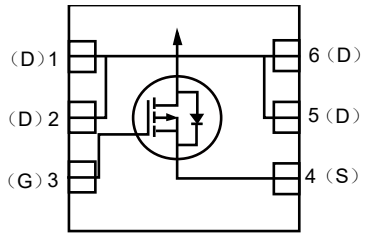
Description

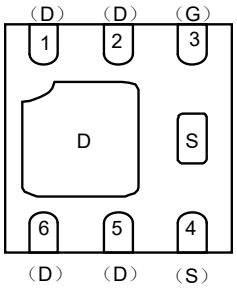
The enhancement mode MOS is extremely high density cell and low on-resistance.

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
-12	12 @ V_{GS}=-4.5V	-10

Internal structure



Bottom View



Absolute maximum rating@25℃

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-12	V
Gate-Source Voltage		V_{GS}	±8.0	V
Drain Current	Continuous T_A=25℃	I_D	-10	A
	Pulsed T_A=70℃	I_D	-40	A
Total Power Dissipation	T_A=25℃	P_D	2.4	W
	T_A=125℃	P_D	0.9	W
Operating and Storage Junction Temperature Range		T_J,T_{STG}	-55 to +150	℃

Thermal Characteristics

Parameter		Symbol	Max.	Units
Thermal Resistance, Junction to Ambient	(Note 1a)	$R_{\theta JA}$	52	℃/W
Thermal Resistance, Junction to Ambient	(Note 1b)	$R_{\theta JA}$	145	
Thermal Resistance, Junction to Case		$R_{\theta JC}$	6.9	

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	-12	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-9.6V,V_{GS}=0V	-	-	-1.0	μA
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=±8.0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D =-7A	-	12	17	mΩ
		V_{GS}=-2.5V, I_D =-6A,	-	18	24	mΩ
		V_{GS}=-1.8V, I_D =-4.5A,	-	25	80	mΩ
Forward Trans conductance	g_{FS}	V_{DS}=-5V, I_D =-10A	-	50	-	S
Total Gate Charge	Qg	I_D =-10A, V_{DD} =-6V, V_{GS} =-4.5V	-	21	29	nC
Gate-to-Source Charge	Qgs		-	3.5		
Gate-to-Drain(Miller) Charge	Qgd		-	4.2		
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =-6V, f=1MHz	-	2559	-	pF
Output Capacitance	C_{OSS}		-	490	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	437	-	pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-6.0V, I_D =-10A, V_{GS}=-4.5V , R_{GEN}=6Ω,	-	11	20	ns
Rise Time	t_r		-	11	20	
Turn-Off Delay Time	$t_{d(off)}$		-	120	192	
Fall Time	t_f		-	59	94	
Source to Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-2A		-0.6	-1.2	V
		V_{GS}=0V,I_S=-10A		-0.8	-1.2	
Reverse Recovery Time	t_{rr}	I_F=-10A,di/dt=100A/μs		21	34	ns
Reverse Recovery Charge	Q_{rr}			6.1	12	nC

Typical Characteristics

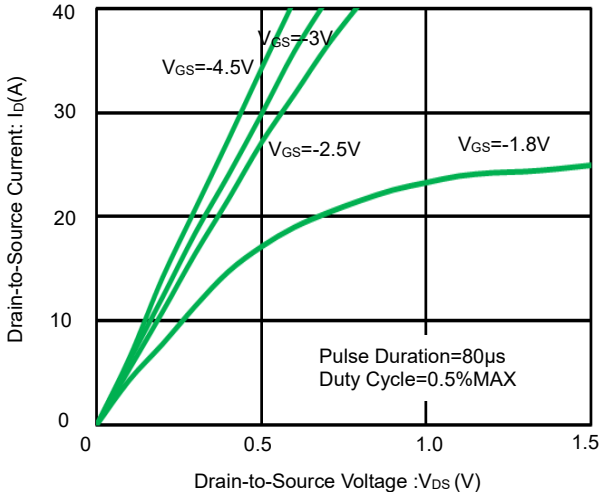


Fig 1. On-Region Characteristics

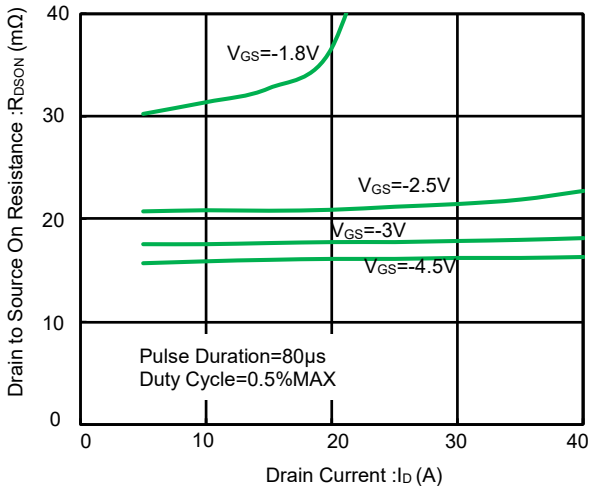


Fig 2.On-Resistance vs. Drain Current

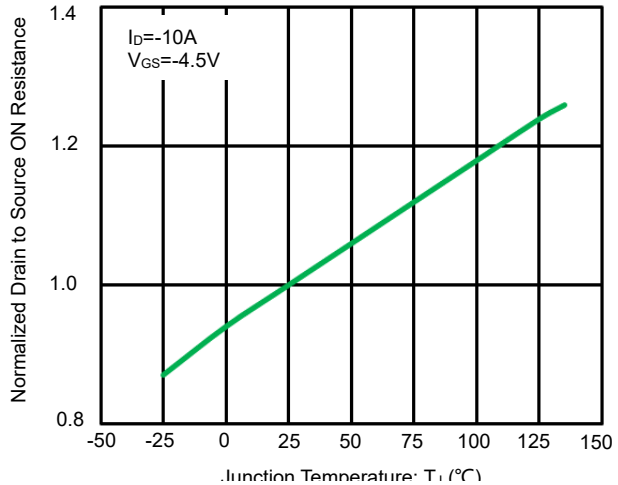


Fig 3. Normalized On-Resistance vs. Junction Temperature

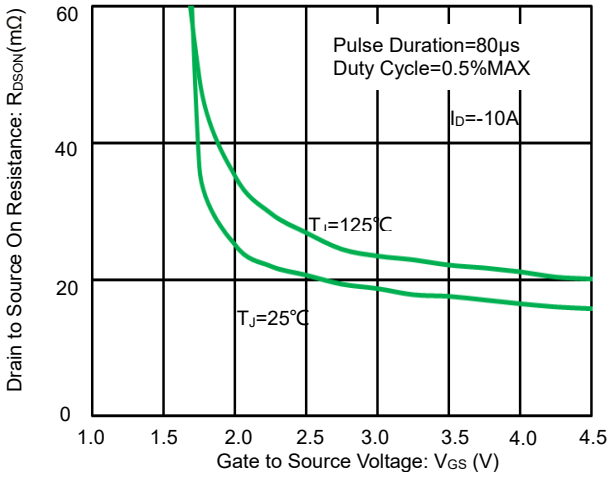


Fig 4. On-Resistance vs. Gate-to-Source Voltage

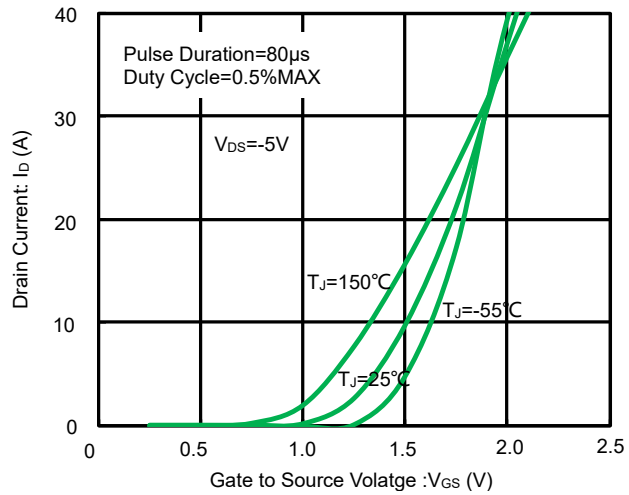


Fig 5. Transfer Characteristics

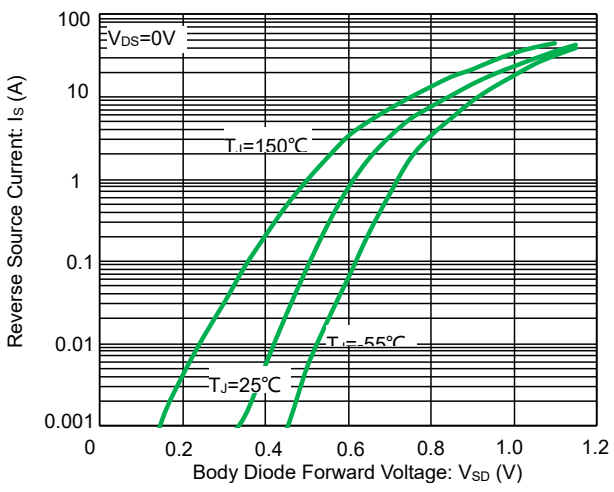


Fig 6. Reverse Source Current vs. Source to Drain Diode Forward Voltage

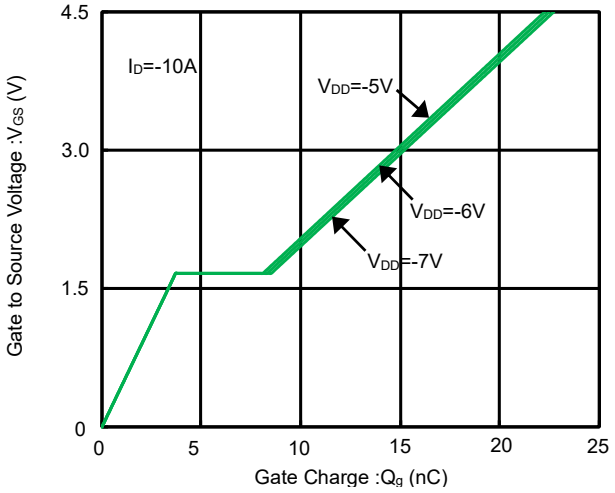


Fig 7. Gate Charge Characteristics

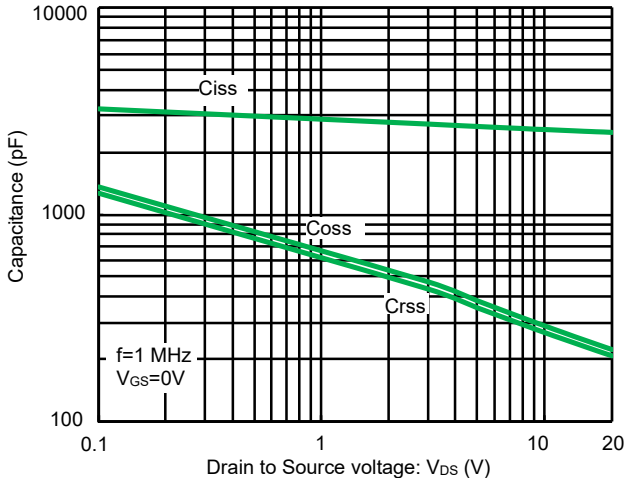


Fig 8. Capacitance vs. Drain-to-Source Voltage

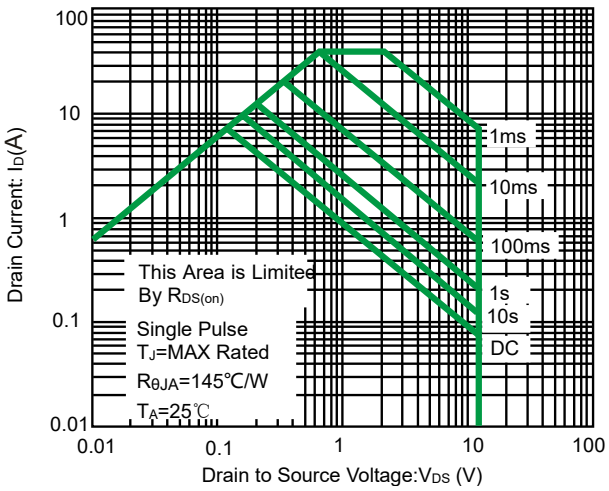


Fig 9. Forward Bias Safe Operating Area

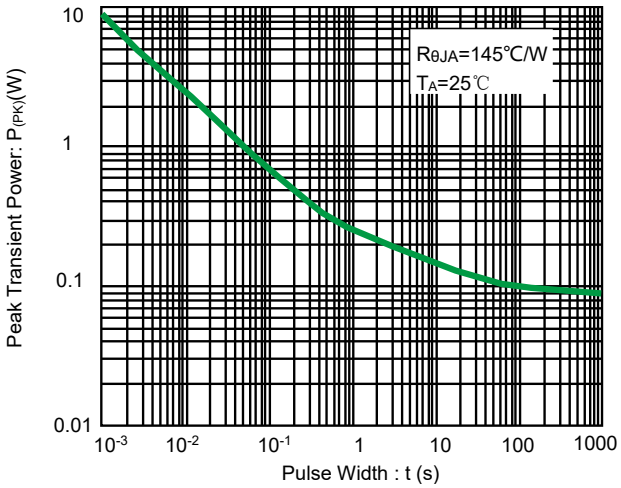


Fig 10. Single Pluse Maximum Power Dissipation

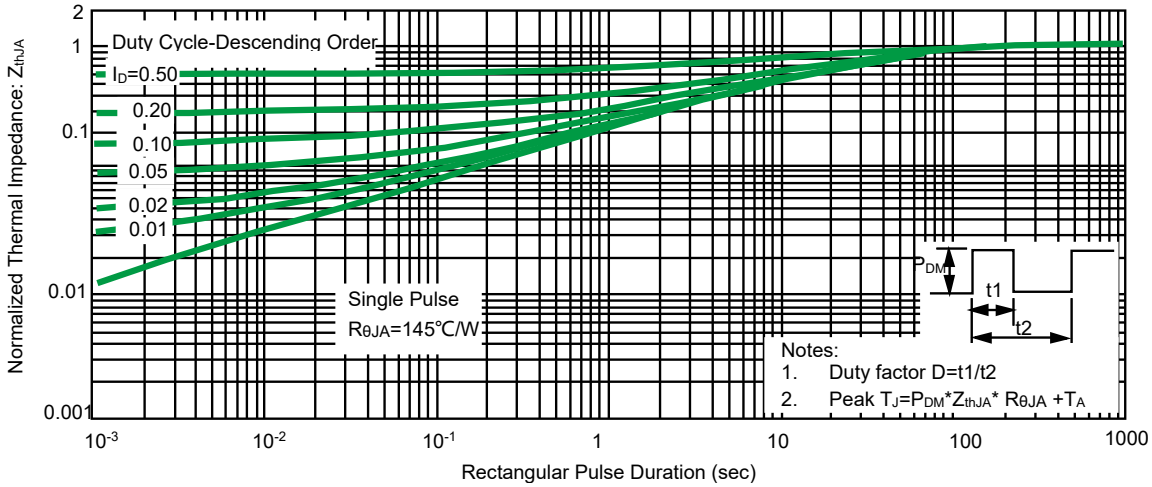
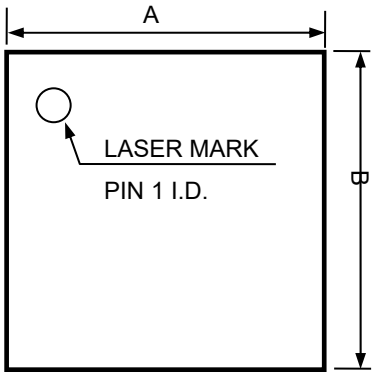
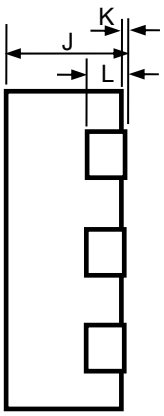


Fig 11. Transient Thermal Response Curve, Junction-to-Ambient

Product dimension （DFN2*2-6L）

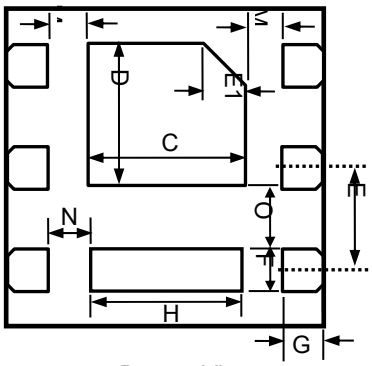


Top View

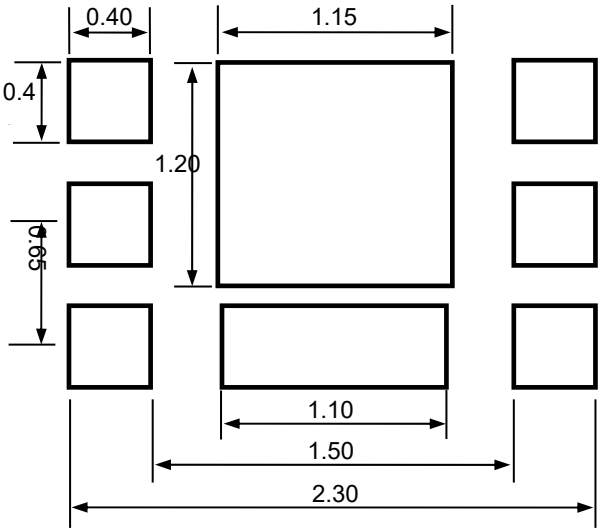


Side View

Dim	Millimeters	
	MIN	MAX
A	1.90	2.10
B	1.90	2.10
C	0.70	1.10
D	0.80	1.00
E	0.55	0.75
E1	0.25 Ref.	
F	0.25	0.35
G	0.20	0.35
H	0.50	1.00
J	0.60	0.80
K	0.00	0.05
L	0.20 Ref.	
M	0.15	--
N	0.20	--
O	0.25	--

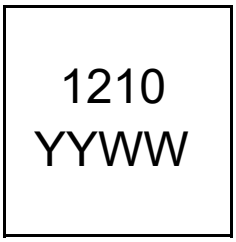


Bottom View



Suggested PCB Layout

Marking information



YY =Year code
WW =Week code

Ordering information

Device	Package	Reel	Shipping
PPM6N12V10	DFN2*2-6L	7"	3000 / Tape & Reel

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