Features

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

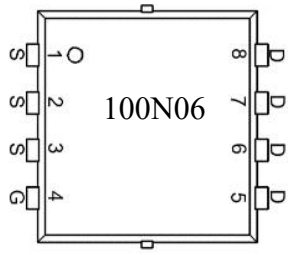
Bvdss	Rdson	ID
65V	3.7mΩ	100A

Application

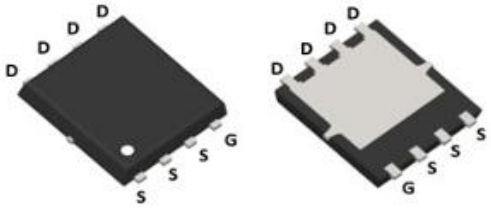
RoHS

- DC-DC converter
- Power management functions
- Synchronous-rectification applications

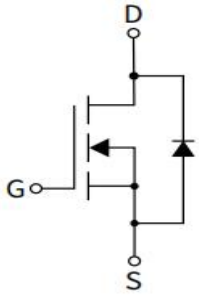
Package



Marking and pin assignment



PDFN5x6-8L top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
100N06	S100N06HF	PDFN5x6-8L	5000

Absolute Maximum Ratings (T_C=25℃unless otherwise specified)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	65	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	100	A
	T_C =100℃	I_D	61	A
Pulsed Drain Current[1]		I_{DM}	380	A
Single Pulsed Avalanche Energy[2]		EAS	80	mJ
Power Dissipation		P_D	73.5	W
Junction Temperature		T_J	-55 ~ 150	℃
Storage Temperature		T_{STG}	-55 ~ 150	℃

Thermal Resistance Ratings

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance,Junction-to-Ambient[3]	$R_{\theta JA}$	--	51	℃/W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	--	1.7	℃/W

Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HLS100N06HF	PDFN5x6-8L	4	5,6,7,8	1,2,3	Tape Reel

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V,I_D=250μA	65	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=65V,V_{GS}=0V	-	-	1	μA
Gate-Source Forward Leakage	I_{GSS}	V_{GS}=±20V	-	-	100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS},I_D=250μA	2	2.9	4	V
Drain-Source On-State Resistance[4]	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	-	3.7	5	mΩ
Forward Transconductance[4]	gfs	V_{DS}=10V , I_D=20A	-	89	-	S
Input Capacitance	C_{lss}	V_{DS}=30V,V_{GS}=0V, f=1MHz	-	1673	-	pF
Output Capacitance	C_{oss}		-	773	-	
Reverse Transfer Capacitance	C_{rss}		-	46.8	-	
gate resistance	R_g	f=1.0MHz	-	1.8	-	Ω
Turn-on Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DD}=30V, R_G=3Ω,I_D=20A	-	11.2	-	nS
Turn-on Rise Time	tr		-	8.2	-	
Turn-Off Delay Time	$T_{d(off)}$		-	19.6	-	
Turn-Off Fall Time	T_f		-	6.2	-	
Total Gate Charge	Q_g	V_{DS}=30V,V_{GS}=10V, I_D=20A	-	28.5	-	nC
Gate-Source Charge	Q_{gs}		-	7.8	-	
Gate-Drain Charge	Q_{gd}		-	8.4	-	
Diode Forward Voltage[4]	V_{SD}	V_{GS}=0V,I_S=20A	-	-	1.2	V
Continuous Diode Forward Current	I_S	-	-	-	100	A
Reverse Recovery Time	t_{rr}	I_F=20A,di/dt = 100A/μs	-	50	-	nS
Reverse Recovery Charge	Q_{rr}		-	20	-	nC

Notes:

1. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150° C
2. The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH，I_{AS}=40A.
3. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
4. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
5. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

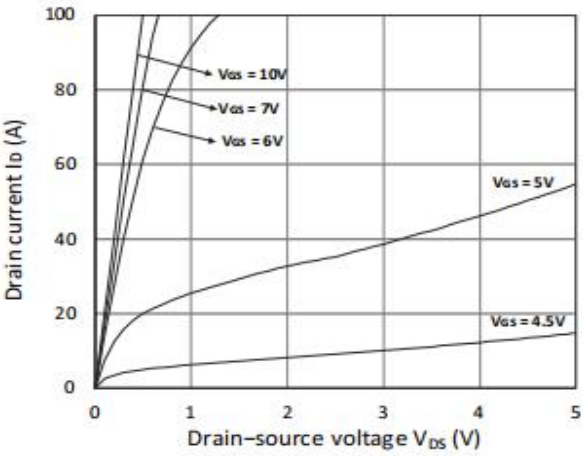


Figure 1. Output Characteristics

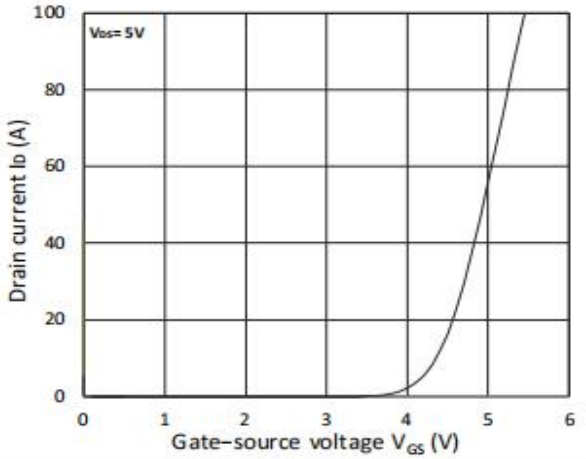


Figure 2. Transfer Characteristics

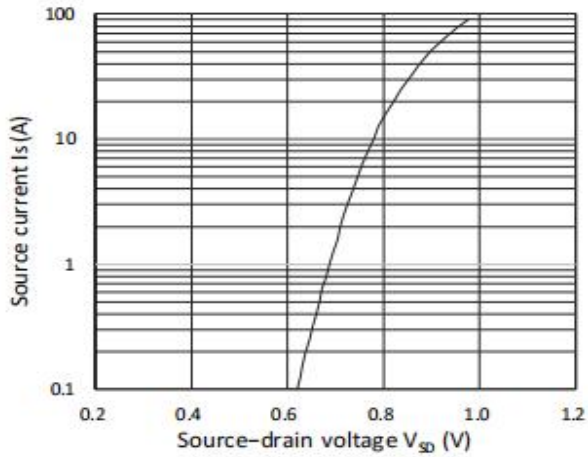


Figure 3. Forward Characteristics of Reverse

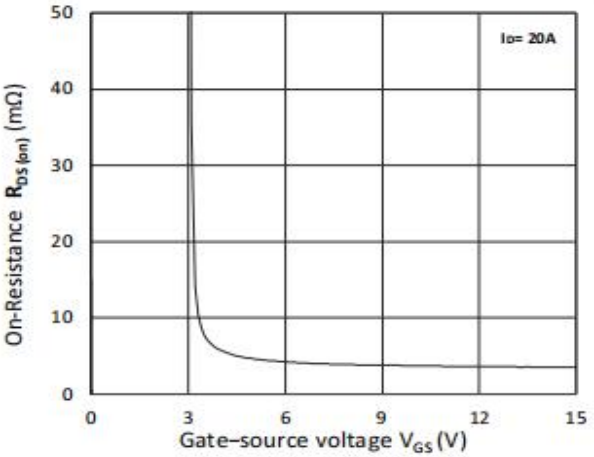


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

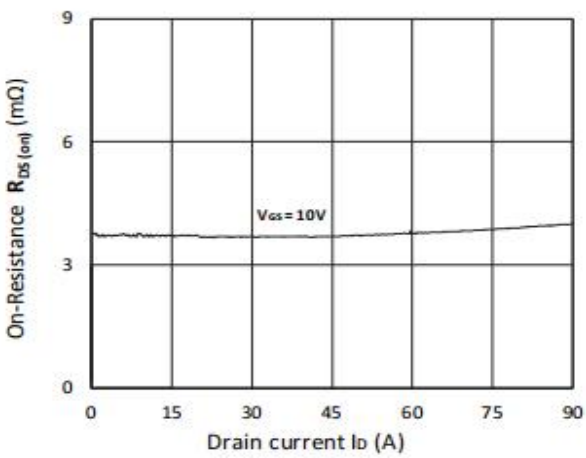


Figure 5. $R_{DS(ON)}$ vs. I_D

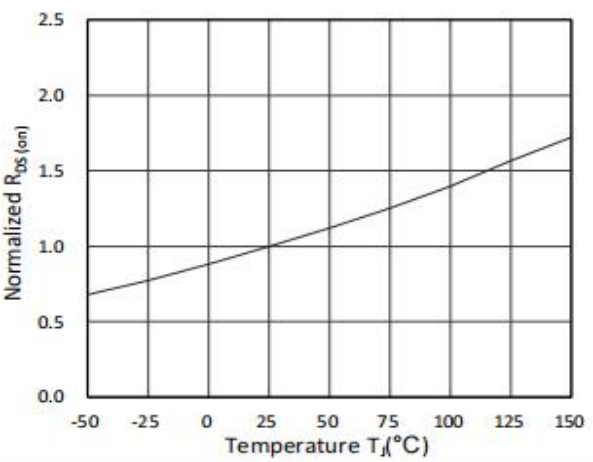


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

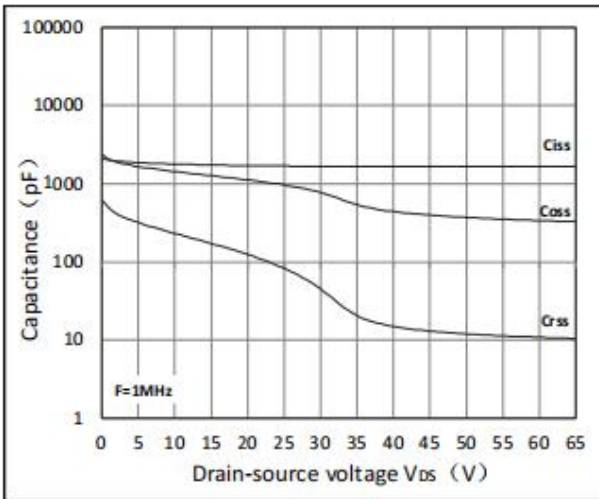


Figure 7. Capacitance Characteristics

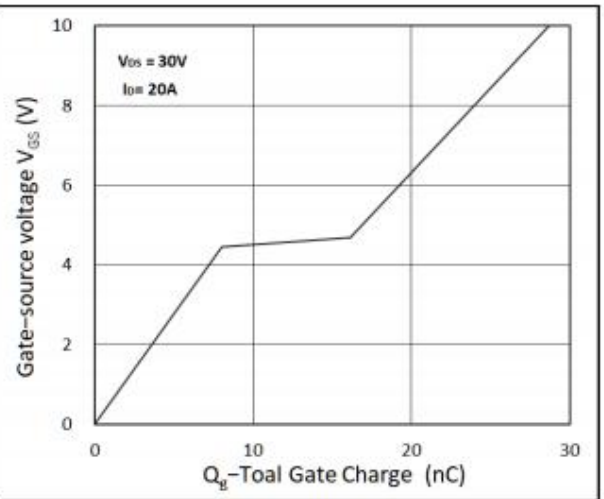


Figure 8. Gate Charge Characteristics

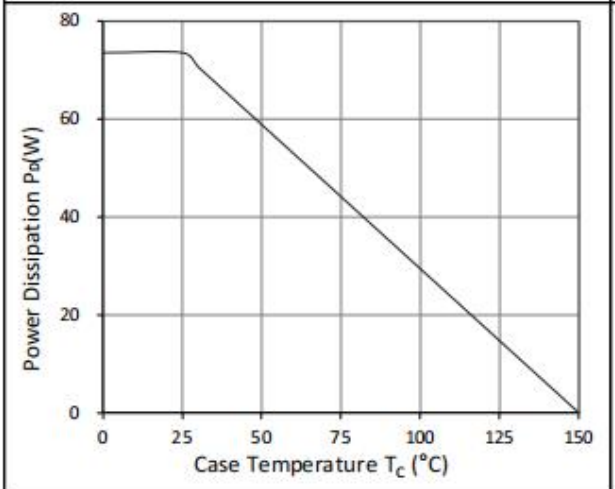


Figure 9. Power Dissipation

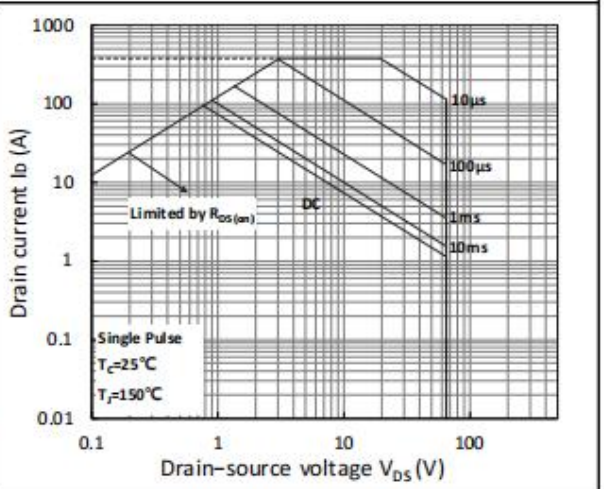


Figure10. Safe Operating Area

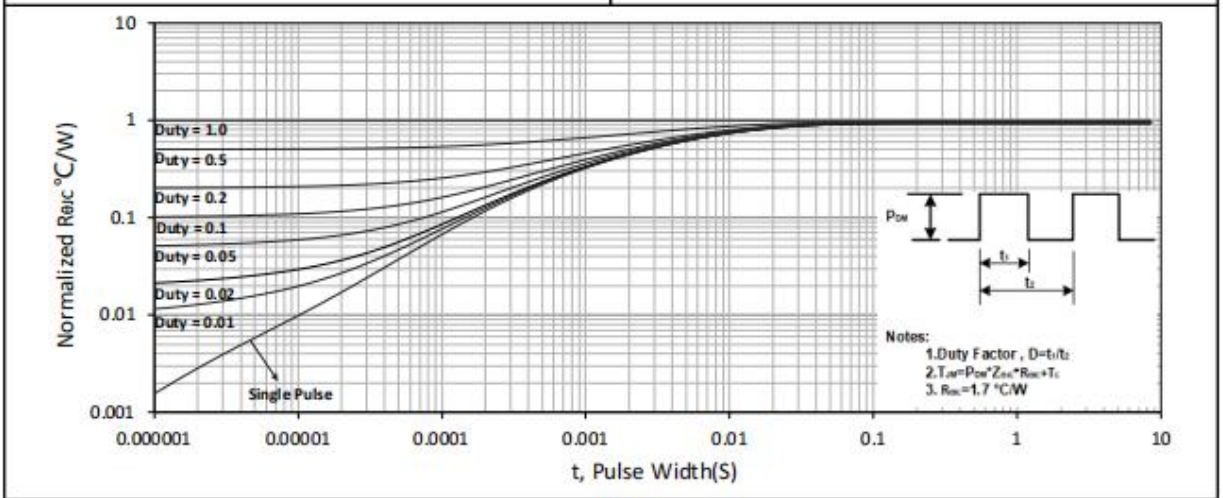


Figure 11. Normalized Maximum Transient Thermal Impedance

Test Circuit

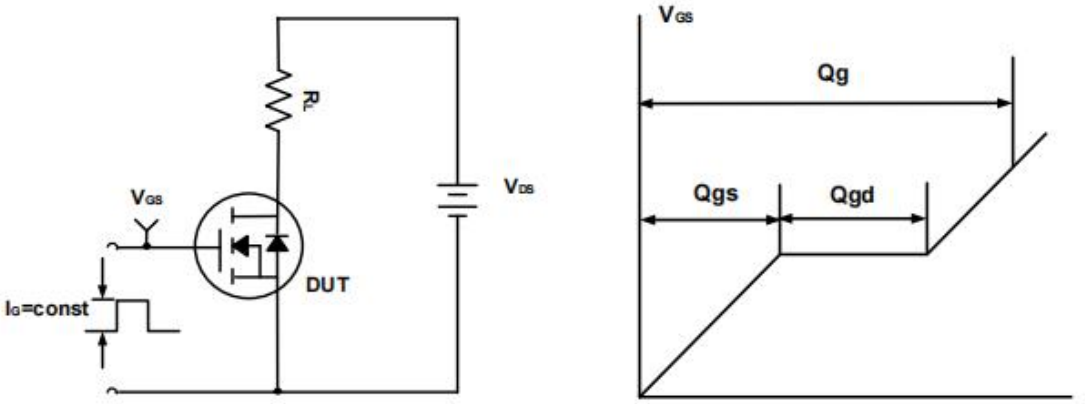


Figure A. Gate Charge Test Circuit & Waveforms

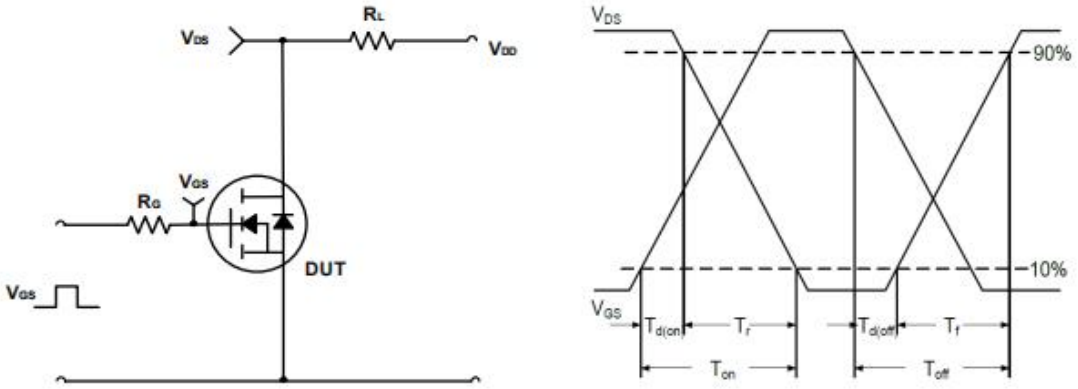


Figure B. Switching Test Circuit & Waveforms

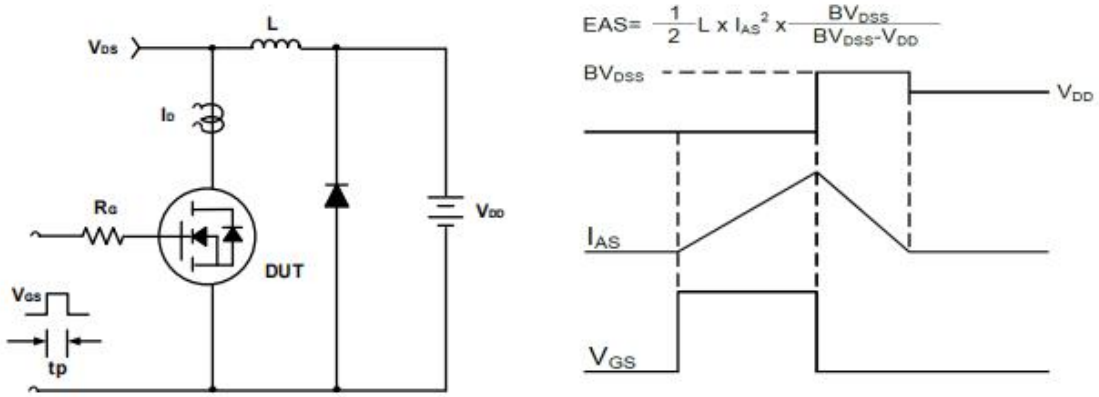
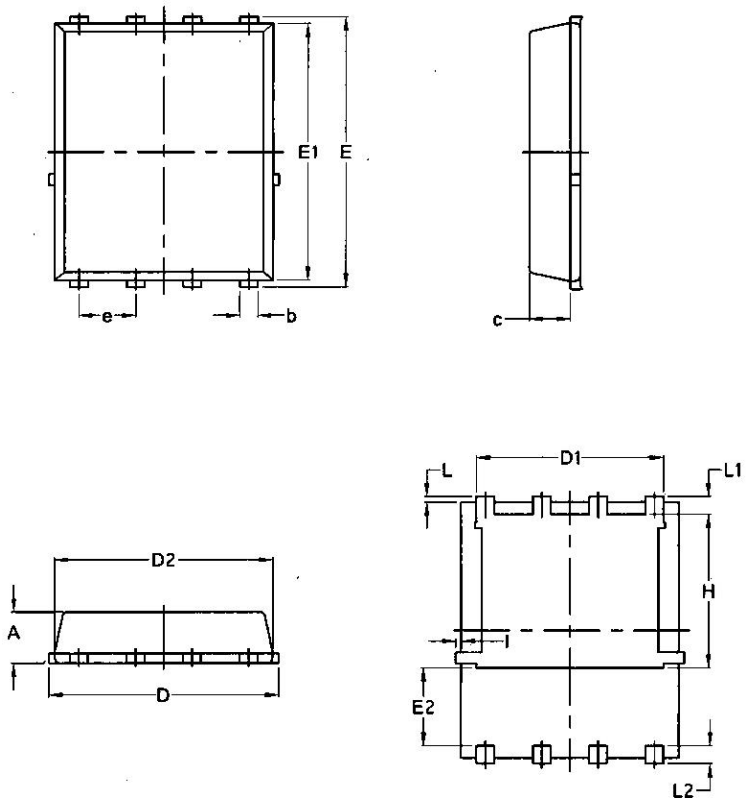


Figure C. Unclamped Inductive Switching Circuit & Waveforms

Package Dimensions PDFN5x6-8L



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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