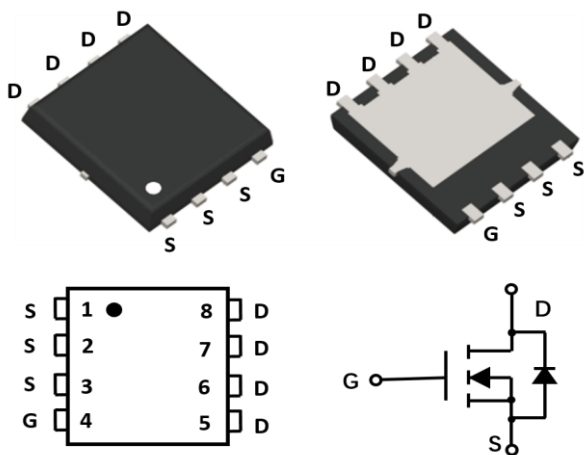


N-Channel Enhancement Mode Field Effect Transistor

PDFN5060-8L



Product Summary

- V_{DS} 40 V
- I_D 130 A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <1.8 mohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <3.0 mohm
- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- Consumer electronic power supply
- Motor control
- Synchronous- rectification
- Invertors

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	40	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current ^A	I_D	$T_C=25^\circ\text{C}$ 130	A
		$T_C=100^\circ\text{C}$ 82	
Pulsed Drain Current ^B	I_{DM}	390	A
Avalanche energy ^C	E_{AS}	200	mJ
Total Power Dissipation ^D	P_D	$T_C=25^\circ\text{C}$ 140	W
		$T_C=100^\circ\text{C}$ 56	
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.89	$^\circ\text{C}/\text{W}$
Thermal resistance, junction-ambient ^E	$R_{\theta JA}$	62	
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG130G04A	F1	YJG130G04A	5000	10000	100000	13" reel



YJG130G04A

■ 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 =250μA	40			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V,V _{GS} =0V			1	μA
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 =250μA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D =55A		1.3	1.8	mΩ
		V _{GS} = 4.5V, I _D =55A		2.0	3.0	
Diode Forward Voltage	V _{SD}	I _S =20A,V _{GS} =0V			1.3	V
Maximum Body-Diode Continuous Current	I _S				130	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =20V,V _{GS} =0V,f=1MHZ		6587		pF
Output Capacitance	C _{oss}			2537		
Reverse Transfer Capacitance	C _{rss}			179		
Switching Parameters						
Total Gate Charge	Q _g (10V)	V _{GS} =10V,V _{DS} =20V,I _D =20A		96.8		nC
Total Gate Charge	Q _g (4.5V)			41.1		
Gate-Source Charge	Q _{gs}			14.5		
Gate-Drain Charge	Q _{gd}			18.4		
Reverse Recovery Chrage	Q _{rr}	I _F =20A, di/dt=100A/us		557		ns
Reverse Recovery Time	t _{rr}			205		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =20V, R _L =2Ω I _O =20A		26.6		
Turn-on Rise Time	t _r			9.3		
Turn-off Delay Time	t _{D(off)}			96		
Turn-off fall Time	t _f			39		

- A. Calculated continuous current based on maximum allowable junction temperature.
 B. Repetitive rating; pulse width limited by max. junction temperature.
 C. V_{DD}=30 V, R_G=50 Ω, L=0.3 mH, starting T_J=25 °C.
 D. Pd is based on max. junction temperature, using junction-case thermal resistance.
 E. The value of R_{JA} is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25 °C.



■ Typical Performance Characteristics

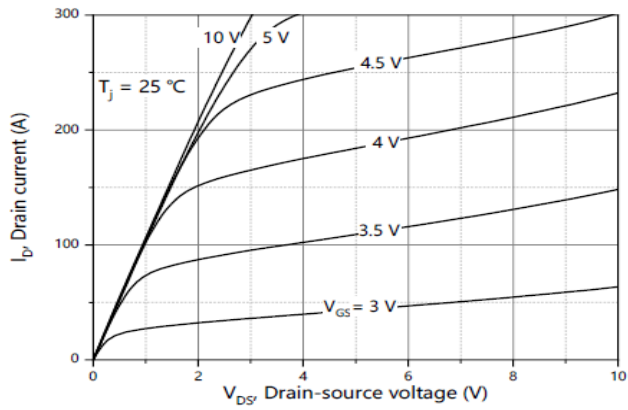


Figure1. Output Characteristics

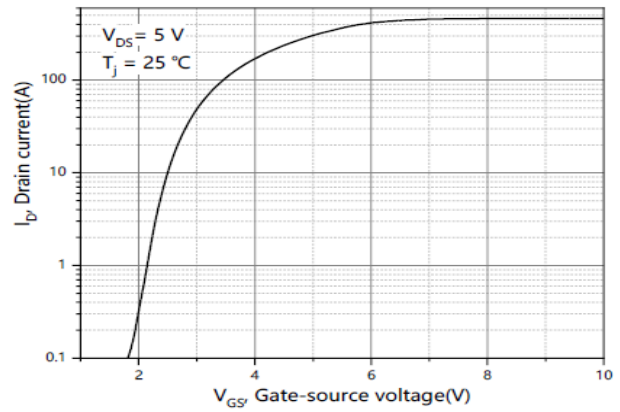


Figure2. Transfer Characteristics

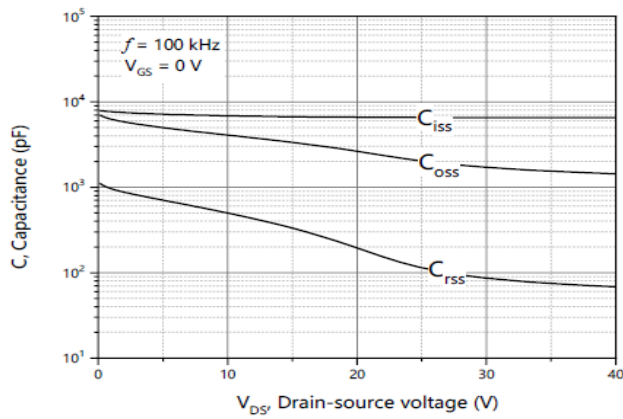


Figure3. Capacitance Characteristics

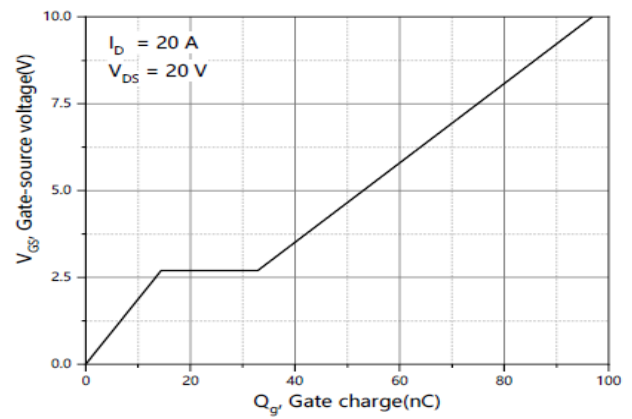


Figure4. Gate Charge

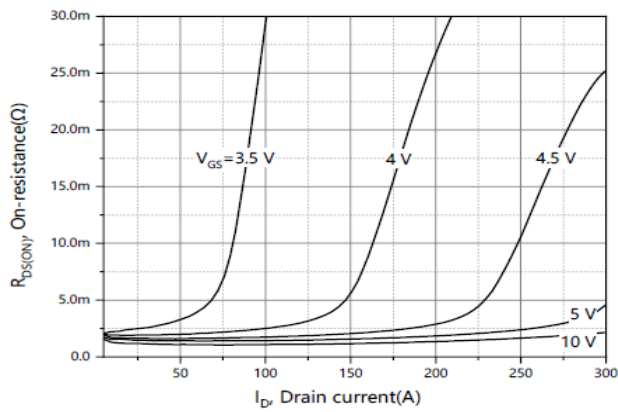


Figure5. Drain-Source on Resistance

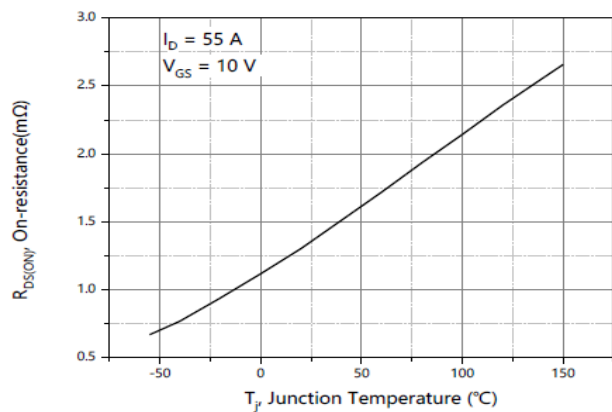


Figure6. Drain-Source on Resistance

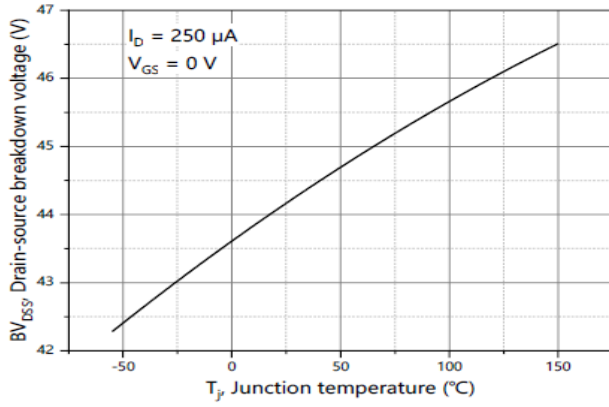


Figure7. Drain-Source Breakdown Voltage

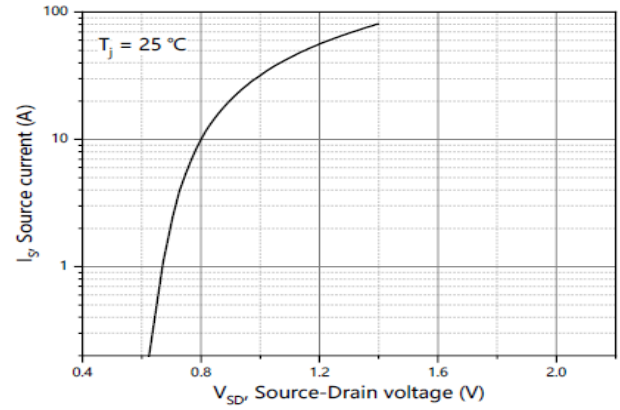


Figure8. Forward Characteristic of Body Diode

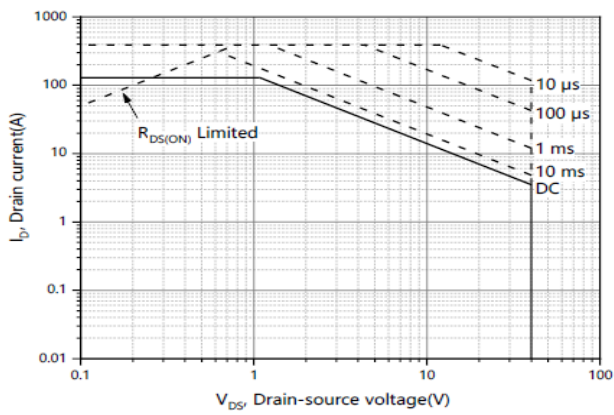


Figure9. Safe Operation Area

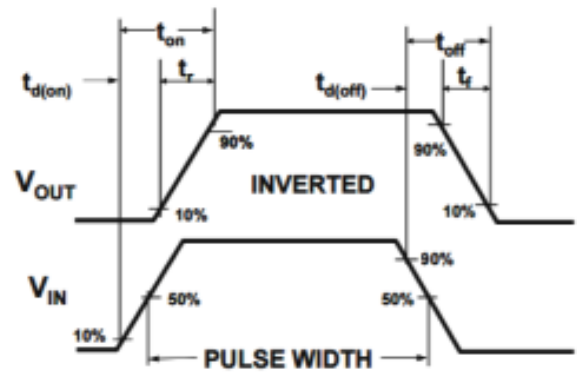
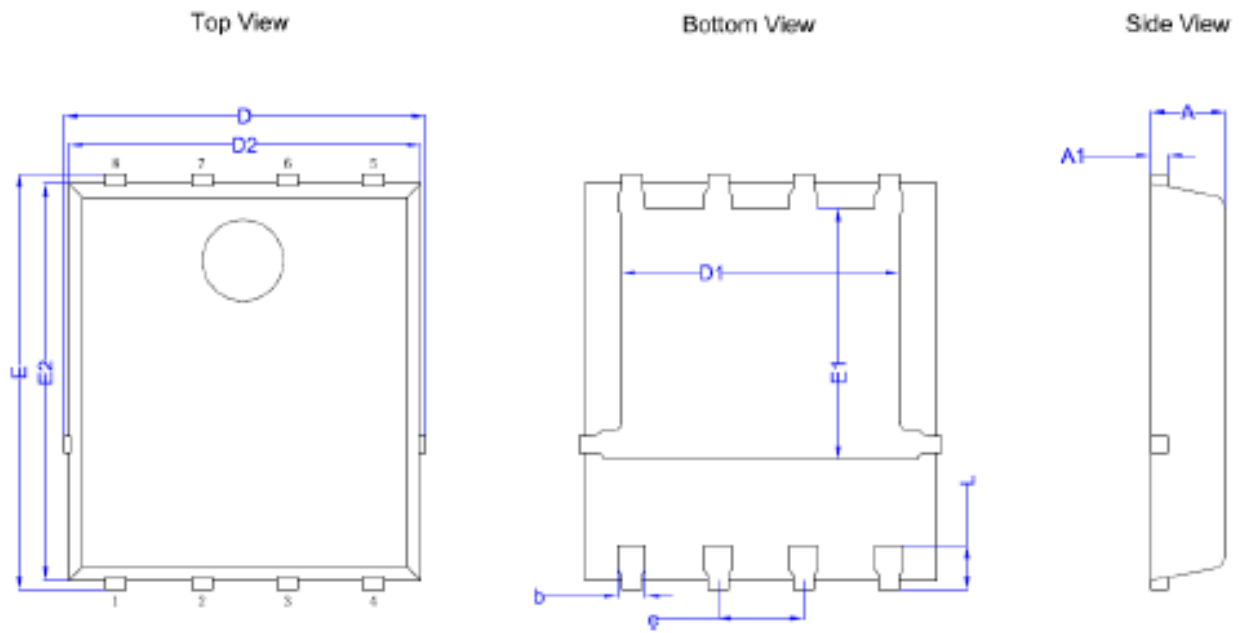


Figure10. Switching wave



YJG130G04A

■ PDFN5060-8L Package information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.00	1.10	1.20
A1	0.254 BSC		
D	5.15	5.35	5.55
E	5.95	6.15	6.35
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
e	1.27BSC		
b	0.31	0.41	0.51
L	0.56	0.66	0.76



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