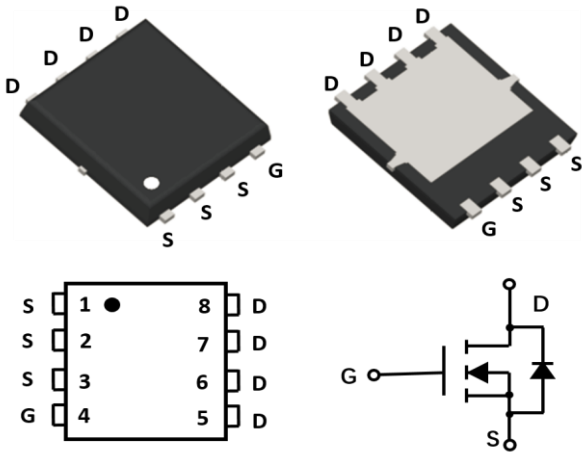
N-Channel Enhancement Mode Field Effect Transistor

PDFN5060-8L



Product Summary

- V_{DS} 60V
- I_D 53A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜8.2 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜12 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

- DC-DC Converters
- Power management functions
- Industrial and Motor Drive 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	Tc=25℃	I_D	53	A
	Tc=100℃		34	
Pulsed Drain Current [A]		I_{DM}	160	A
Avalanche energy [B]		E_{AS}	195	mJ
Total Power Dissipation	Tc=25℃	P_D	75	W
	Tc=100℃		30	
Thermal Resistance Junction-to-Case		$R_{\theta JC}$	1.8	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG53G06A	F2	YJG53G06A	3000	6000	60000	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		60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	T_J=25℃			1	μA
			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=250μA		1.2	1.7	2.2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=20A			6.8	8.2	mΩ
		V_{GS}= 4.5V, I_D=10A			9.5	12	
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V			0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S					53	A
Dynamic Parameters							
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V,f=1MHZ			1990		pF
Output Capacitance	C_{oss}				470		
Reverse Transfer Capacitance	C_{rss}				14		
Switching Parameters							
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=30V,I_D=20A			31		nC
Gate-Source Charge	Q_{gs}				6		
Gate-Drain Charge	Q_{gd}				5		
Reverse Recovery Chrage	Q_{rr}	I_F=20A, di/dt=500A/us			17		
Reverse Recovery Time	t_{rr}				58		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DD}=30V,R_L=2.5Ω R_{GEN}=3Ω			10		
Turn-on Rise Time	t_r				5		
Turn-off Delay Time	$t_{D(off)}$				30		
Turn-off fall Time	t_f				8		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

B. T_j=25℃, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25Ω

■ Typical Performance Characteristics

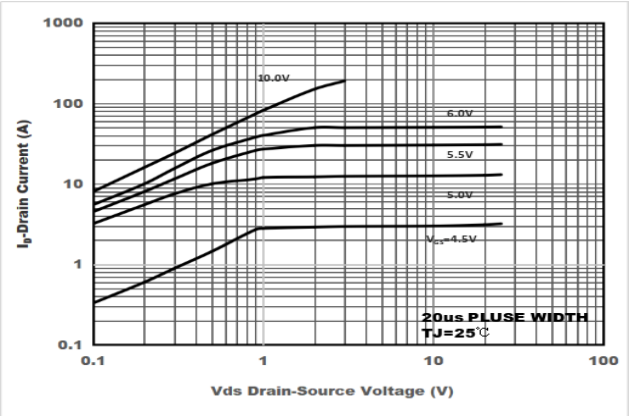


Figure1. Output Characteristics

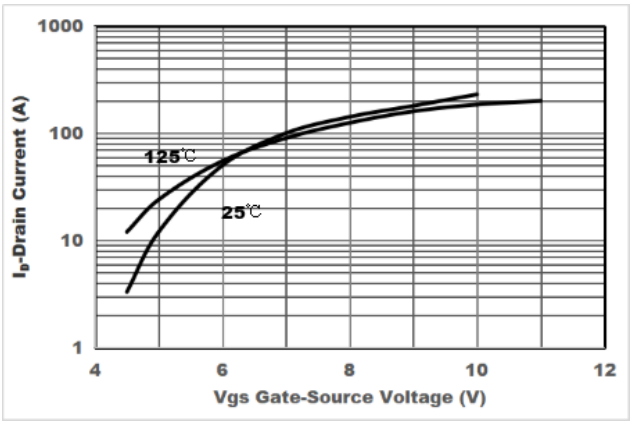


Figure2. Transfer Characteristics

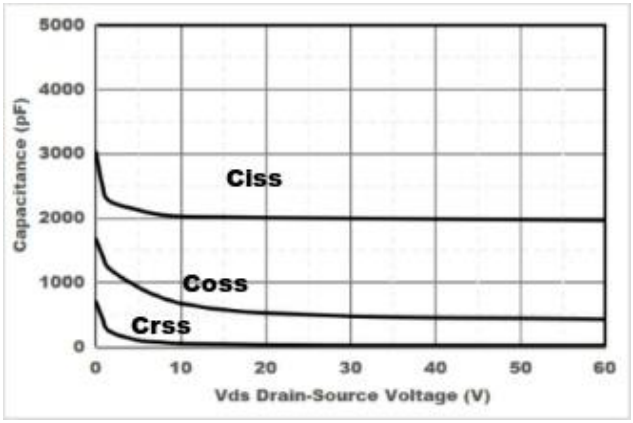


Figure3. Capacitance Characteristics

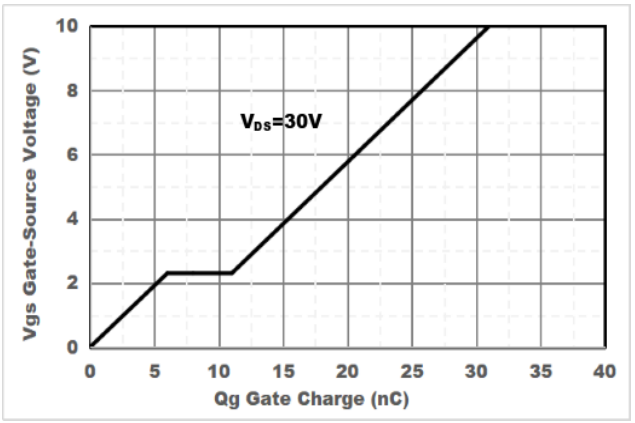


Figure4. Gate Charge

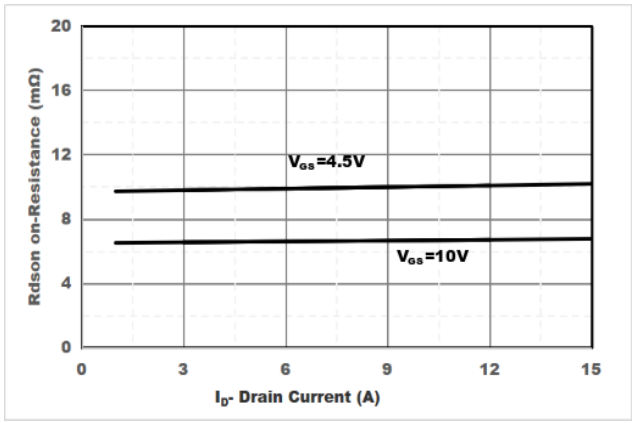


Figure5. Drain-Source on Resistance

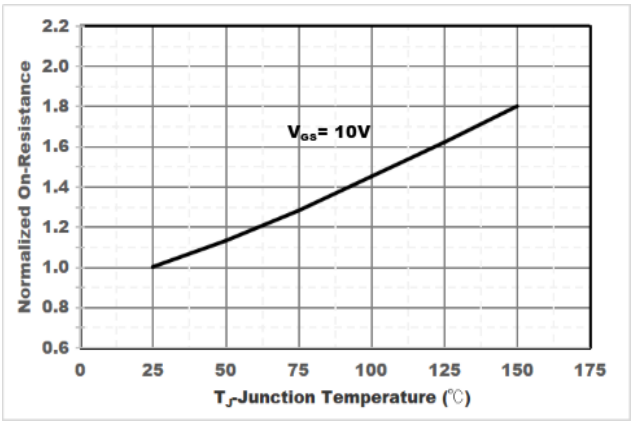


Figure6. Drain-Source on Resistance

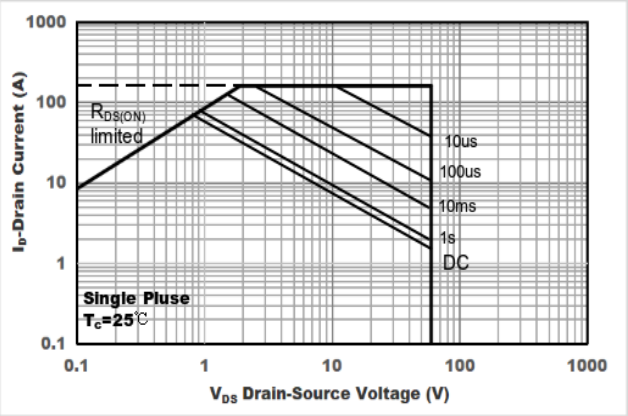


Figure7. Safe Operation Area

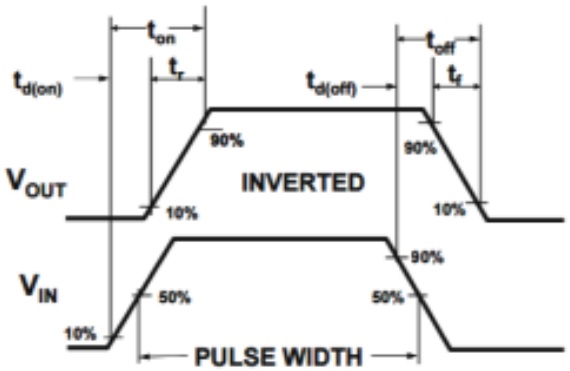
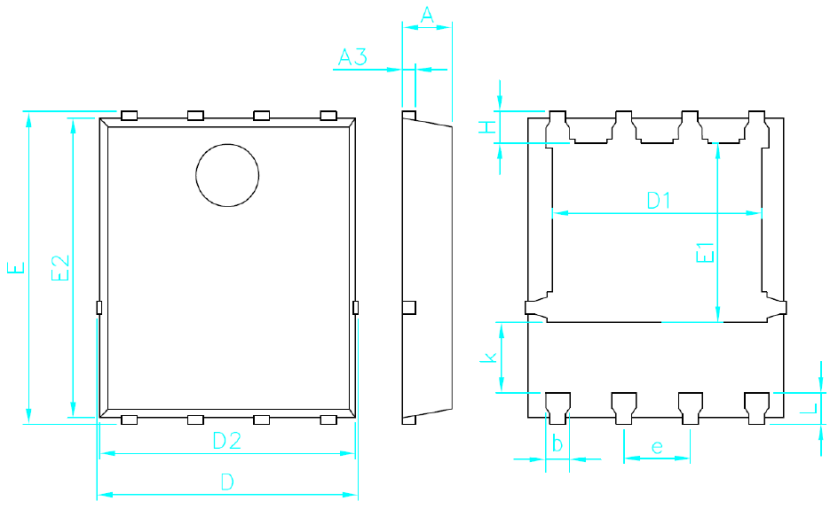


Figure8. Switching wave

■ PDFN5060-8L Package information



Symbol	Min	Typ.	Max
A	0.900	0.950	1.000
A3		0.254REF.	
D	4.900	5.000	5.100
E	5.900	6.000	6.100
D1	3.750	3.950	4.150
E1	3.300	3.450	3.600
D2	4.800	4.900	5.000
E2	5.650	5.750	5.850
k	1.200	1.350	1.500
b	0.350	0.400	0.450
e	1.220	1.270	1.320
L	0.510	0.610	0.710
H	0.510	0.610	0.710

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