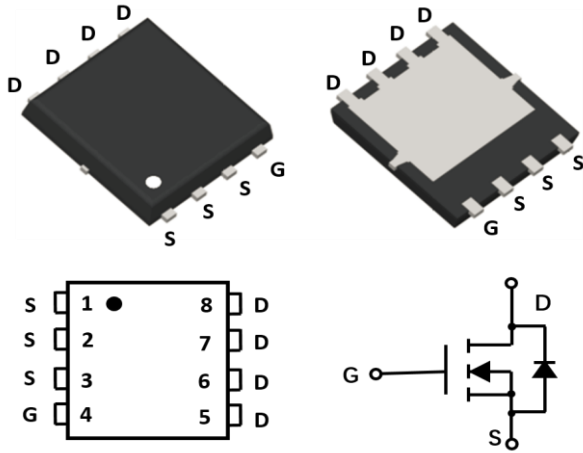


N-Channel Enhancement Mode Field Effect Transistor

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

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	60	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	I_D	$T_C=25^\circ\text{C}$	53
		$T_C=100^\circ\text{C}$	34
Pulsed Drain Current ^A	I_{DM}	160	A
Avalanche energy ^B	E_{AS}	195	mJ
Total Power Dissipation	P_D	$T_C=25^\circ\text{C}$	43
		$T_C=100^\circ\text{C}$	17
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	2.9	$^\circ\text{C}/\text{W}$
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
YJG53G06A	F1	YJG53G06A	5000	10000	100000	13" reel



YJG53G06A

■ Electrical Characteristics (T_J=25°C 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°C		1	μA
			T _J =55°C		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	2.5	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		1980		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 Charge	Q _{rr}	I _F =20A, di/dt=500A/us		17		ns
Reverse Recovery Time	t _{rr}			58		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =30V, R _L =2.5Ω R _{GEN} =3Ω		10		ns
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°C, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25Ω



■ Typical Performance Characteristics

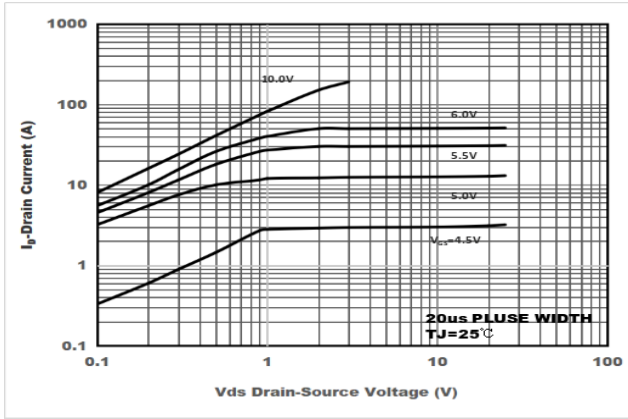


Figure1. Output Characteristics

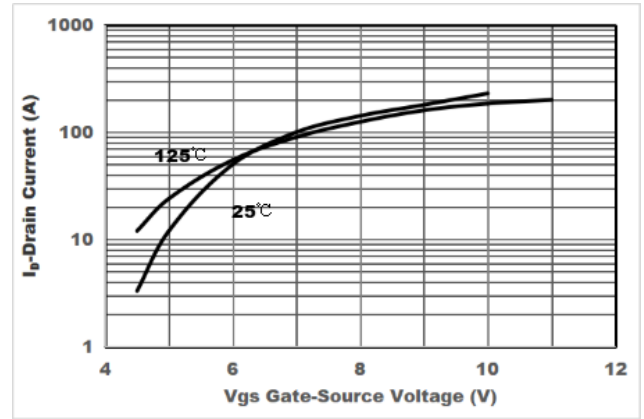


Figure2. Transfer Characteristics

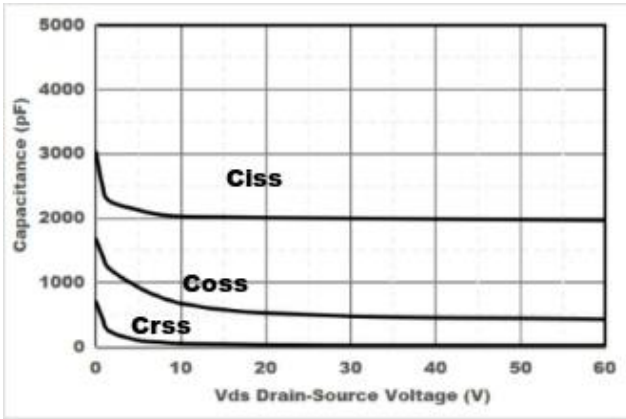


Figure3. Capacitance Characteristics

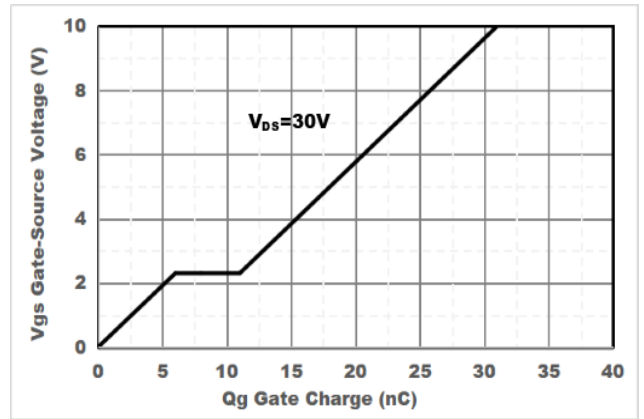


Figure4. Gate Charge

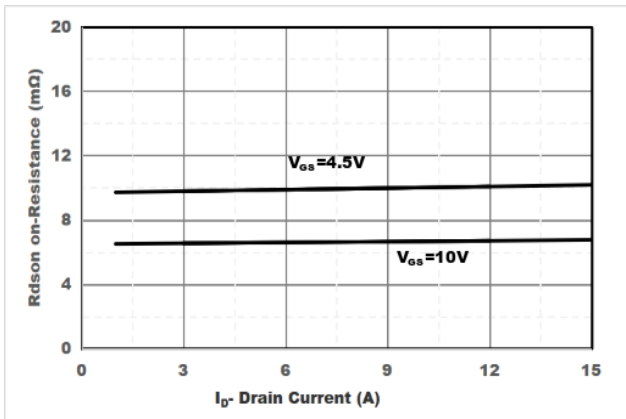


Figure5. Drain-Source on Resistance

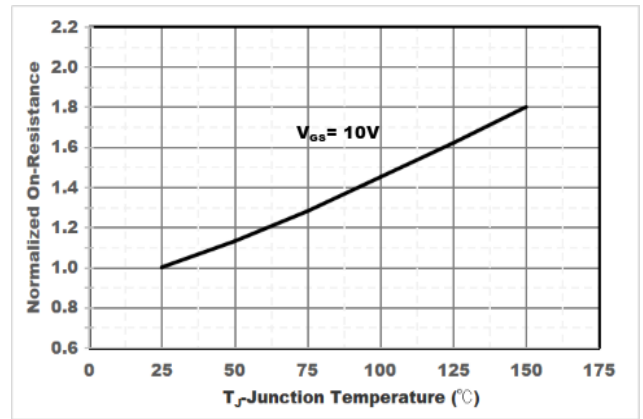


Figure6. Drain-Source on Resistance



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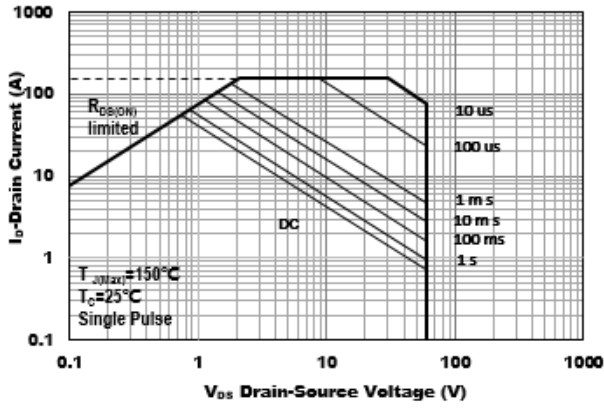


Figure7. Safe Operation Area

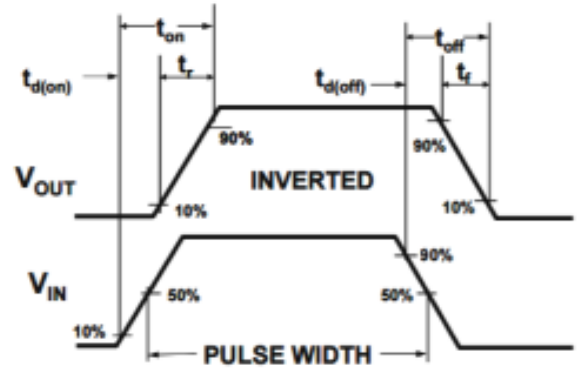
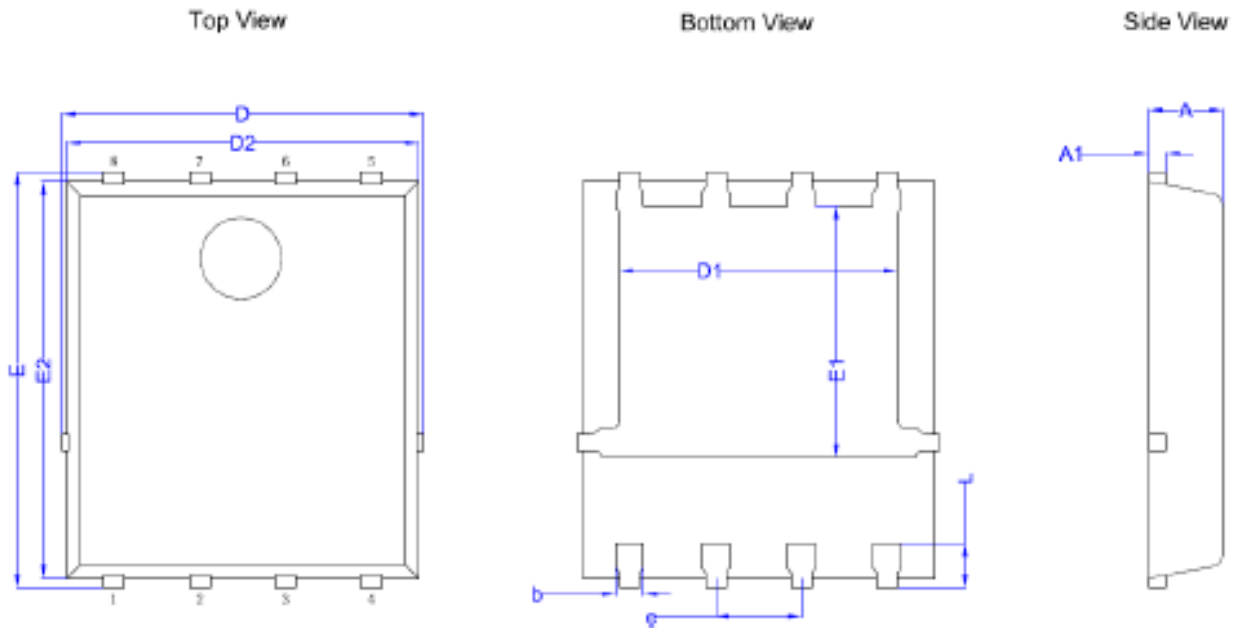


Figure8. Switching wave



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■ 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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