AG360SN060MDS

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	1.68mΩ@10V	360A

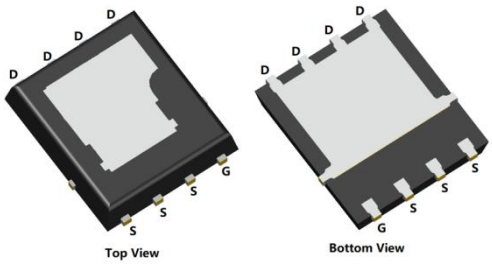
Feature

- Split gate trench MOSFET technology
- Dual-side cooling package with excellent heat dissipation
- High density cell design for low $R_{DS(ON)}$

Application

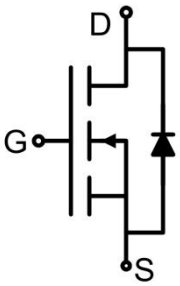
- Power switching application
- Uninterruptible power supply
- DC-DC convertor

Package

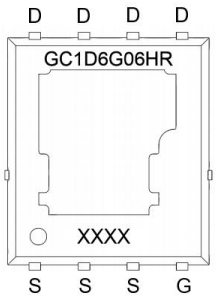


PDFN5*6-8L-DSC

Circuit diagram



Marking



Document ID	Issued Date	Revised Date	Revision	Page.
AS-3150926	2023/11/02	2025/08/21	B	6

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Absolute maximum ratings (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1,2] (V_{GS} =10V)	I_D	360	A
Continuous Drain Current[1,2] (V_{GS} =10V, T_C=100℃)	I_D(100℃)	254	A
Pulsed Drain Current (t_p≤10μs)	I_{DM}	1440	A
Single Pulse Avalanche Energy[3]	E_{AS}	670.8	mJ
Power Dissipation[1,2]	P_D	441	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.34	℃/W
Operating Junction Temperature	T_J	-55 ~ +175	℃
Storage Temperature	T_{STG}	-55 ~ +175	℃

Electrical characteristics (T_J=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =1mA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =48V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.2	3	3.8	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		1.4	1.68	mΩ
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =30V, V_{GS} =0V, f =1MHz		4746		pF
Output Capacitance	C_{oss}			2165		
Reverse Transfer Capacitance	C_{rss}			204		
Total Gate Charge	Q_g	V_{DS} =30V, V_{GS} =10V, I_D =20A		80		nC
Gate-Source Charge	Q_{gs}			24		
Gate-Drain Charge	Q_{gd}			17.7		
Turn-on delay time	$t_{d(on)}$	V_{DS} =30V, V_{GS} =10V, I_D =20A R_G =3Ω		19		nS
Turn-on rise time	t_r			38		
Turn-off delay time	$t_{d(off)}$			59		
Turn-off fall time	t_f			53		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				360	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =20A			1.2	V
Reverse Recovery Time	T_{rr}	V_{GS} =0V, V_R =30V, I_F =20A di/dt =100A/μs		40		nS
Reverse Recovery Charge	Q_{rr}			33		nC

Notes:

1) The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.

2) Thermal resistance from junction to soldering point (on the exposed drain pad).

3) EAS condition: T_J=25℃, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}= 51.8A.

4) Guaranteed by design, not subject to production testing.

Typical Characteristics

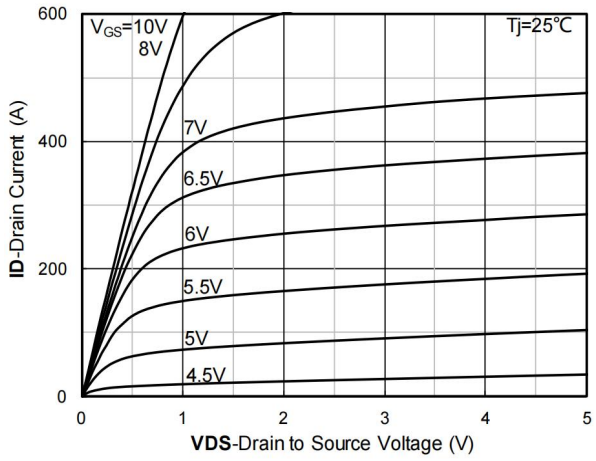


Figure 1. Output Characteristics; typical values

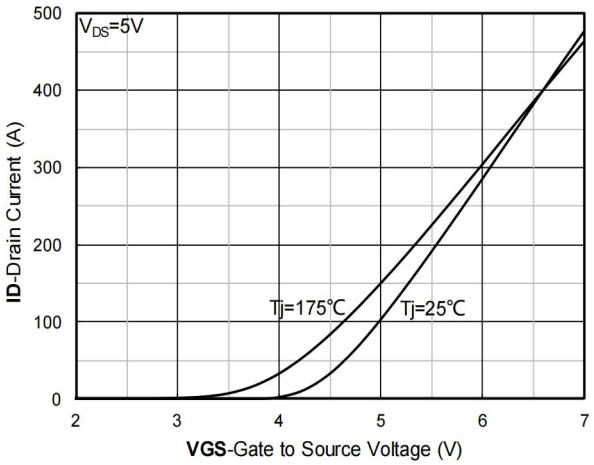


Figure 2. Transfer Characteristics; typical values

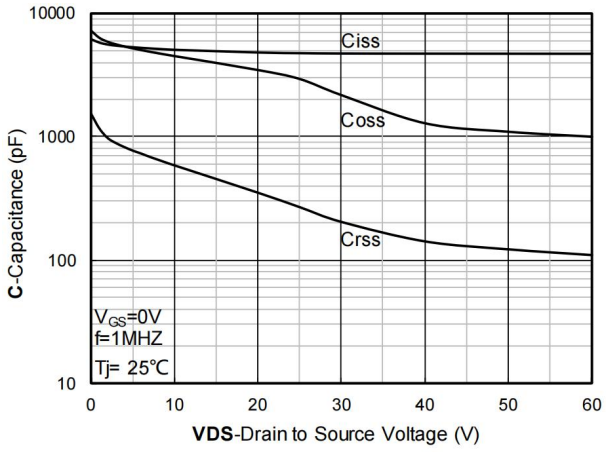


Figure 3. Capacitance Characteristics; typical values

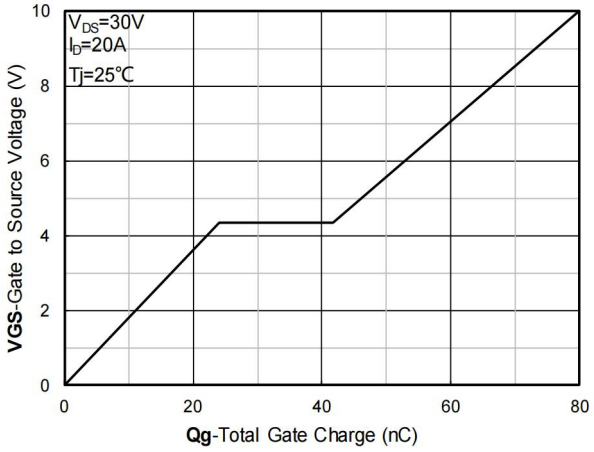


Figure 4. Gate Charge; typical values

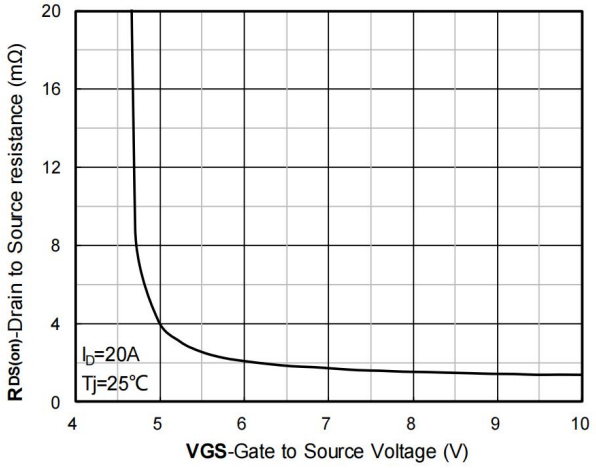


Figure 5. On-Resistance vs. Gate to Source Voltage; typical values

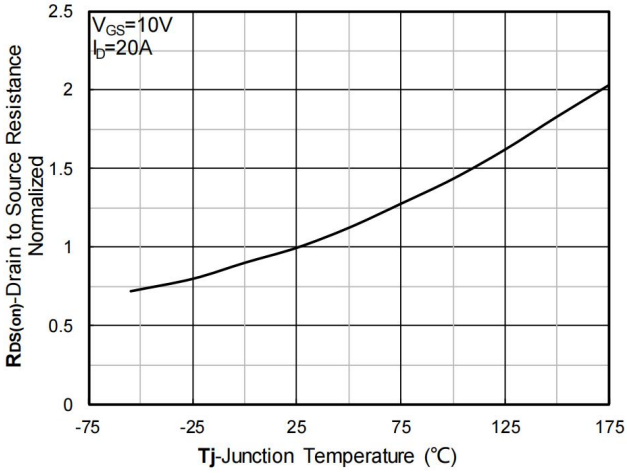


Figure 6. Normalized On-Resistance

Typical Characteristics

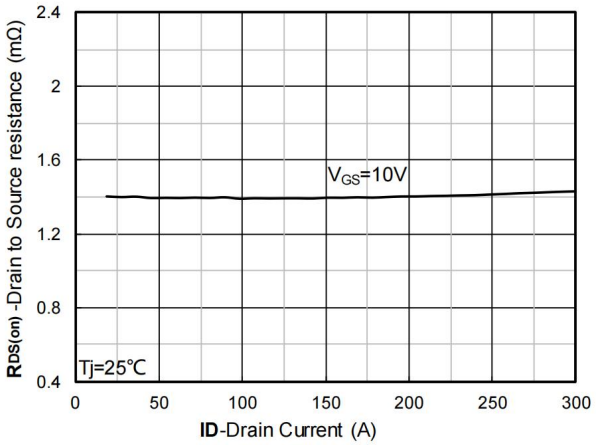


Figure 7. $R_{DS(on)}$ vs. Drain Current; typical values

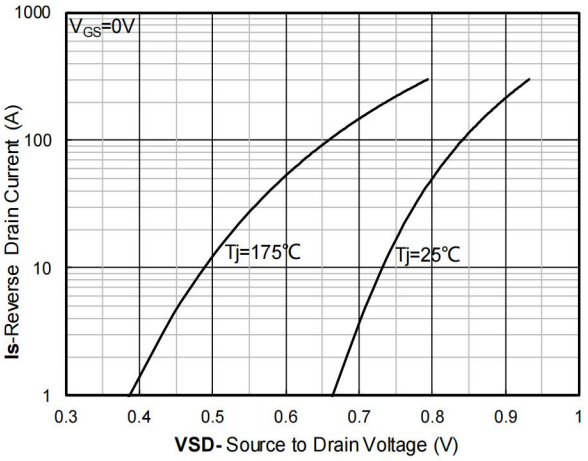


Figure 8. Forward characteristics of reverse diode; typical values

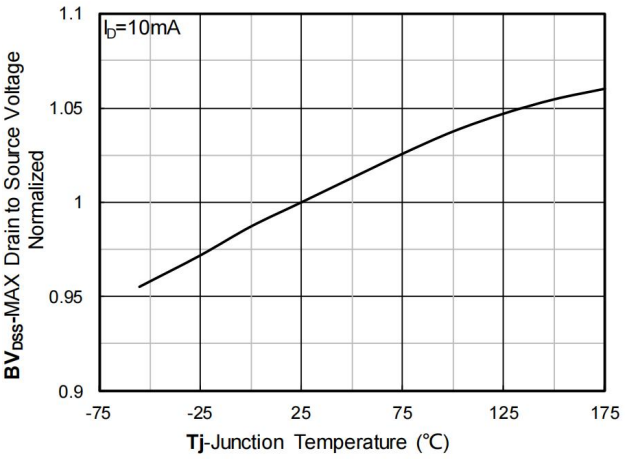


Figure 9. Normalized breakdown voltage

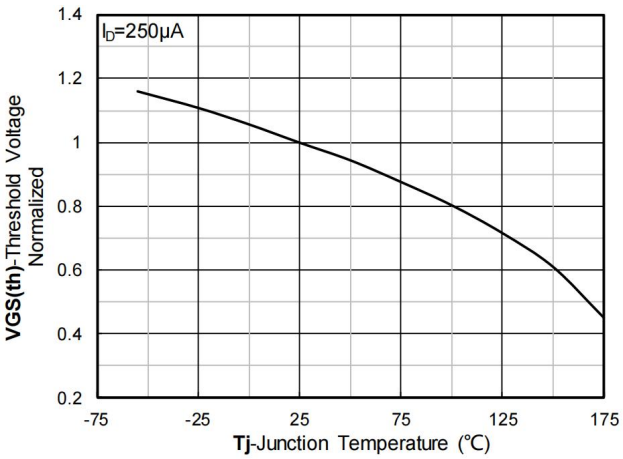


Figure 10. Normalized Threshold voltage

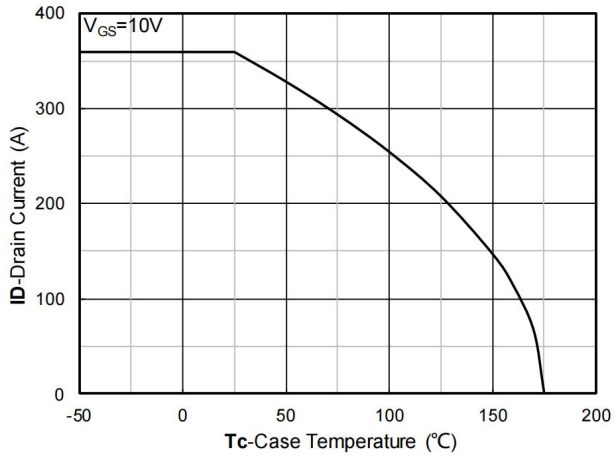


Figure 11. Current dissipation

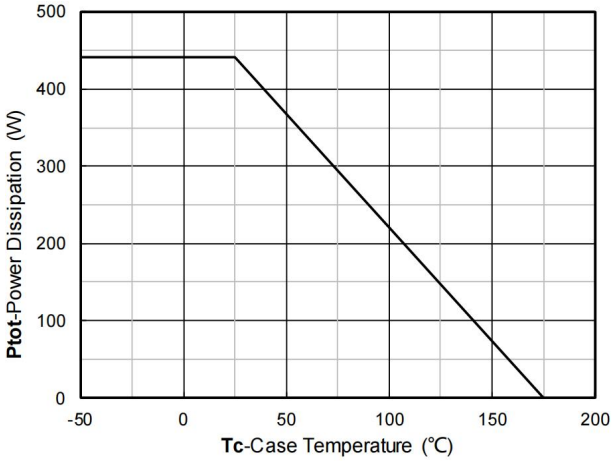


Figure 12. Power dissipation

Typical Characteristics

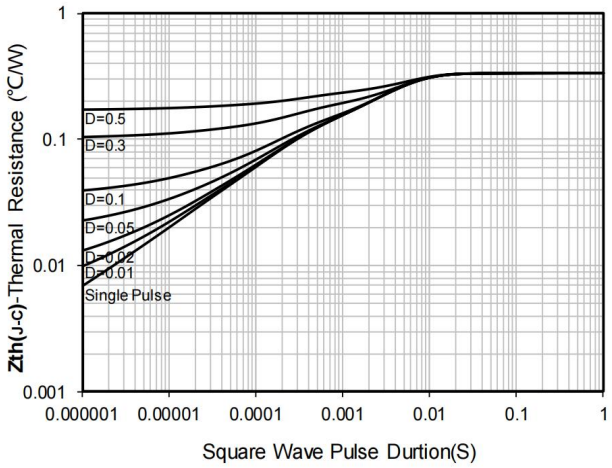


Figure 13. Maximum Transient Thermal Impedance

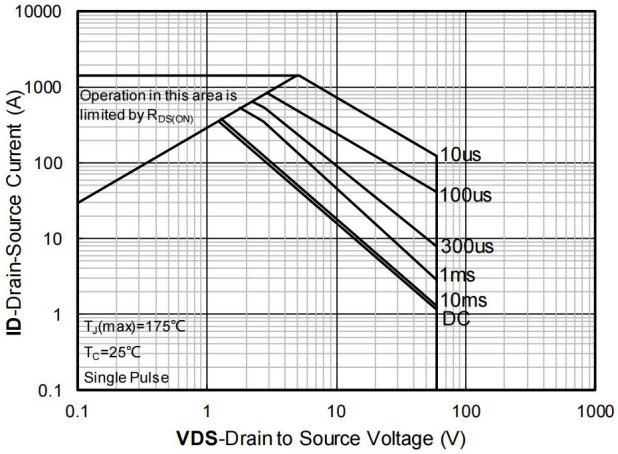
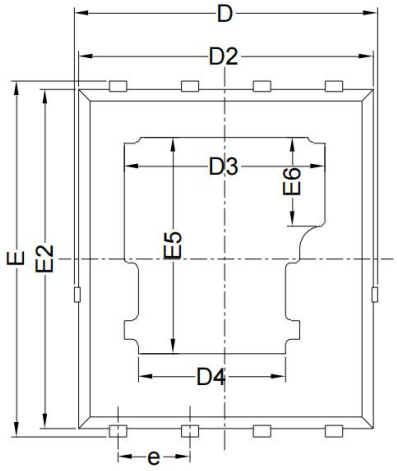
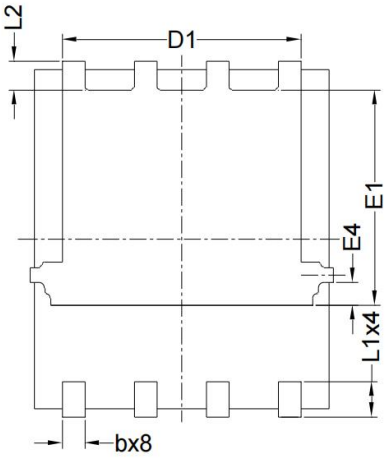


Figure 14. Safe Operation Area

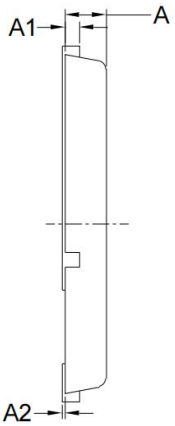
PDFN5*6-8L-DSC Package Information



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
D	5.150	5.550	0.203	0.219
E	5.950	6.350	0.234	0.250
A	0.600	0.850	0.024	0.033
A1	0.254 BSC.		0.010 BSC.	
A2	-	0.100	0.000	0.004
D1	4.010	4.410	0.158	0.174
D2	5.000	5.400	0.197	0.213
D3	3.540 REF.		0.139 REF.	
D4	2.600 REF.		0.102 REF.	
E1	3.520	3.920	0.139	0.154
E2	5.660	6.060	0.223	0.239
E4	0.395 REF.		0.016 REF.	
E5	3.740 REF.		0.147 REF.	
E6	1.530 REF.		0.060 REF.	
L1	0.500	0.710	0.020	0.028
L2	0.355 BSC.		0.014 BSC.	
b	0.300	0.500	0.012	0.020
e	1.270 BSC.		0.050 BSC.	