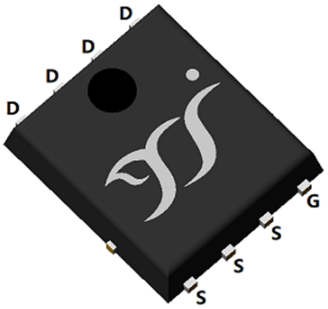
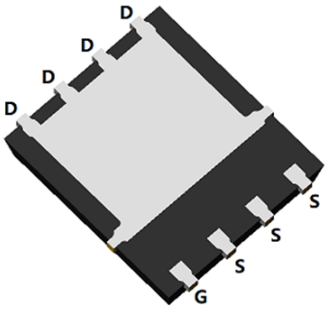
N-Channel Enhancement Mode Field Effect Transistor

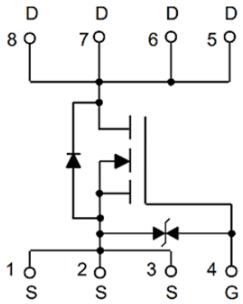


Top View



Bottom View

PDFN5060-8L



Product Summary

V_{DS}	60V
I_D	85A
$R_{DS(ON)}$(at V_{GS}=10V)	＜3.7 mohm
$R_{DS(ON)}$(at V_{GS}=4.5V)	＜5.0 mohm

100% EAS Tested

100% ▽V_{DS} Tested

ESD Protected up to 2.0KV(HBM)

General Description

Split Gate Trench MOSFET technology

Excellent package for heat dissipation

High density cell design for low $R_{DS(ON)}$

Moisture Sensitivity Level 1

Epoxy Meets UL 94 V-0 Flammability Rating

Halogen Free

Applications

DC-DC Converters

Power management functions

Synchronous-rectification application

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 [A]	T_C=25℃	I_D	85	A
	T_C=100℃		54	
Pulsed Drain Current [B]		I_{DM}	340	A
Avalanche energy		E_{AS}	400	mJ
Total Power Dissipation [C]	Tc=25℃	P_D	110	W
	Tc=100℃		44	
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	14	17	℃/W
Thermal Resistance Junction-to-Ambient [D]	Steady-State		40	55	
Thermal Resistance Junction-to-Case	Steady-State	R	0.85	1.1	

Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG85G06AK	F1	YJG85G06AK	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			1	A
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V			±10	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=20A		2.9	3.7	m
		V_{GS}= 4.5V, I_D=20A		3.8	5.0	
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V		0.8	1.3	V
Maximum Body-Diode Continuous Current	I_S				85	A
Gate resistance	R_g	f=1MHz		2		
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V,f=1MHZ		4650		pF
Output Capacitance	C_{oss}			850		
Reverse Transfer Capacitance	C_{rss}			65		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=30V,I_D=25A		70.78		nC
Gate-Source Charge	Q_{gs}			16.64		
Gate-Drain Charge	Q_{gd}			10.62		
Reverse Recovery Chrage	Q_{rr}	I_F=20A, di/dt=500A/us		39.8		
Reverse Recovery Time	t_{rr}			41.6		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DD}=30V,ID=25A R_{GEN}=2		15.9		
Turn-on Rise Time	t_r			55.2		
Turn-off Delay Time	$t_{D(off)}$			57.5		
Turn-off fall Time	t_f			91.3		

A. Repetitive rating; pulse width limited by max. junction temperature.
B. V_{DD}=50V，V_{GS}=10V, L=2mH, I_{AS}=20A.
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 °C. The value in any given application depends on the user's specific board design.

■ Typical Performance Characteristics

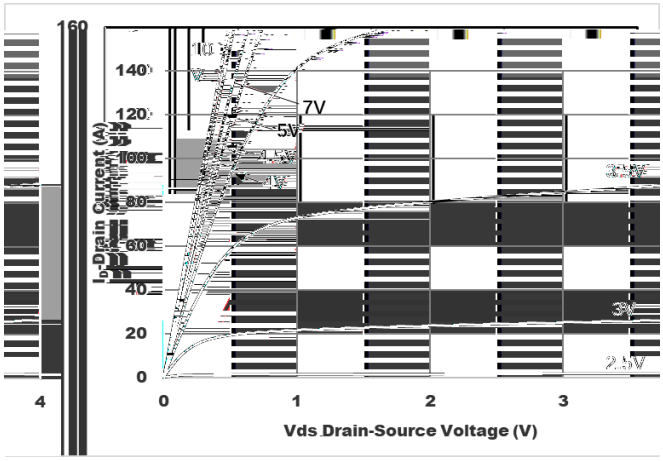


Figure1. Output Characteristics

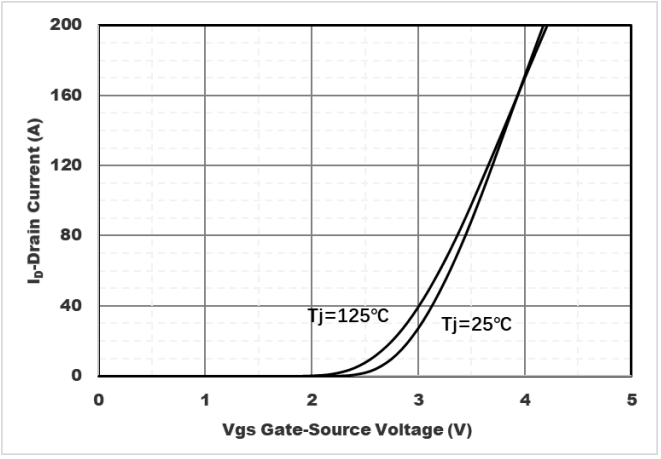


Figure2. Transfer Characteristics

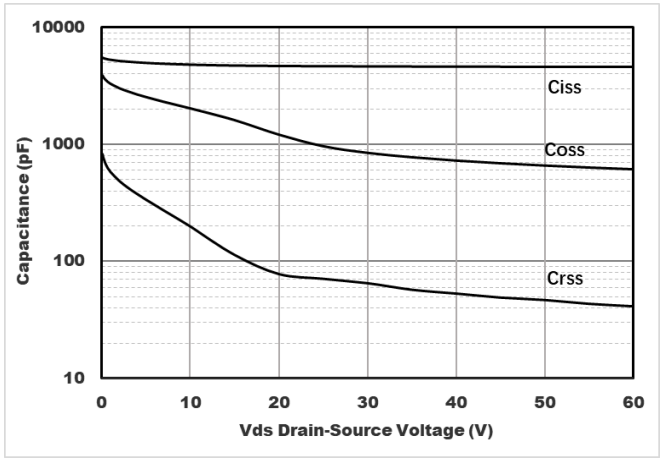


Figure3. Capacitance Characteristics

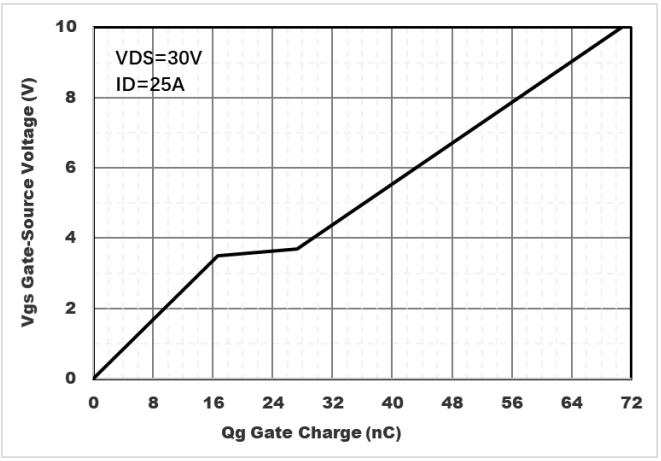


Figure4. Gate Charge

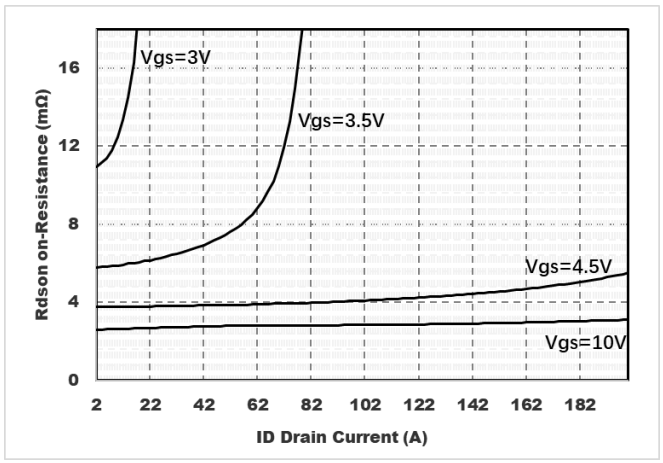


Figure5. Drain-Source on Resistance

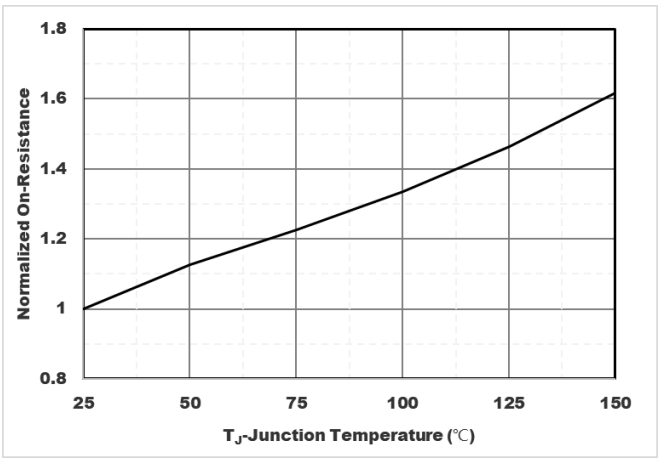


Figure6. Drain-Source on Resistance

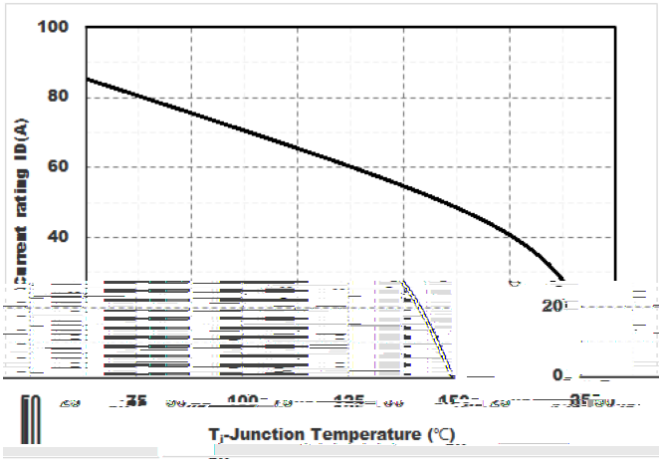


Figure7. Drain current

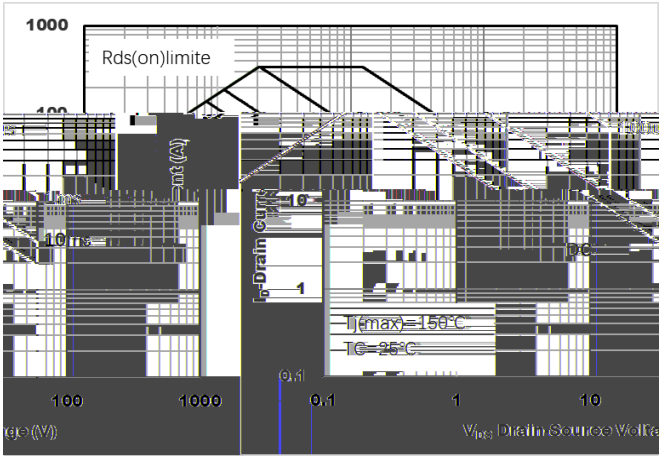


Figure8. Safe Operation Area

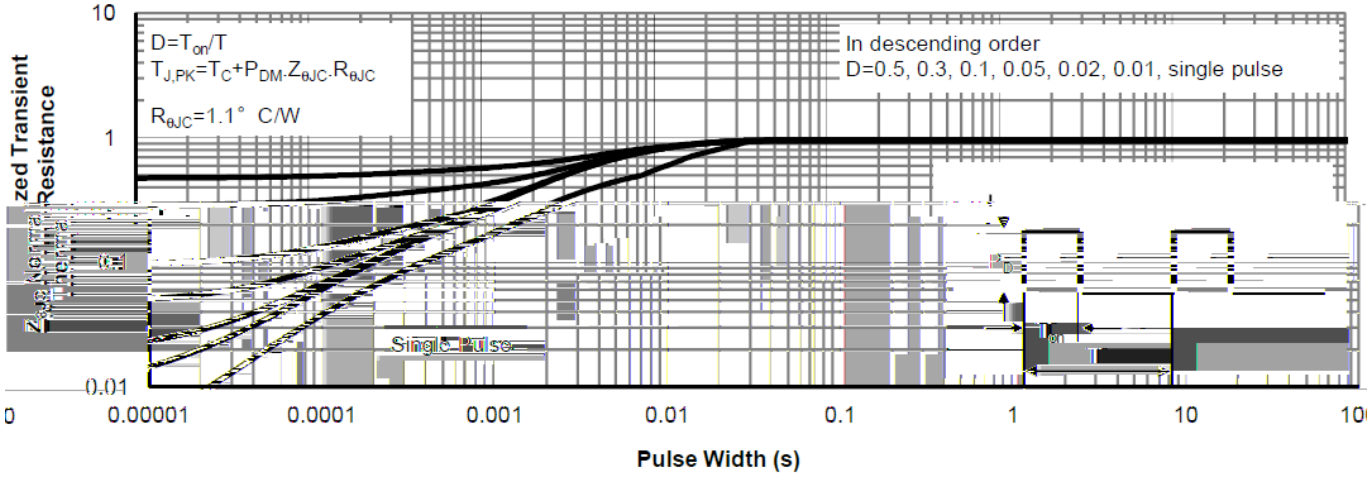
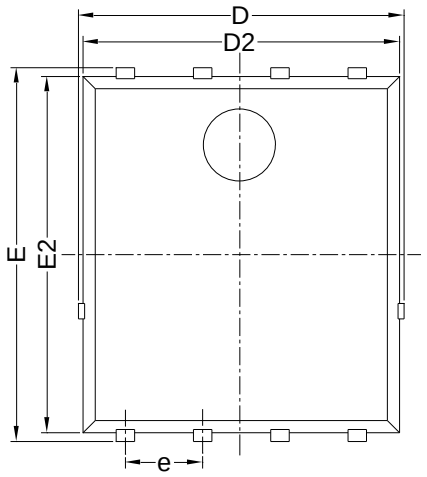
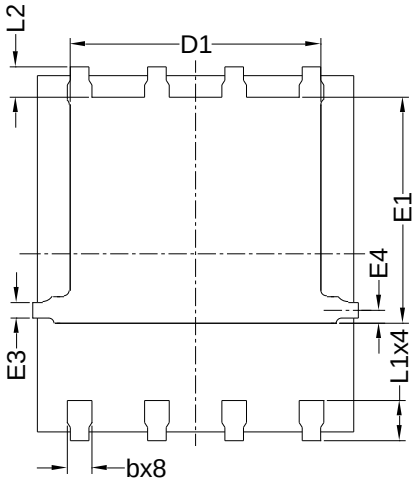


Figure9. Normalized Maximum Transient Thermal Impedance

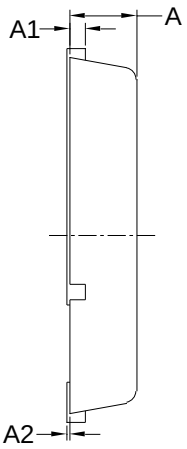
PDFN5060-8L-B-1.1MM Package information



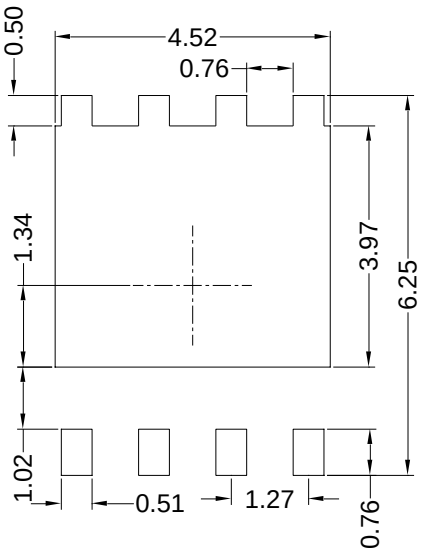
Top View
正面视图



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.

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your