AG088SN120MPF

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
120V	7.6mΩ@10V	88A
	9.6mΩ@4.5V	

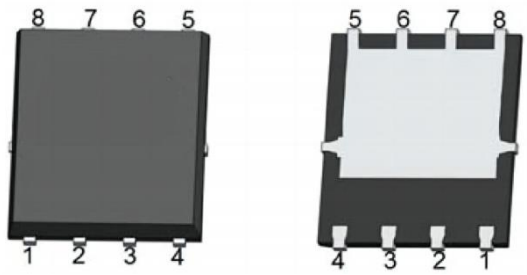
Feature

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

Application

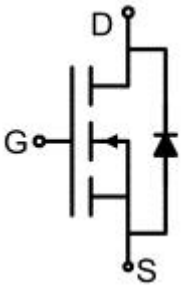
- Power switching application
- Uninterruptible power supply
- Hard switched and high frequency circuits

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}	120	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C =25℃)	I_D	88	A
Continuous Drain Current (T_C =100℃)	I_D(100℃)	56	A
Pulsed Drain Current[1)]	I_{DM}	352	A
Single Pulse Avalanche Energy[2)]	E_{AS}	400	mJ
Power Dissipation[3)] (T_C =25℃)	P_D	120	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.04	℃/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	120			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =120V, 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	1	2	3	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		6.4	7.6	mΩ
		V_{GS} =4.5V, I_D =20A		7.6	9.6	
Dynamic characteristics[4)]						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} =0V, f =1MHz		4619		pF
Output Capacitance	C_{oss}			924		
Reverse Transfer Capacitance	C_{rss}			28		
Total Gate Charge	Q_g	V_{DS} =50V, V_{GS} =10V, I_D =20A		72		nC
Gate-Source Charge	Q_{gs}			19.5		
Gate-Drain Charge	Q_{gd}			8.2		
Turn-on delay time	$t_{d(on)}$	V_{DS} =50V, V_{GS} =10V, I_D =20A R_G =2.2Ω		19		nS
Turn-on rise time	t_r			36		
Turn-off delay time	$t_{d(off)}$			45		
Turn-off fall time	t_f			45		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				88	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		195		nS
Reverse Recovery Charge	Q_{rr}			86		nC

Notes:

1) Repetitive rating; pulse width limited by max. junction temperature.
2) T_J=25℃, V_{DD}=50V, V_G=10V, R_G=25Ω, L=2mH, I_{AS}=20A.
3) Pd is based on max. junction temperature, using junction-case thermal resistance.
4) Guaranteed by design, not subject to production testing.

Typical Characteristics

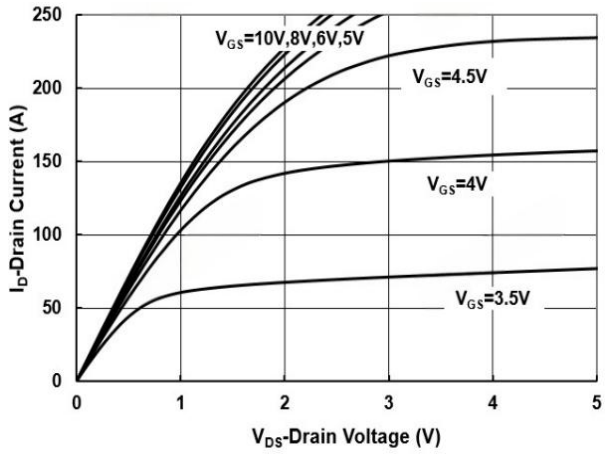


Figure1. Output Characteristics

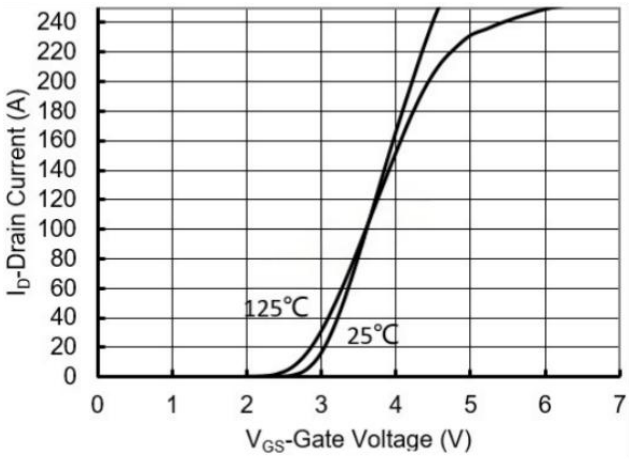


Figure2. Transfer Characteristics

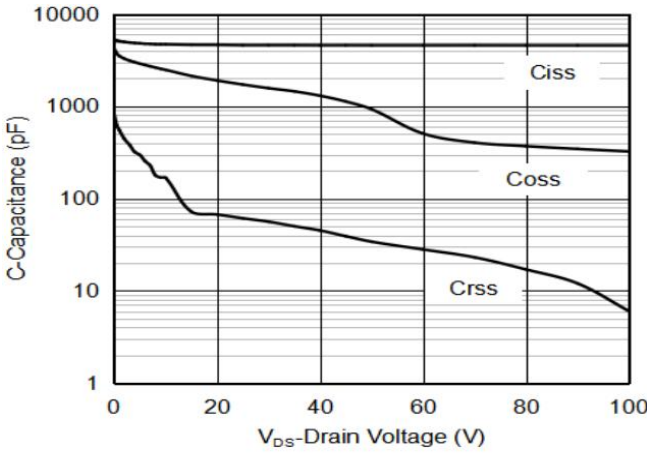


Figure3. Capacitance Characteristics

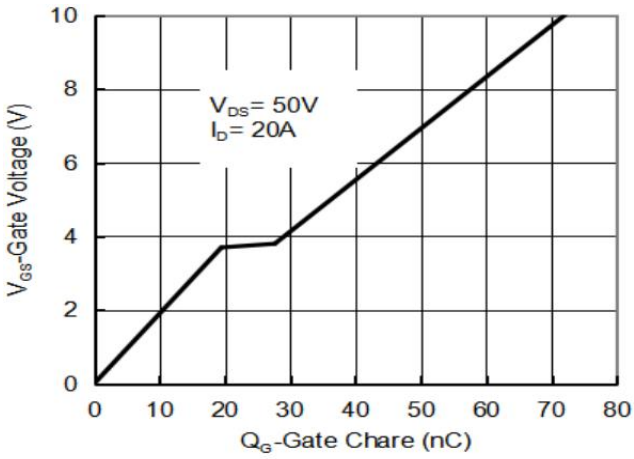


Figure4. Gate Charge

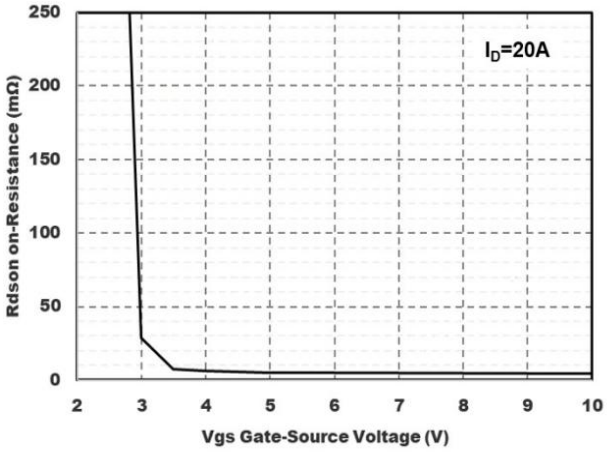


Figure5. : On-Resistance vs. Gate to Source Voltage

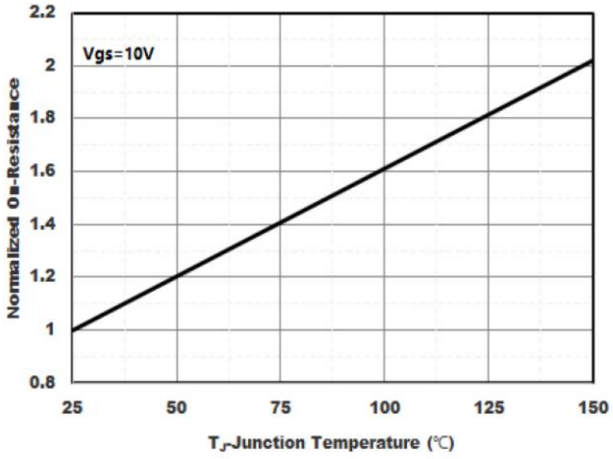


Figure6.Normalized On-Resistance

Typical Characteristics

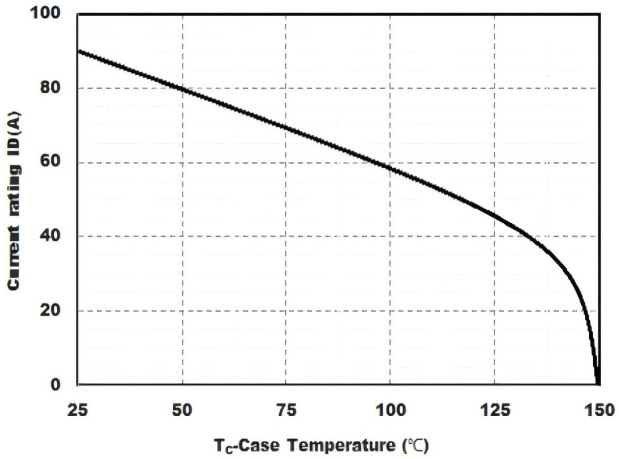


Figure7. Drain current

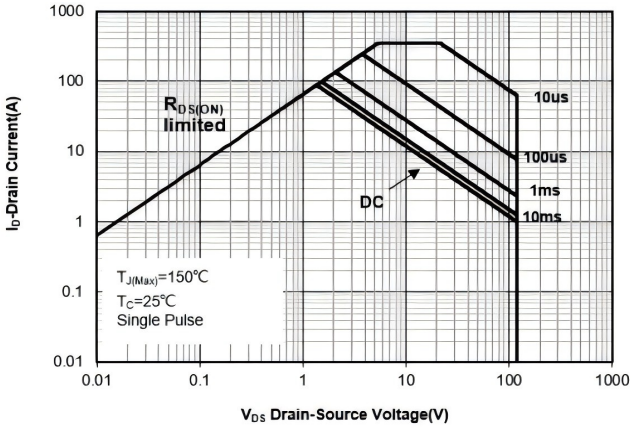


Figure8.Safe Operation Area

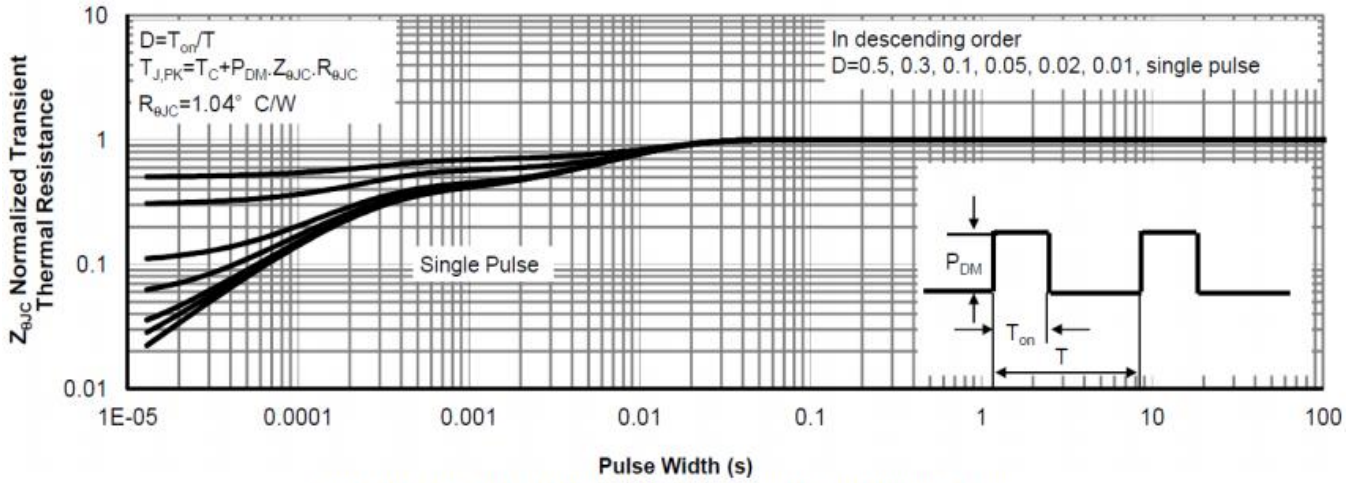
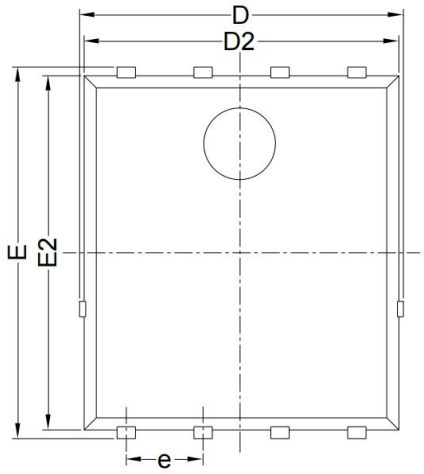
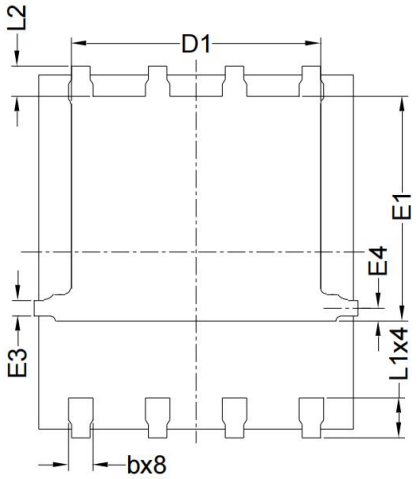


Figure9. Normalized Maximum Transient thermal impedance

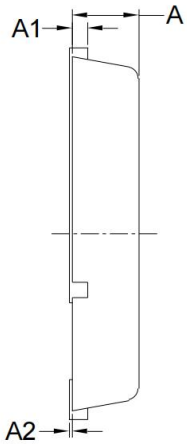
PDFN5*6-8L Package Information



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.	