



PRODUCT DATA SHEET



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Datasheet



Resources

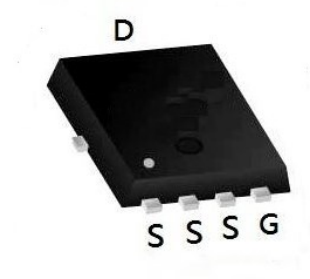


Samples

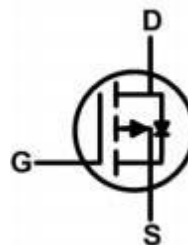
Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

Product Summary

BVDSS	RDS(on)	ID
-40V	6.4mΩ	-60A


PDFN5060-8L

- ★ Super Low Gate Charge
- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology


Absolute Maximum Ratings (T_A = 25°C, unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V _{DS}	-40	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C =25°C	I _D	-60	A
	T _C =100°C		-50.6	
Pulsed Drain Current ¹		I _{DM}	-320	A
Single Pulse Avalanche Energy ²		EAS	101.25	mJ
Total Power Dissipation	T _C =25°C	P _D	81.16	W
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient ³	R _{θJA}	54	°C/W
Thermal Resistance from Junction-to-Case	R _{θJC}	1.54	°C/W

Electrical Characteristics $T_J = 25^{\circ}\text{C}$, unless otherwise noted

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-40	-	-	V
Gate-body Leakage current		I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T _J =25°C	I _{DSS}	V _{DS} = -40V, V _{GS} = 0V	-	-	-1	pA
	T _J =100°C			-	-	-100	
Gate-Threshold Voltage		V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.6	-2.5	V
Drain-Source on-Resistance ⁴		R _{DS(on)}	V _{GS} = -10V, I _D = -20A	-	6.4	8.2	mΩ
			V _{GS} = -4.5V, I _D = -15A	-	8.2	11	
Forward Transconductance ⁴		g _{fs}	V _{DS} = -10V, I _D = -20A	-	104	-	S
Dynamic Characteristics ⁵							
Input Capacitance		C _{iss}	V _{DS} = -20V, V _{GS} =0V, f =1MHz	-	5295	-	pF
Output Capacitance		C _{oss}		-	430	-	
Reverse Transfer Capacitance		C _{rss}		-	385	-	
Gate Resistance		R _g	f =1MHz	-	4.3	-	Q
Switching Characteristics ⁵							
Total Gate Charge		Q _g	V _{GS} = -10V, V _{DS} = -20V, I _D = -20A	-	110	-	nC
Gate-Source Charge		Q _{gs}		-	12.5	-	
Gate-Drain Charge		Q _{gd}		-	23	-	
Turn-on Delay Time		t _{d(on)}	V _{GS} = -10V, V _{DD} = -20V, R _G = 3Ω , I _D = -20A	-	16.8	-	ns
Rise Time		t _r		-	10	-	
Turn-off Delay Time		t _{d(off)}		-	65	-	
Fall Time		t _f		-	17	-	
Body Diode Reverse Recovery Time		t _{rr}	I _F = -20A, dI/dt= 100A/μs	-	42	-	ns
Body Diode Reverse Recovery Charge		Q _{rr}		-	29	-	nC
Drain- Source Body Diode Characteristics							
Diode Forward Voltage ⁴		V _{SD}	I _S = -20A, V _{GS} = 0V	-	-	-1.2	V
Continuous Source Current	T _C =25°C	I _S	-	-	-	-60	A

Typical Characteristics

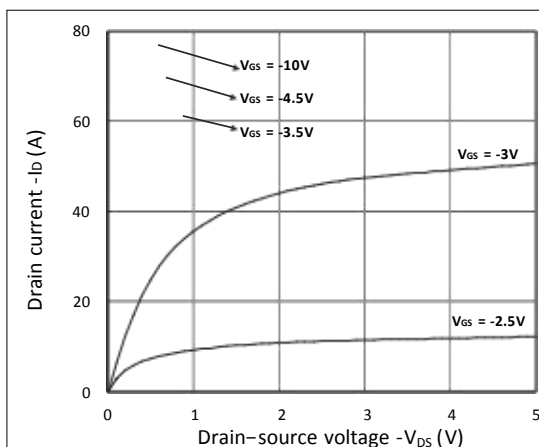


Figure 1. Output Characteristics

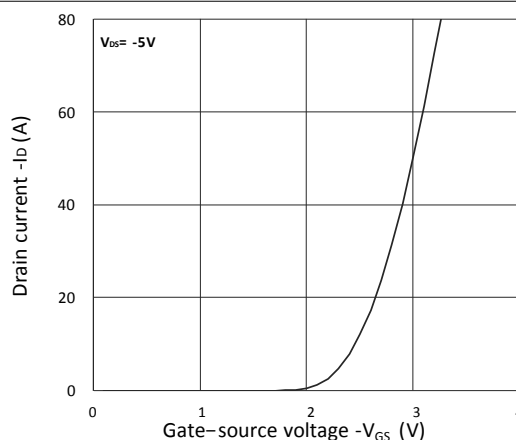


Figure 2. Transfer Characteristics

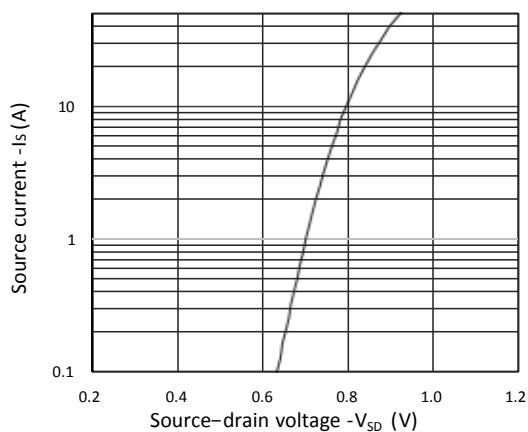


Figure 3. Forward Characteristics of Reverse

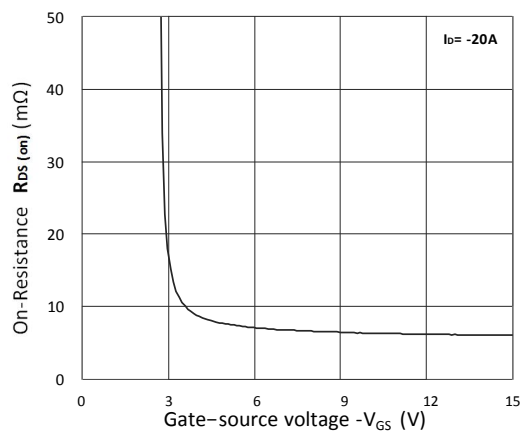


Figure 4. $R_{DS(on)}$ vs. V_{GS}

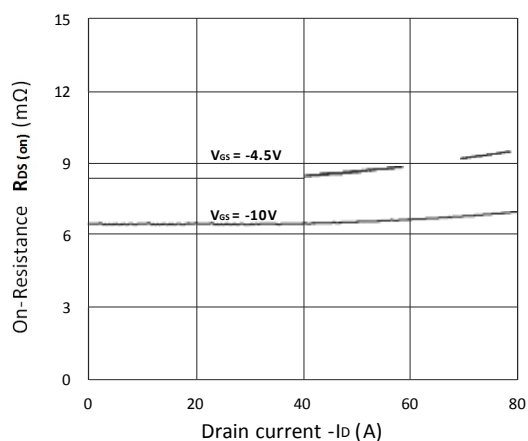


Figure 5. $R_{DS(on)}$ vs. I_D

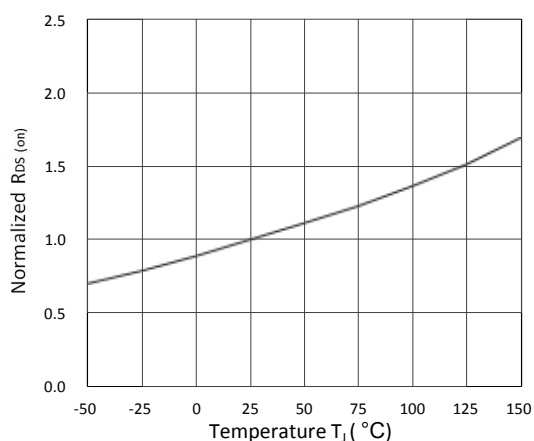


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

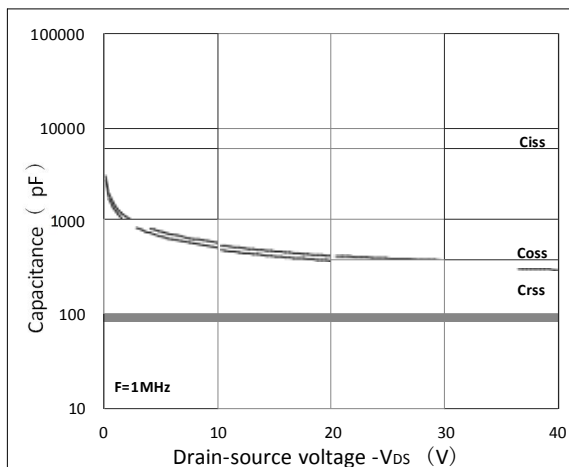


Figure 7. Capacitance Characteristics

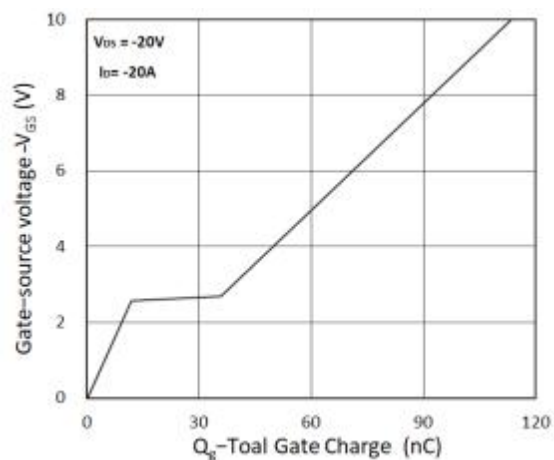


Figure 8. Gate Charge Characteristics

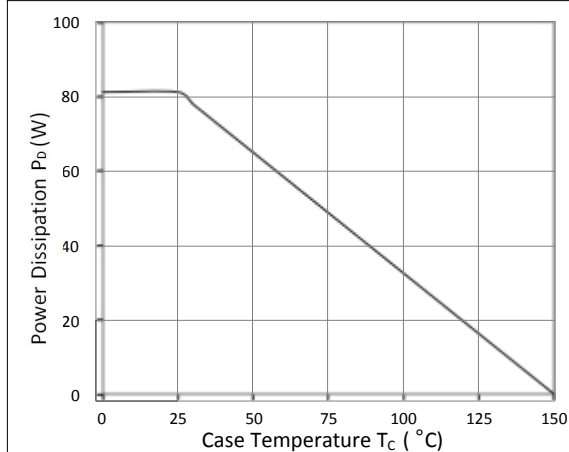


Figure 9. Power Dissipation

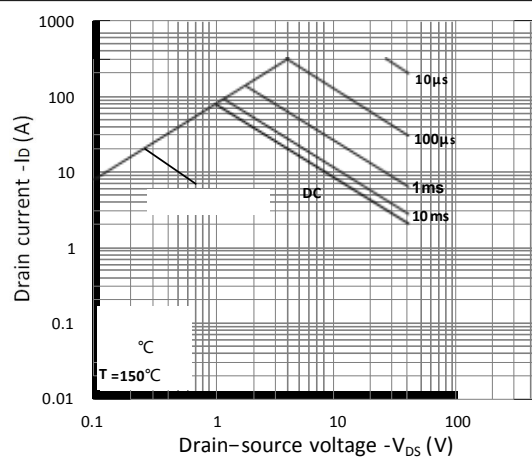


Figure 10. Safe Operating Area

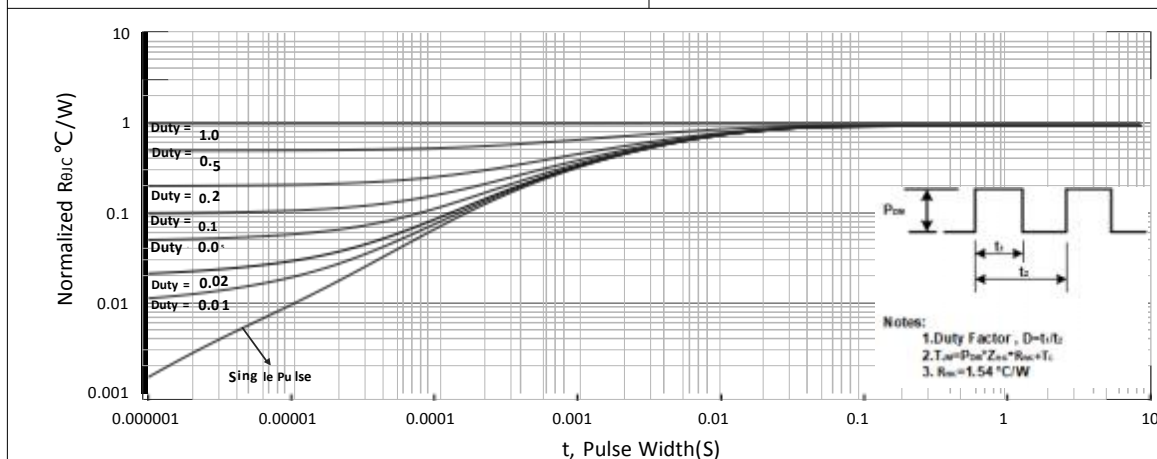
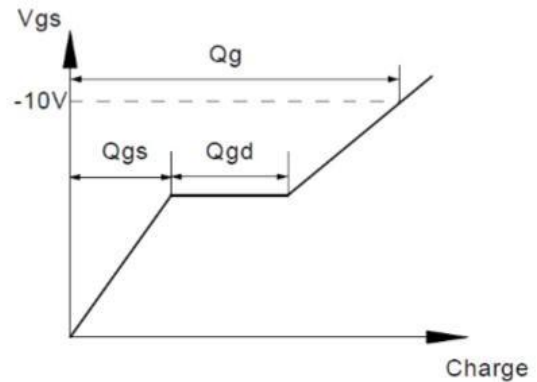
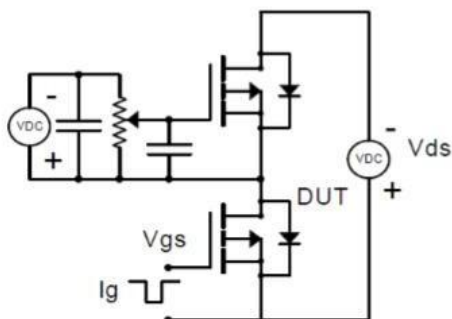


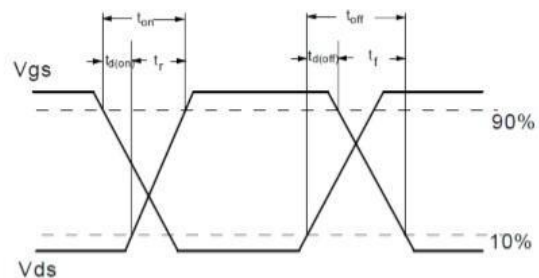
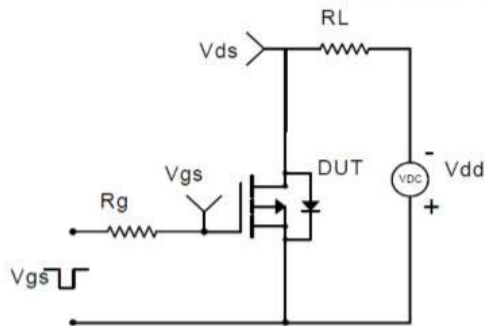
Figure 11. Normalized Maximum Transient Thermal Impedance

Test Circuit

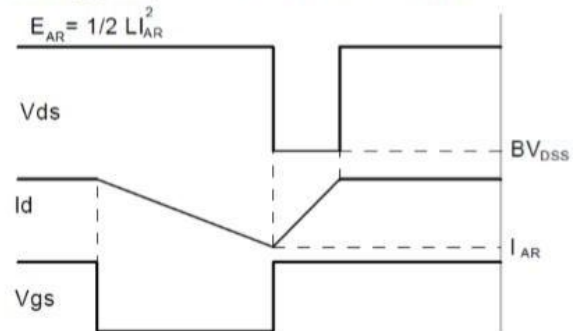
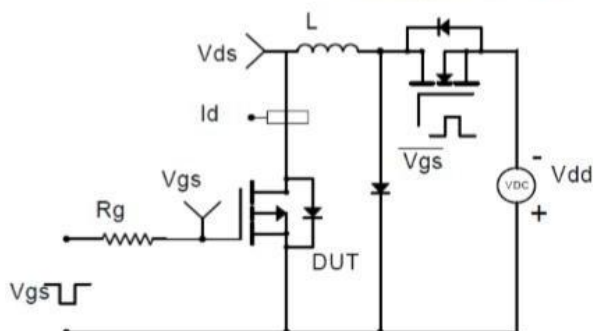
Gate Charge Test Circuit & Waveform



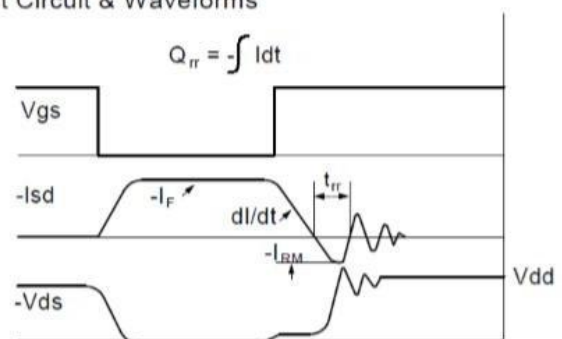
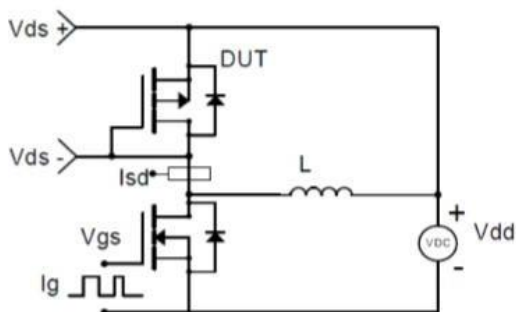
Resistive Switching Test Circuit & Waveforms



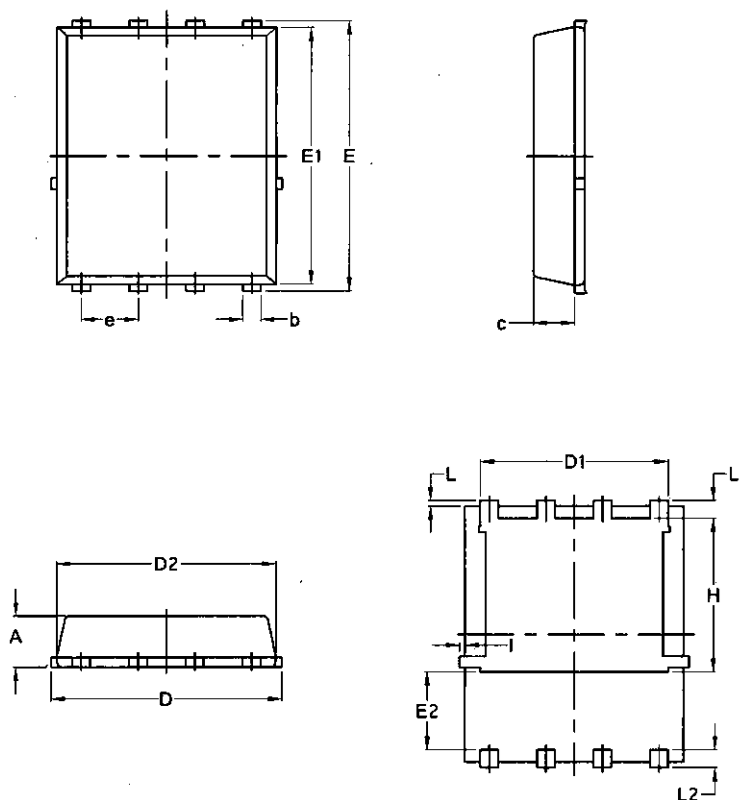
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Package Mechanical Data-PDFN5060-8L Single



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070

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