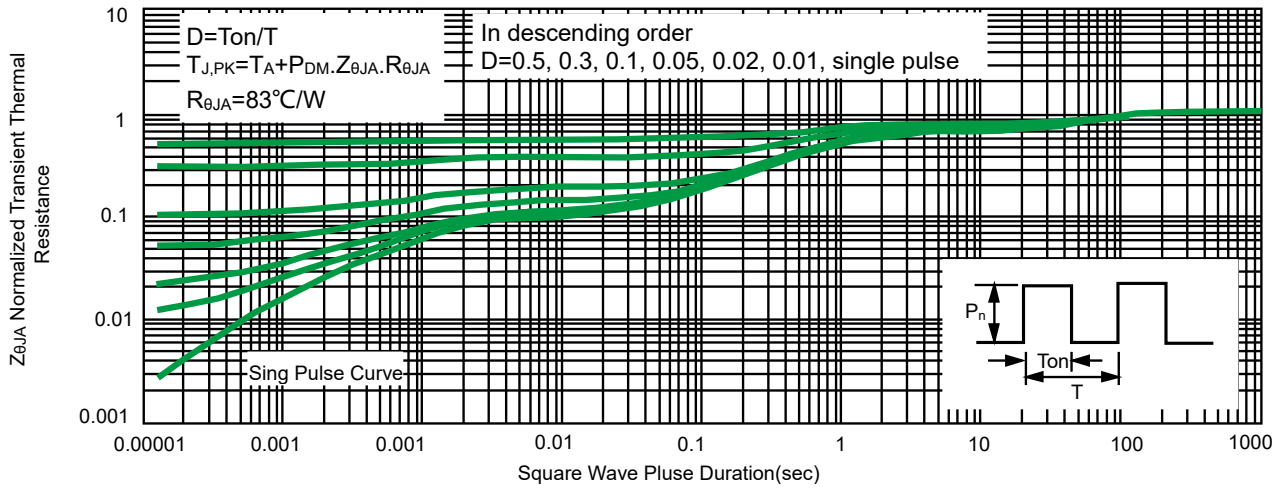
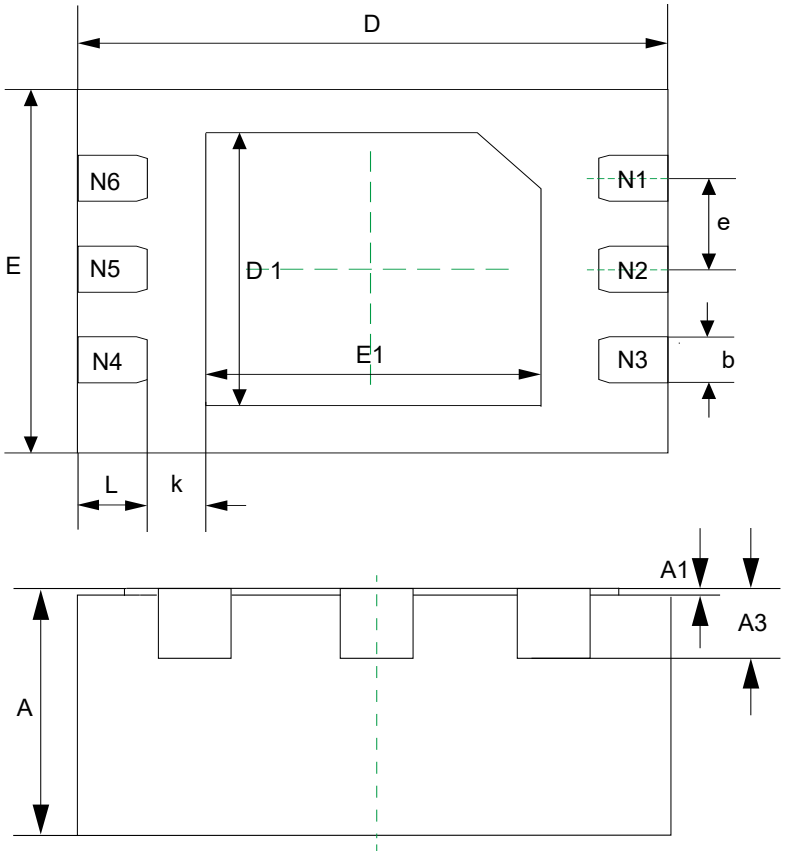
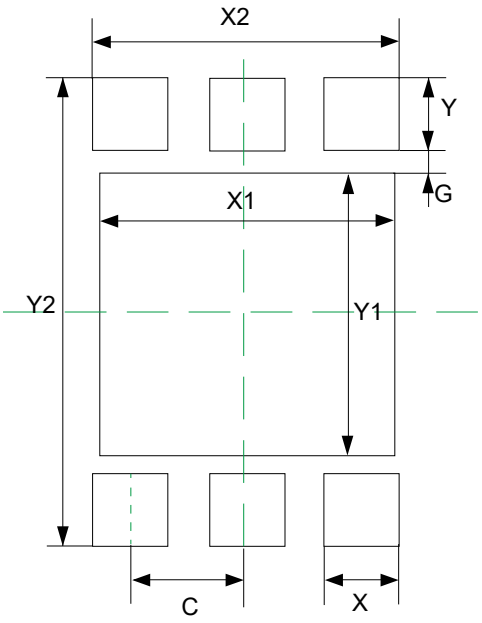


Fig 14 Normalized Maximum Transient Thermal Impedance

Product dimension(DFN2*3-6L)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF		0.008REF	
D	2.950	3.050	0.116	0.120
E	1.950	2.050	0.077	0.081
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN		0.008MIN	
b	0.200	0.300	0.008	0.012
e	0.500TYP		0.020TYP	
L	0.300	0.400	0.012	0.016



Dim	Millimeters
C	0.650
G	0.150
X	0.400
X1	1.600
X2	1.700
Y	0.530
Y1	1.940
Y2	3.300

Ordering information

Device	Package	Shipping
PDNM6N20V12E	DFN2*3-6L (Pb-Free)	3000 / Tape & Reel

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