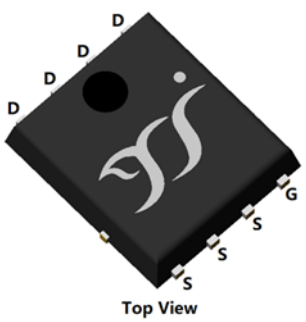
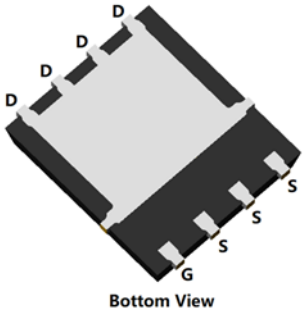
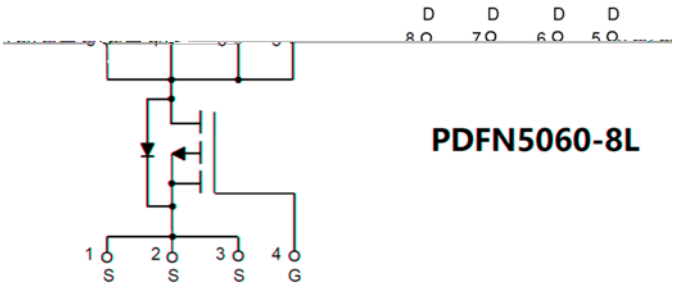
P-Channel Enhancement Mode Field Effect Transistor



Top View



Bottom View



PDFN5060-8L

Product Summary

V_{DS}	-60V
I_D	-25A
$R_{DS(ON)}$(at V_{GS}=-10V)	＜50 mohm
$R_{DS(ON)}$(at V_{GS}=-4.5V)	＜65 mohm

100% EAS Tested

100% ▽V_{DS} Tested

General Description

Split gate trench MOSFET technology

Low $R_{DS(on)}$ & FOM

Low Crss

Extremely low switching loss

Excellent stability and uniformity

Moisture Sensitivity Level 1

Epoxy Meets UL 94 V-0 Flammability Rating

Halogen Free

Applications

Automotive Systems

Industrial DC/DC Conversion Circuits

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	-60	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	Tc=25℃	I_D	-25	A
	Tc=100℃		-16	
Pulsed Drain Current [A]		I_{DM}	-75	A
Avalanche energy [B]		E_{AS}	81	mJ
Total Power Dissipation [C]	Tc=25℃	P_D	60	W
	Tc=100℃		24	
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient [D]	t≤10S	R	15	20	℃/W
Thermal Resistance Junction-to-Ambient [D]	Steady-State		40	50	
Thermal Resistance Junction-to-Case	Steady-State	R	1.7	2.1	

Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG25GP06A	F1	YJG25GP06A	5000	10000	100000	13 reel

Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Conditions		Min	Typ	Max	Units
Static Parameter							
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=-250		-60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V,V_{GS}=0V	T_J=25℃			-1	
			T_J=55℃			-5	
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V				±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250		-1.3	-1.8	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -10V, I_D=-20A			38	50	m
		V_{GS}= -4.5V, I_D=-10A			48	65	
Gate Resistance	Rg	f=1MHz			12		
Diode Forward Voltage	V_{SD}	I_S=-20A,V_{GS}=0V			-0.95	-1.3	V
Maximum Body-Diode Continuous Current	I_S					-25	A
Dynamic Parameters							
Input Capacitance	C_{iss}	V_{DS}=-30V,V_{GS}=0V,f=1MHZ			1100		pF
Output Capacitance	C_{oss}				350		
Reverse Transfer Capacitance	C_{rss}				28		
Switching Parameters							
Total Gate Charge	$Q_{g(-10V)}$	V_{GS}=-10V,V_{DS}=-30V,I_D=-20A			18.7		nC
Total Gate Charge	$Q_{g(-4.5V)}$				8.8		
Gate-Source Charge	Q_{gs}				4.7		
Gate-Drain Charge	Q_{gd}				3.0		
Reverse Recovery Chrage	Q_{rr}	I_F=-20A, di/dt=100A/us			8.2		
Reverse Recovery Time	t_{rr}				20.2		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=-10V,V_{DD}=-30V,R_L=2.5 R_{GEN}=6			7.5		
Turn-on Rise Time	t_r				39.5		
Turn-off Delay Time	$t_{D(off)}$				43.6		
Turn-off fall Time	t_f				55.1		

A. Repetitive rating; pulse width limited by max. junction temperature.
B. V_{DD}=50V, R_G 0.5mH, I_{AS}=18A.
C. Pd is based on max. junction temperature, using junction-case thermal resistance.
D. The value of RqJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C. The Powe °C. The value in any given application depends on the user's specific board design.

■ Typical Performance Characteristics

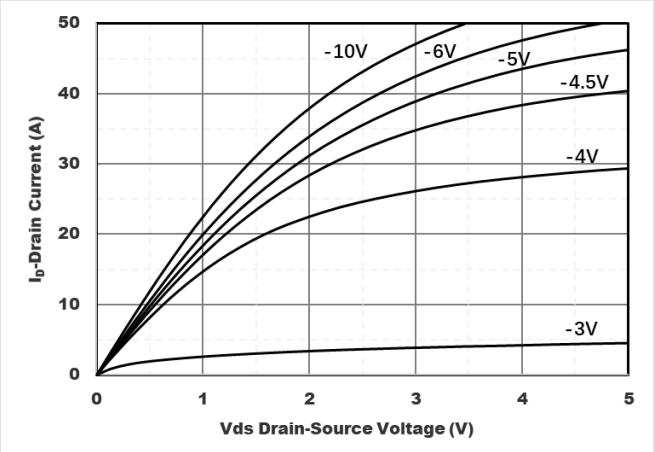


Figure1. Output Characteristics

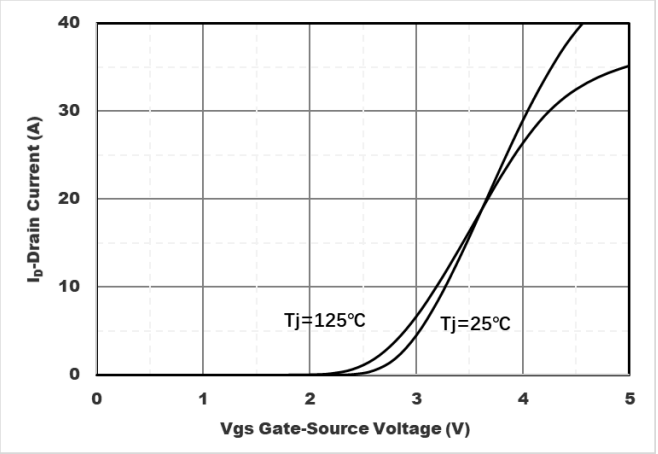


Figure2. Transfer Characteristics

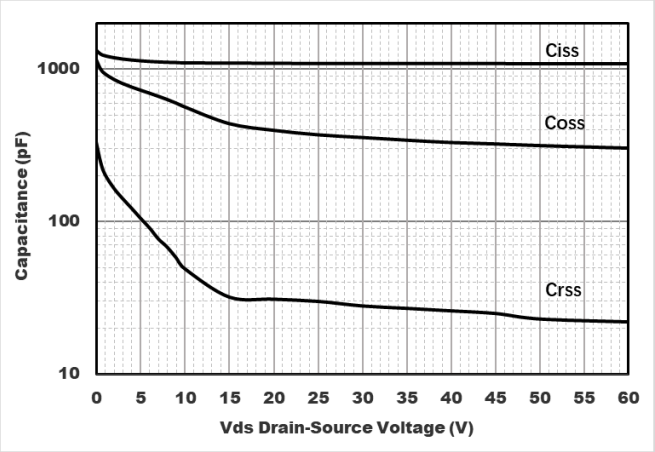


Figure3. Capacitance Characteristics

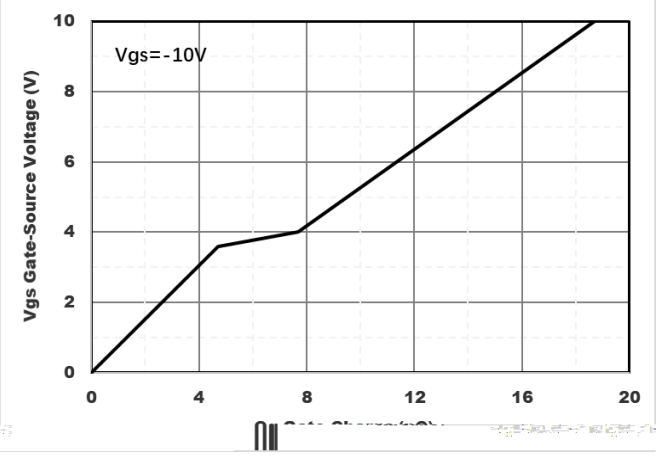


Figure4. Gate Charge

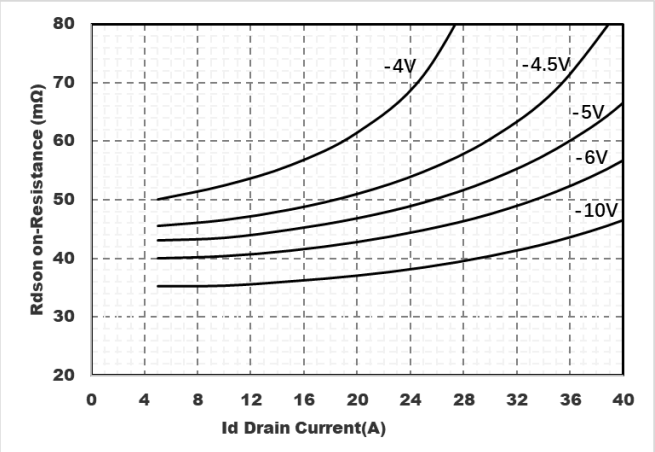


Figure5. **:** On-Resistance vs. Gate to Source Voltage

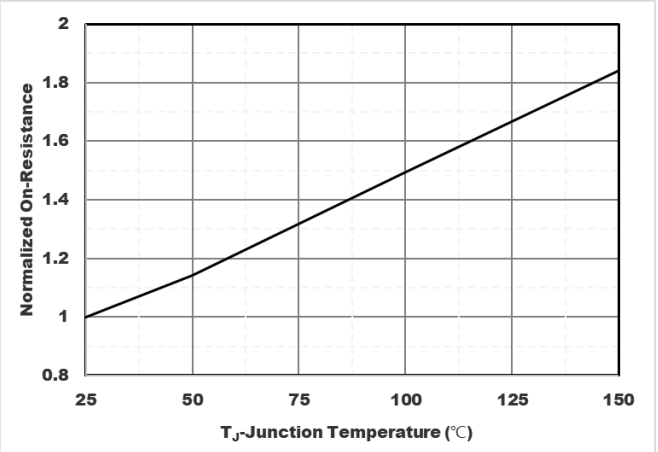


Figure6.Normalized On-Resistance

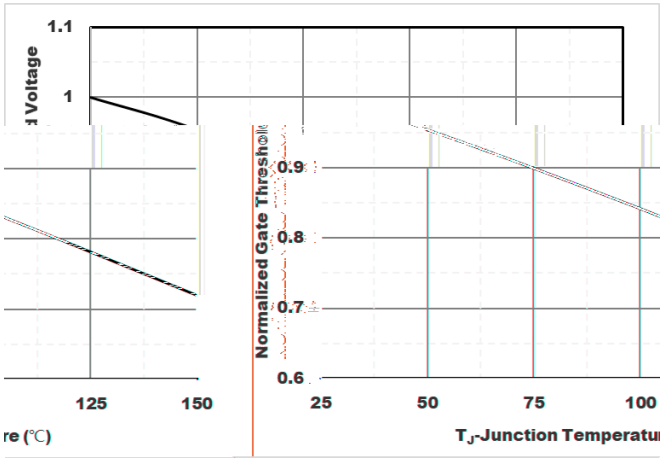


Figure7. Normalized Gate Threshold Voltage

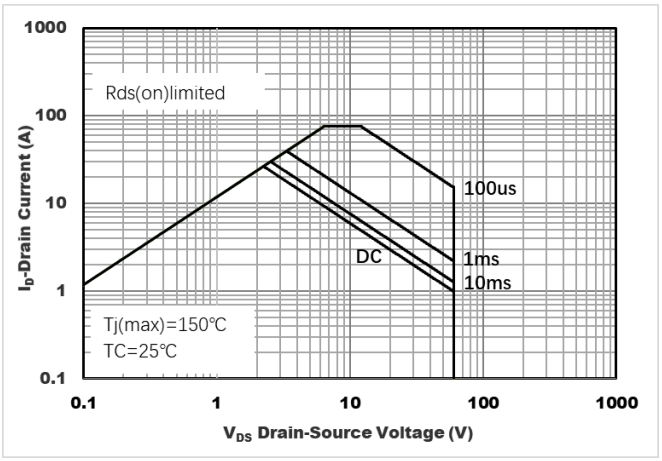


Figure8.Safe Operation Area

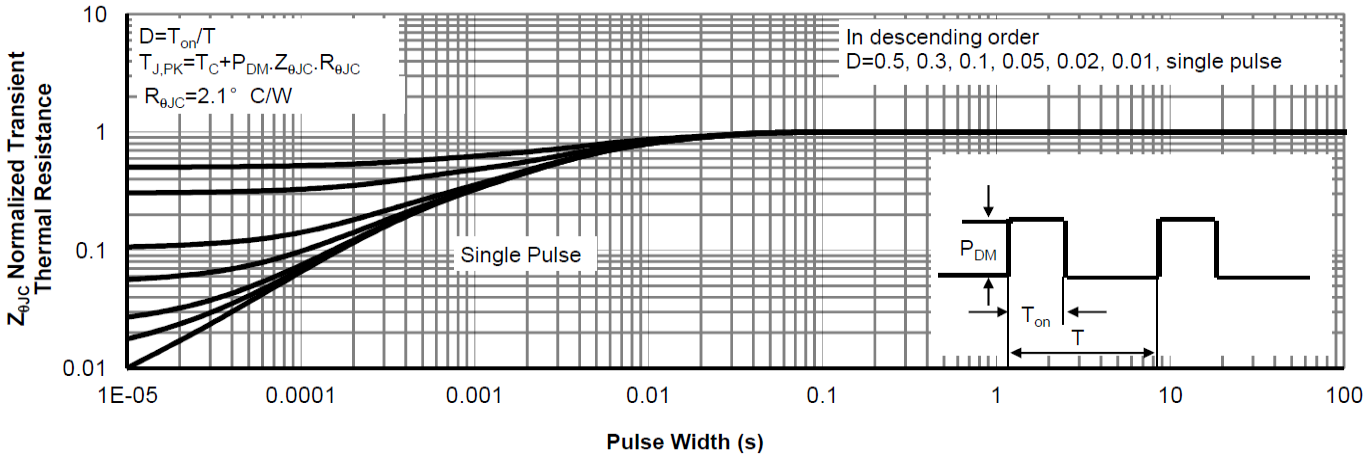
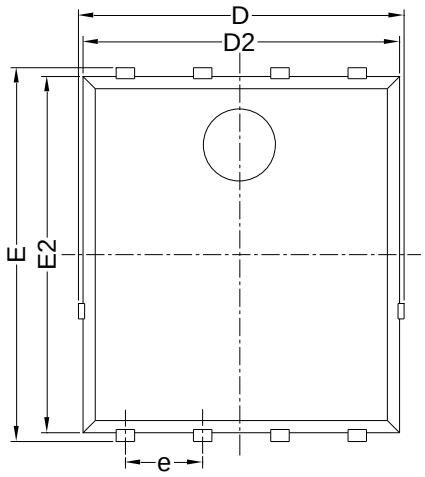
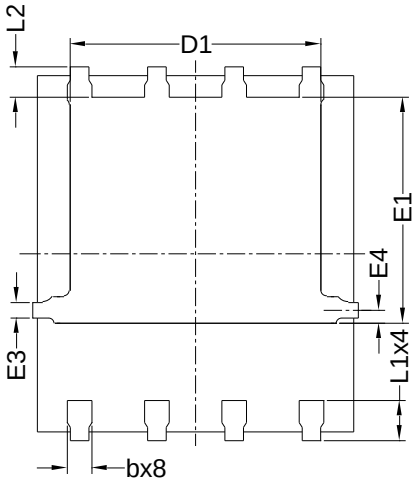


Figure9.Normalized Maximum Transient thermal impedance

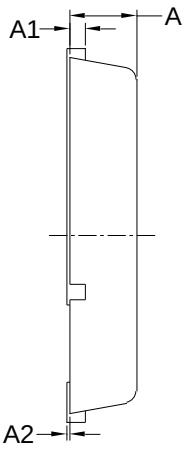
PDFN5060-8L-B-1.1MM Package information



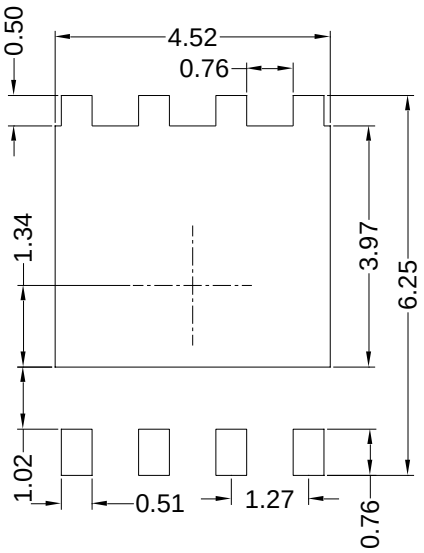
Top View
正面视图



Bottom View
背面视图



Side View
侧面视图



Suggested Solder Pad Layout
Top View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	5.15	5.35	5.55
E	5.95	6.15	6.35
A	1.00	1.10	1.20
A1		0.254 BSC	
A2			0.10
D1	3.92	4.12	4.32
E1	3.52	3.72	3.92
D2	5.00	5.20	5.40
E2	5.66	5.86	6.06
E3		0.254 REF	
E4		0.21 REF	
L1	0.56	0.66	0.76
L2		0.50 BSC	
b	0.31	0.41	0.51
e		1.27 BSC	

Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.10mm.
3.The pad layout is for reference purposes only.

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