P-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	-60V
I_D	-74A
$R_{DS(ON)}$(at V_{GS}=-10V)	13m
$R_{DS(ON)}$(at V_{GS}=-4.5V)	22m
100% EAS Tested	
100% V_{DS} Tested	
ESD Level(HBM)	Class 3A

General Description

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

Load Switch
Power Management

Limiting Values

Parameter	Conditions		Symbol	Min	Max	Unit
Drain-source Voltage			V_{DS}	-	-60	V
Gate-source Voltage			V_{GS}	-20	20	
Continuous Drain Current (Note 1,2)	Steady-State	T_A=25℃,V_{GS}=-10V	I_D	-	-10	A
		T_A=100℃,V_{GS}=-10V		-	-7	
Continuous Drain Current (Note 1,3)	Steady-State	T_C=25℃,V_{GS}=-10V,Chip limitation		-	-74	
		T_C=100℃,V_{GS}=-10V		-	-52	
Pulsed Drain Current	T_C=25℃,t_p≤10μs		I_{DM}	-	-296	
Maximum Body-Diode Continuous Current	T_C=25℃		I_S		-74	
Avalanche energy (non-repetitive)	T_J=25℃,V_G=-10V,R_G- % L=0.5mH,I_{AS}=-30A		EAS	-	225	mJ
Total Power Dissipation (Note 1,2)	Steady-State	T_A=25℃	P_D	-	2.7	W
		T_A=100℃		-	1.4	
Total Power Dissipation (Note 1,3)	Steady-State	T_C=25℃		-	150	
		T_C=100℃		-	75	
Junction and Storage Temperature Range			T_J ,T_{STG}	-55	175	℃

Thermal Resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient (Note 3)	Steady-State	$R_{:1}$	-	55	℃/W
Thermal Resistance Junction-to-Case	Steady-State	$R_{:3}$	-	1	

Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG013P06A	F1	YJG013P06A	5000	10000	100000	13 reel

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250 A,Tj=25	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V,V_{GS}=0V,Tj=25	-	-	-1	A
		V_{DS}=-60V,V_{GS}=0V,Tj=150	-	-	-100	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V,Tj=25	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=- % 1 ,Tj=25	-1.2	-1.8	-2.4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-35A,Tj=25	-	10	13	
		V_{GS}=-4.5V,I_D=-20A,Tj=25	-	14.5	22	
Diode Forward Voltage	V_{SD}	I_S=-35A,V_{GS}=0V,Tj=25	-	-0.86	-1.2	V

Typical Electrical and Thermal Characteristics Diagrams

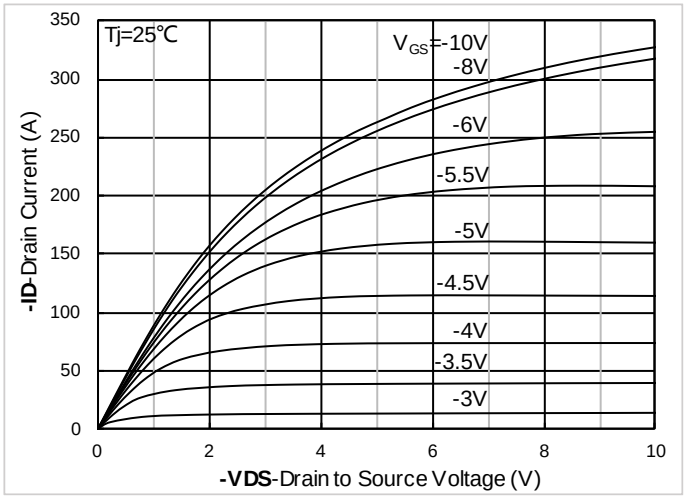


Figure 1. Output Characteristics; typical values

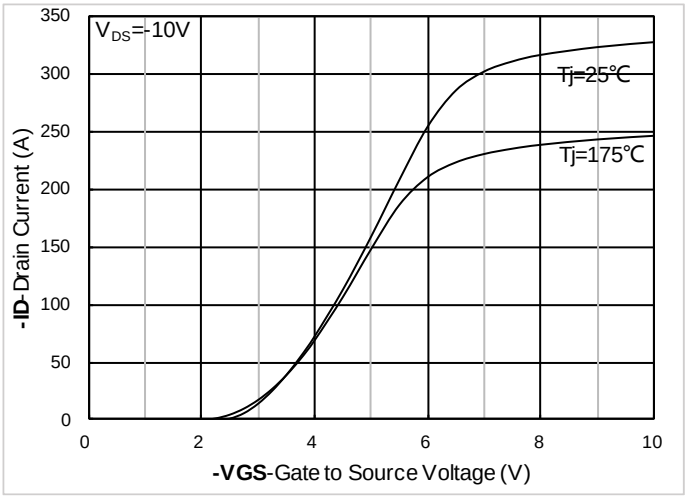


Figure 2. Transfer Characteristics; typical values

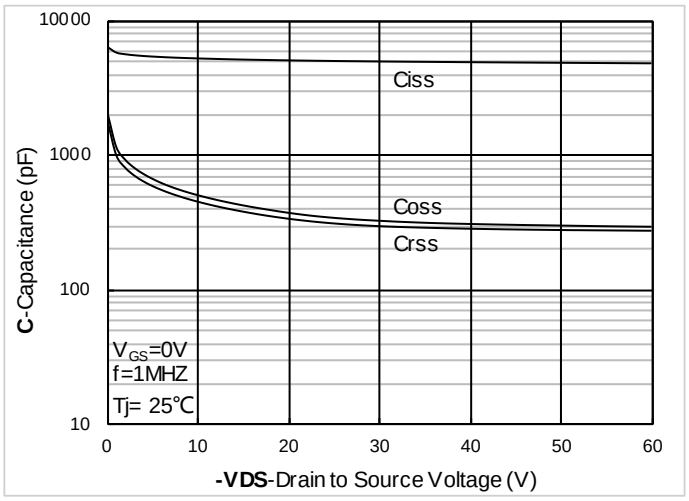


Figure 3. Capacitance Characteristics; typical values

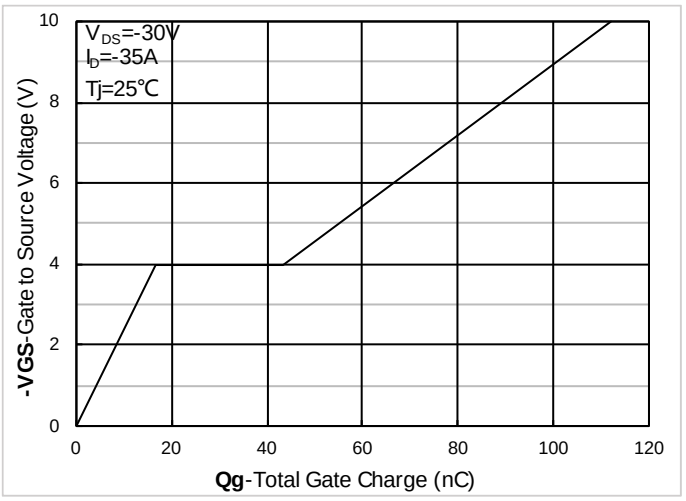


Figure 4. Gate Charge; typical values

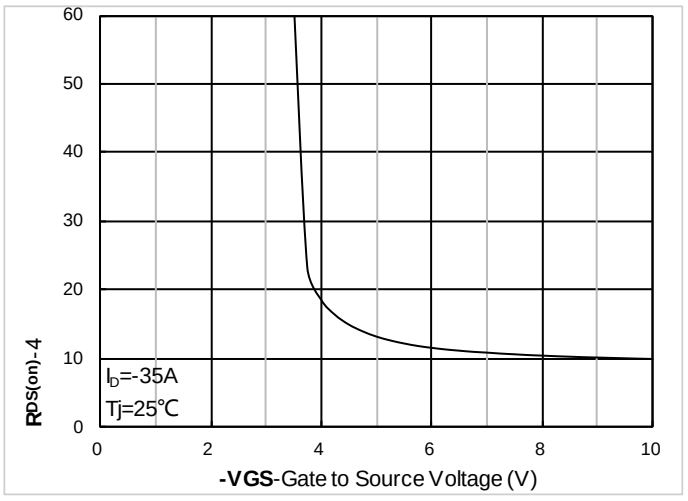


Figure 5. On-Resistance vs. Gate to Source Voltage; typical values

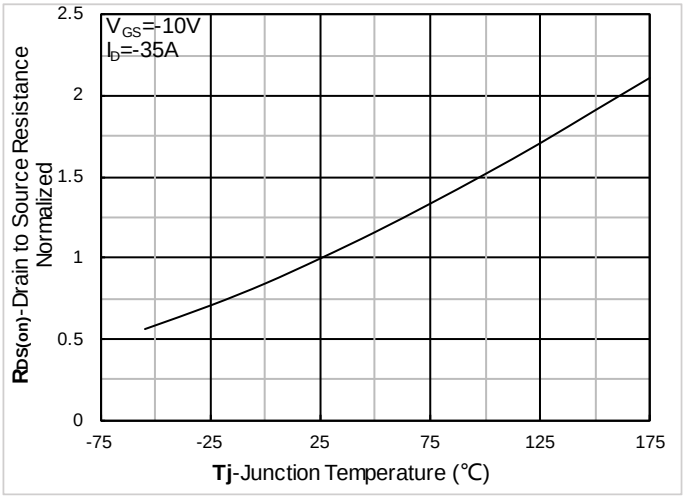
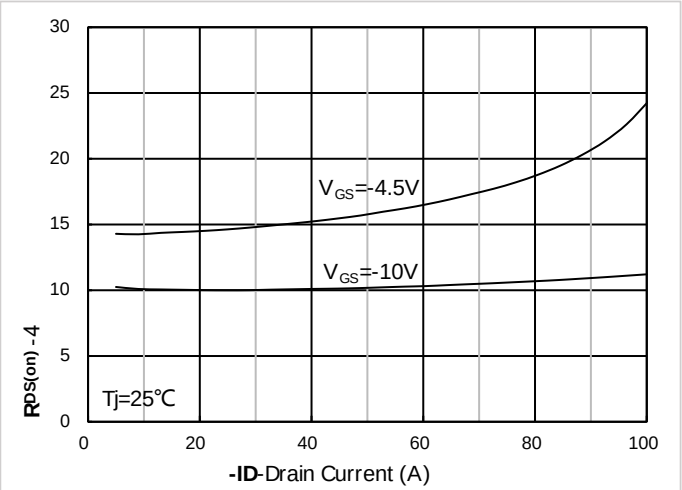


Figure 6. Normalized On-Resistance



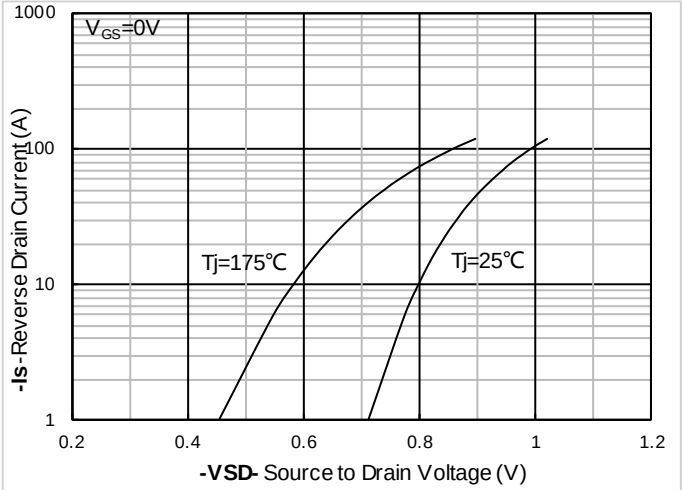


Figure 7. $R_{DS(on)}$ vs. Drain Current; typical values Figure



Figure 13. Maximum Transient Thermal Impedance

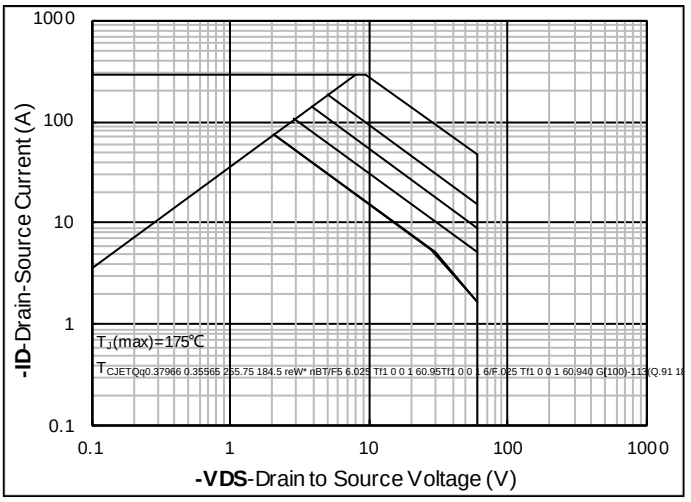
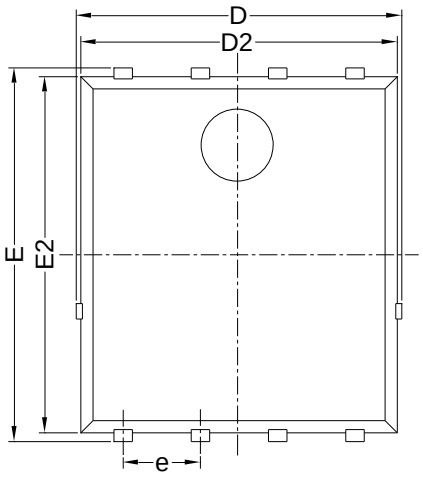
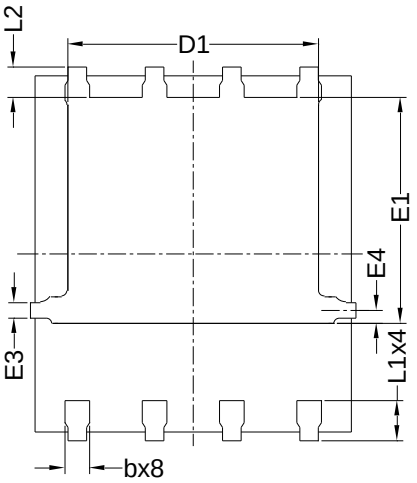


Figure 14. Safe Operation Area

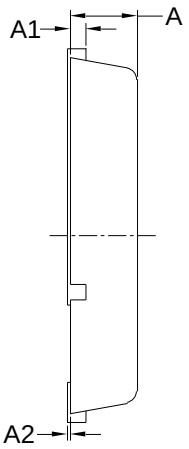
PDFN5060-8L-B-1.1MM Package information



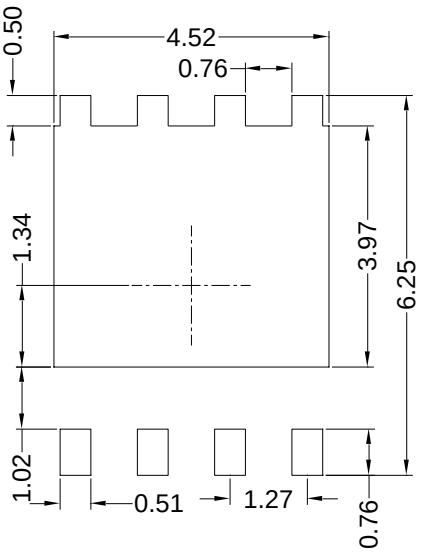
Top View



Bottom View



Side View

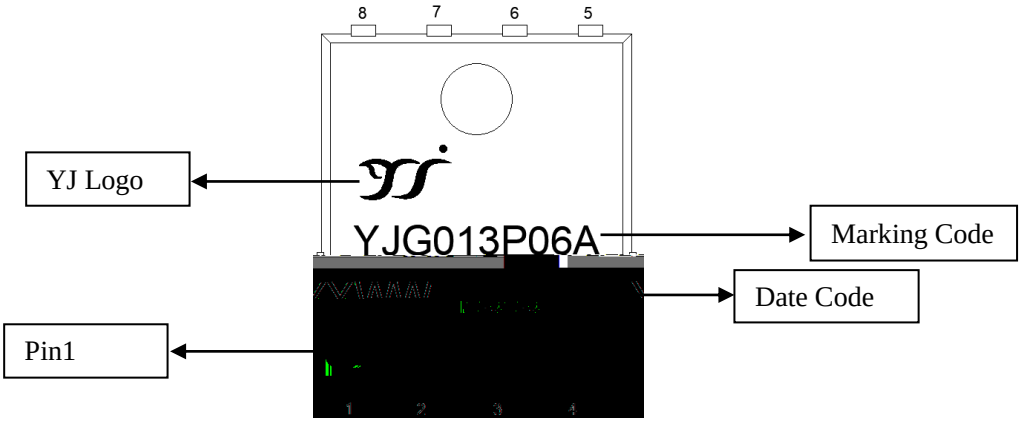


Suggested Solder Pad Layout
Top View

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.

Marking Information



Note
1. All marking is at middle of the product body
2. All marking is in laser printing
3. YJG013P06A is Marking Code, YYWW is date code, week
4. Body color: Black

Disclaimer

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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.

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