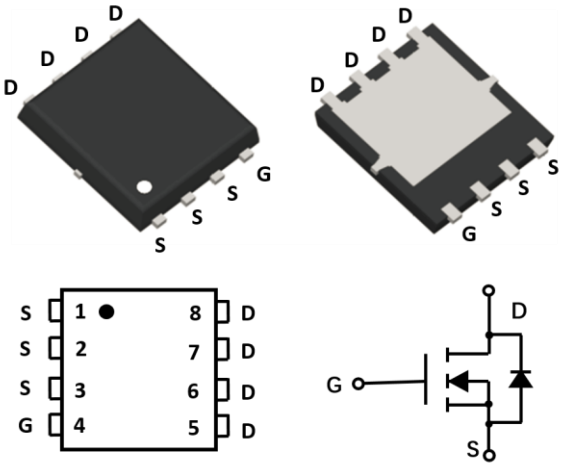
N-Channel Enhancement Mode Field Effect Transistor

PDFN5060-8L



Product Summary

- V_{DS} 80V
- I_D 64A
- I_D (Package limited) 48A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜8.0 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜10.0 mohm
- 100% UIS Tested
- 100% ▽V_{DS} Tested

General Description

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Fast switching and soft recovery

Applications

- Motor control
- Synchronous-rectification
- Isolated DC/DC convertor
- Invertors

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	80	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current		I_D	64	A
Drain Current [A]	T_C=25℃	I_D	48	A
	T_C=100℃		30.2	
Pulsed Drain Current [B]		I_{DM}	192	A
Avalanche energy [C]		E_{AS}	25	mJ
Total Power Dissipation [D]	Tc=25℃	P_D	87	W
	Tc=100℃		35	
Thermal Resistance Junction-to-Case		$R_{\theta JC}$	1.72	℃/ W
Thermal Resistance Junction-to-Ambient		$R_{\theta JA}$	62	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+175	℃

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG48G08A	F1	YJG48G08A	5000	10000	50000	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=250μA	80			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V,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=12A		6.2	8.0	mΩ
		V_{GS}= 4.5V, I_D=9A		7.8	10	
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V			1.3	V
Maximum Body-Diode Continuous Current	I_S				48	A
Gate resistance	R_G	f= 1 MHz, Open drain		3.3		Ω
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=100KHZ		2028		pF
Output Capacitance	C_{oss}			716		
Reverse Transfer Capacitance	C_{rss}			54		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=50V,I_D=25A		28.9		nC
Gate-Source Charge	Q_{gs}			5.4		
Gate-Drain Charge	Q_{gd}			4.9		
Reverse Recovery Chrage	Q_{rr}	I_F=25A, di/dt=100A/us		61		
Reverse Recovery Time	t_{rr}			51		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V, V_{DD}=50V,I_D=25A R_{GEN}=2.5Ω		22.5		
Turn-on Rise Time	t_r			6.3		
Turn-off Delay Time	$t_{D(off)}$			47.5		
Turn-off fall Time	t_f			8.8		

A. The maximum current rating is package limited.
B. Repetitive rating; pulse width limited by max. junction temperature.
C. V_{DD}=50V, R_G=25Ω, L=0.3mH, starting T_J=25 ℃.
D. Pd is based on max. junction temperature, using junction-case thermal resistance.

■ Typical Performance Characteristics

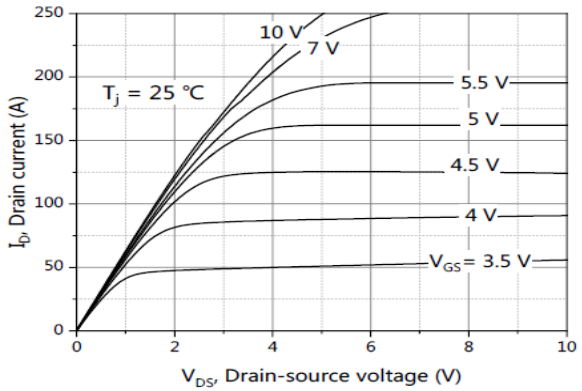


Figure1. Output Characteristics

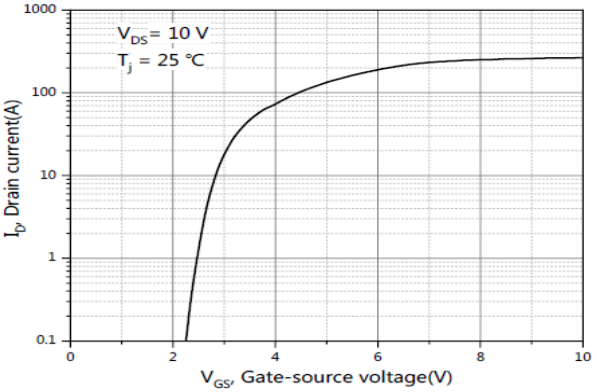


Figure2. Transfer Characteristics

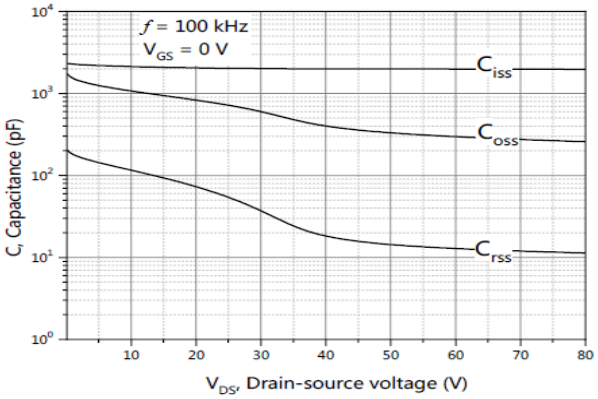


Figure3. Capacitance Characteristics

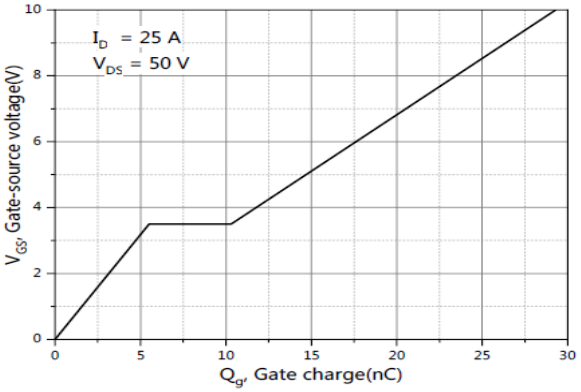


Figure4. Gate Charge

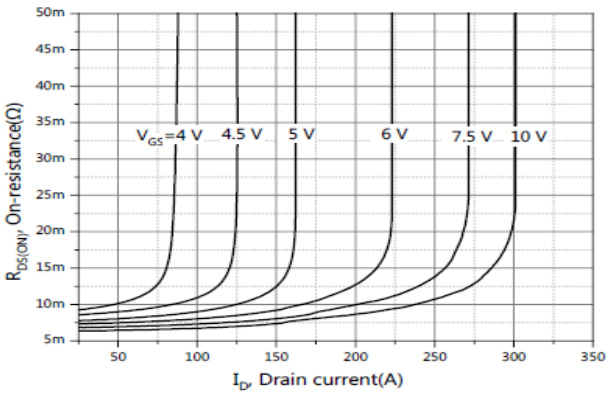


Figure5. Drain-Source on Resistance

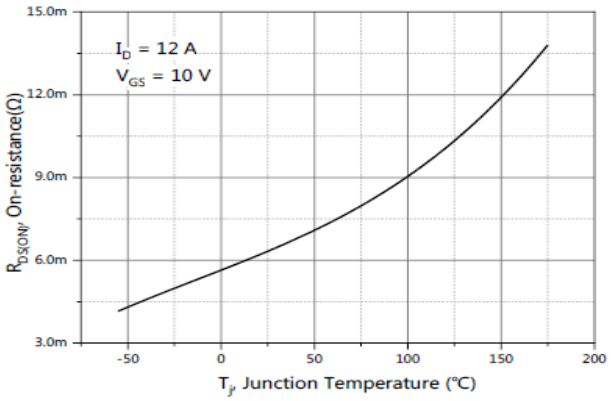


Figure6. Drain-Source on Resistance

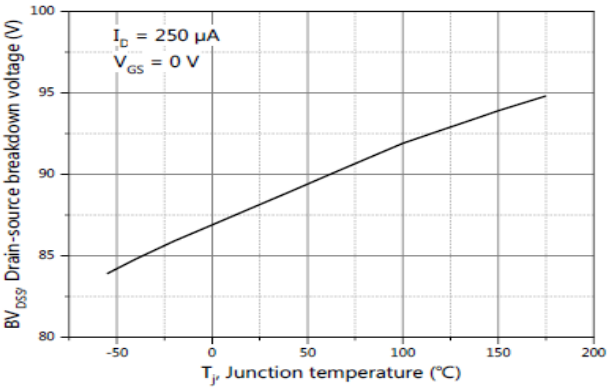


Figure7. Drain-source breakdown voltage

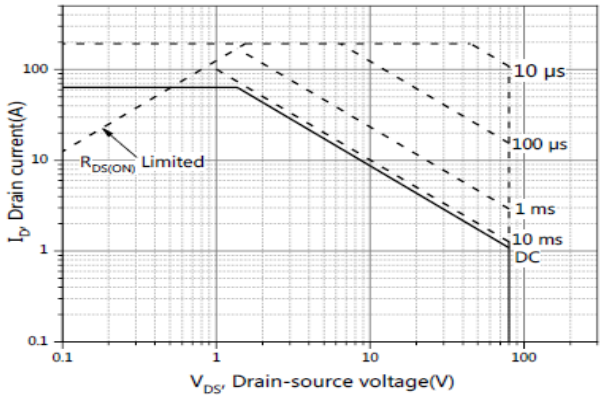


Figure8.Safe Operation Area

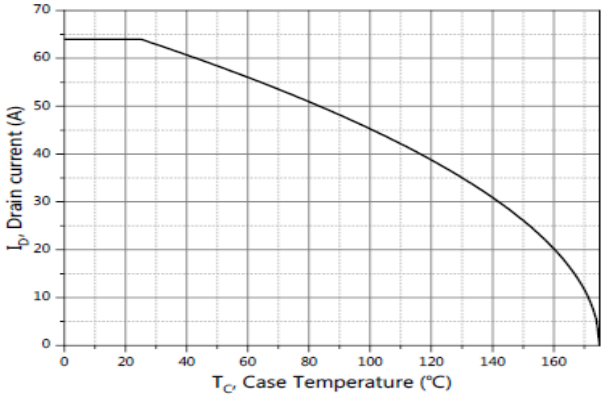


Figure9. Drain current

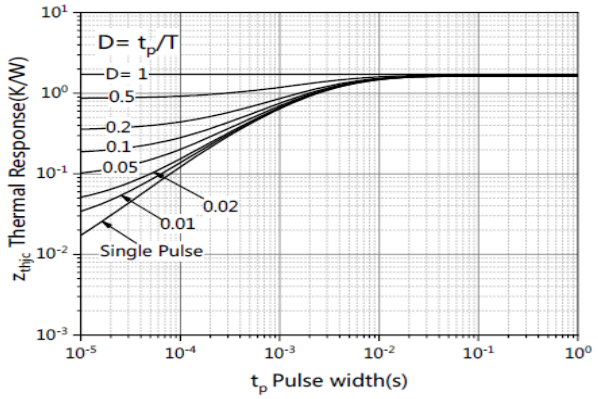
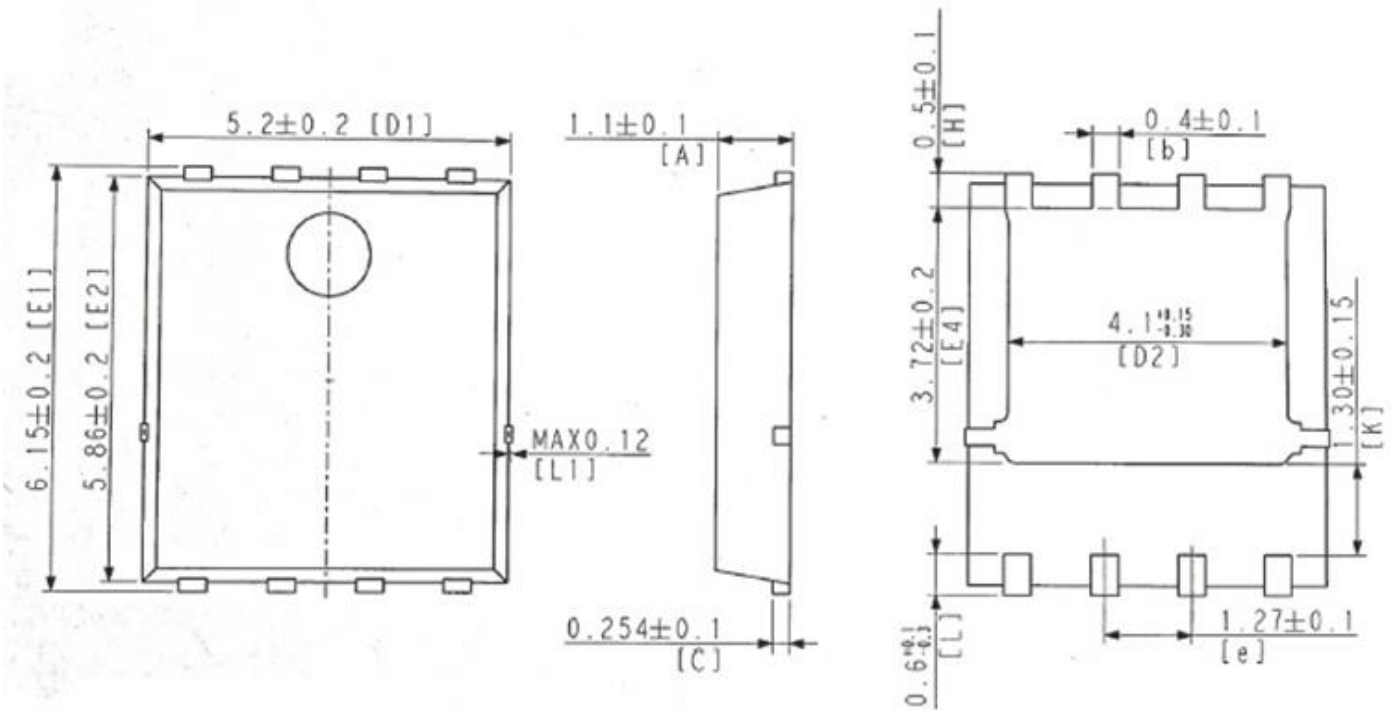


Figure10.Transient thermal impedance

■ PDFN5060-8L Package information



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