AG060SN150MQPF-Q1

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	19mΩ@10V	60A
	22mΩ@6V	

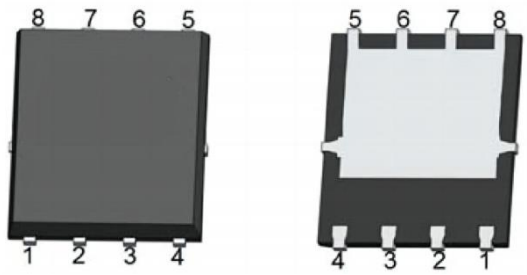
Feature

- Advanced trench cell design
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Suffix "-Q1" for AEC-Q101

Application

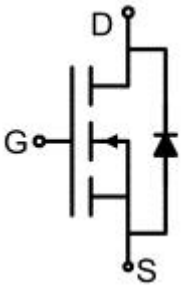
- Power switching application
- Uninterruptible power supply
- DC-DC convertor

Package



PDFN5*6-8L

Circuit diagram



Marking

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±25	V
Continuous Drain Current (T_C =25℃)	I_D	60	A
Continuous Drain Current (T_C =100℃)	I_D(100℃)	38	A
Pulsed Drain Current[1]	I_{DM}	120	A
Power Dissipation[2] (T_C =25℃)	P_D	125	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	1	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J =25 ℃, 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 =250μA	150			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =150V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±25V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2		4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		13	19	mΩ
		V_{GS} =6V, I_D =10A		15	22	
Dynamic characteristics[3]						
Input Capacitance	C_{iss}	V_{DS} =75V, V_{GS} =0V, f =1MHz		2100		pF
Output Capacitance	C_{oss}			160		
Reverse Transfer Capacitance	C_{rss}			5		
Total Gate Charge	Q_g	V_{DS} =75V, V_{GS} =10V, I_D =20A		25		nC
Gate-Source Charge	Q_{gs}			10		
Gate-Drain Charge	Q_{gd}			8		
Turn-on delay time	$t_{d(on)}$	V_{DS} =75V, V_{GS} =10V, I_D =20A R_G =4.5Ω		15		nS
Turn-on rise time	t_r			34		
Turn-off delay time	$t_{d(off)}$			30		
Turn-off fall time	t_f			26		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				60	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =20A			1.3	V
Reverse Recovery Time	T_{rr}	I_F =20A, di/dt =-100A/μs		86		nS
Reverse Recovery Charge	Q_{rr}			220		nC

Notes:

1) Repetitive rating; pulse width limited by max. junction temperature.

2) Pd is based on max. junction temperature, using junction-case thermal resistance.

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

Typical Characteristics

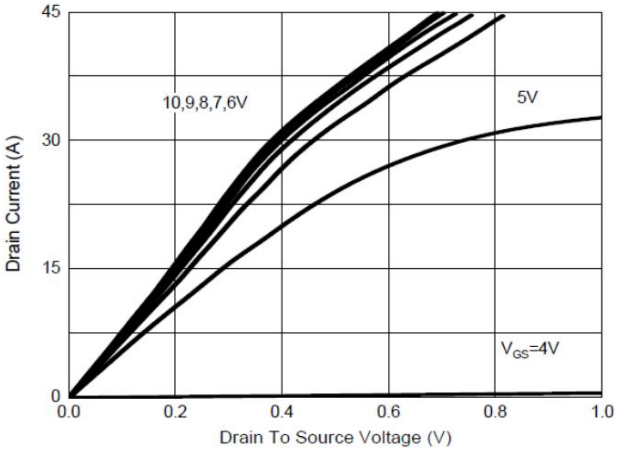


Figure 1. Output Characteristics

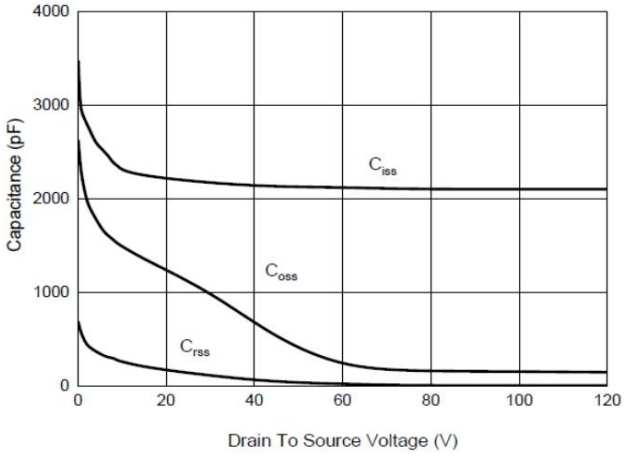


Figure 2. Capacitance Characteristics

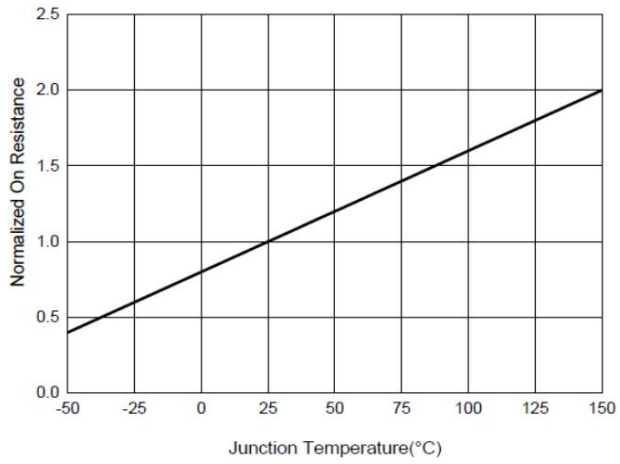


Figure 3. Normalized On-Resistance

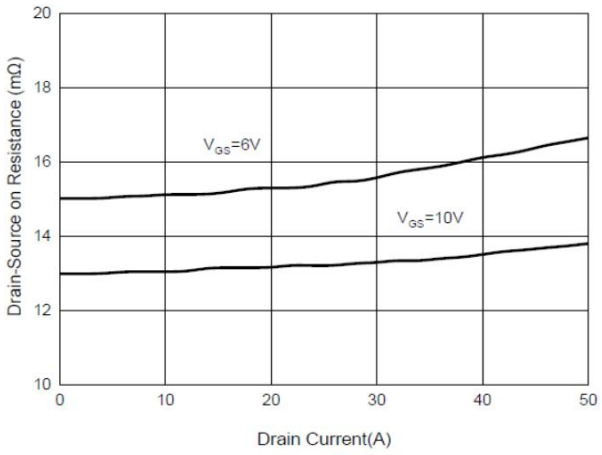


Figure 4. $R_{DS(on)}$ VS Drain Current

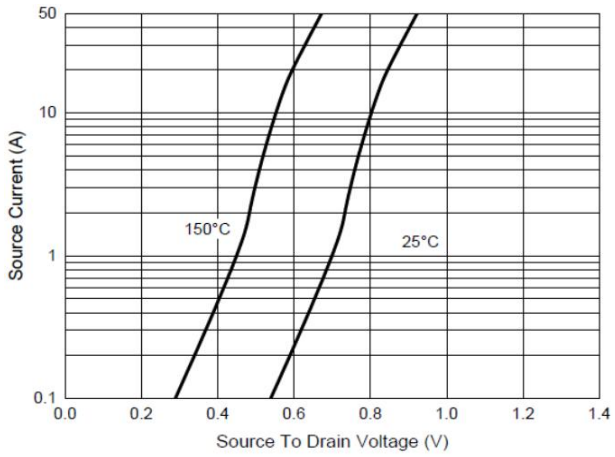


Figure 5. Forward characteristics of reverse diode

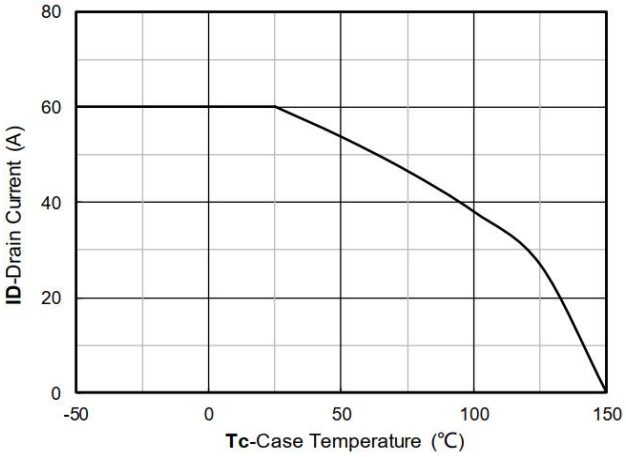


Figure 6. Power dissipation

Typical Characteristics

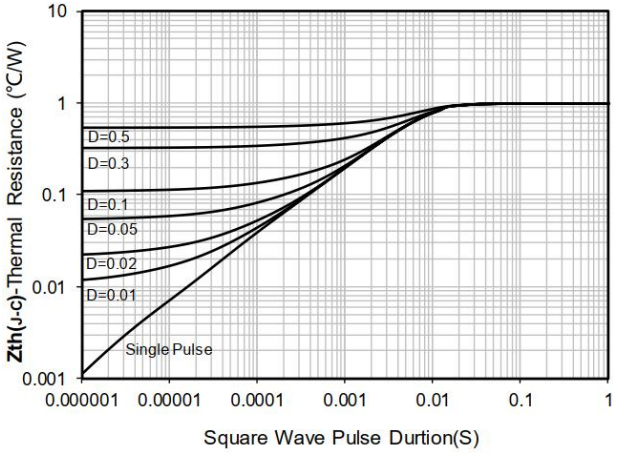


Figure 7. Maximum Transient Thermal Impedance

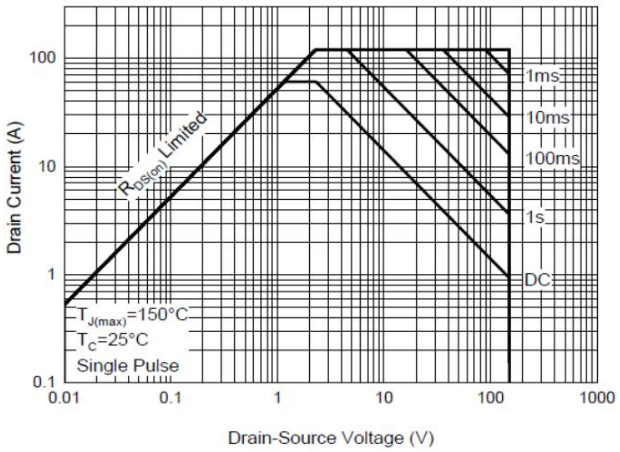
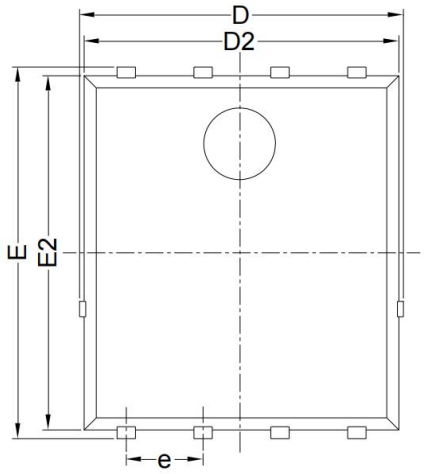
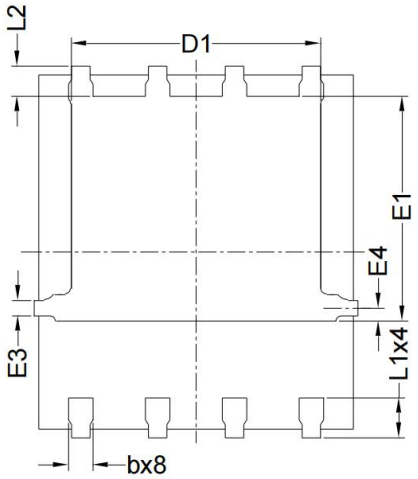


Figure 8. Safe Operation Area

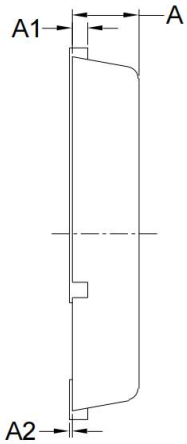
PDFN5*6-8L Package Information



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	1.000	1.200	0.039	0.047
A1	0.254 BSC.		0.010 BSC.	
A2	0.000	0.100	0.000	0.004
D1	3.920	4.320	0.154	0.170
E1	3.520	3.920	0.139	0.154
D2	5.000	5.400	0.197	0.213
E2	5.660	6.060	0.223	0.239
E3	0.254 REF.		0.010 REF.	
E4	0.210 REF.		0.008 REF.	
L1	0.560	0.760	0.022	0.030
L2	0.500 BSC.		0.020 BSC.	
b	0.310	0.510	0.012	0.020
e	1.270 BSC.		0.050 BSC.	