

General Description

The AGM306MDP combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

This device is ideal for load switch and battery protection applications.

Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance
- 100% Avalanche tested
- 100% DVDS tested

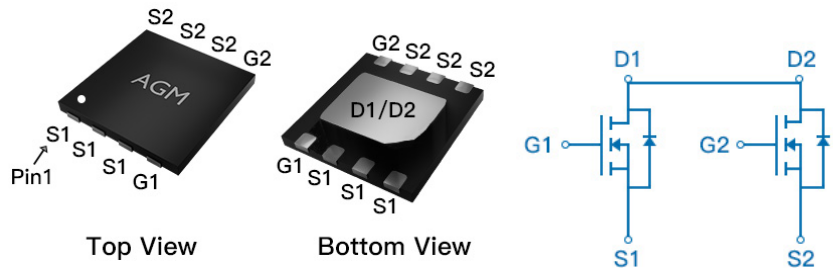
Application

- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

Product Summary

BVDSS	RDSON	ID
30V	6.1mΩ	46A

DFN3*3 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM306MDP	AGM306MDP	DFN3*3	330mm	12mm	5000

Table 1. Absolute Maximum Ratings (TC=25°C)

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	30	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25°C) (Note 1)	46	A
	Drain Current-Continuous(Tc=100°C)	29	A
IDM (pluse)	Drain Current-Pulsed (Note 2)	180	A
PD	Maximum Power Dissipation(Tc=25°C)	20	w
	Maximum Power Dissipation(Tc=100°C)	8	w
EAS	Avalanche energy (Note 3)	90	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	°C

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
RθJA	Thermal Resistance Junction-ambient (Steady State) ¹	---	50	°C/W
RθJC	Thermal Resistance Junction-Case ¹	---	6.25	°C/W

Table 3. Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	30	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=30V,VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS,ID=250μA	1.2	--	2.2	V
gFS	Forward Transconductance	VDS=5V,ID=10A	--	18	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=20A	--	6.1	7.5	mΩ
		VGS=4.5V, ID=15A	--	8.5	12.5	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=15V,VGS=0V, F=1MHZ	--	1250	--	pF
Coss	Output Capacitance		--	150	--	pF
Crss	Reverse Transfer Capacitance		--	115	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	2.2	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=12V, RL=0.75Ω,RGEN=3.3Ω	--	4.5	--	nS
tr	Turn-on Rise Time		--	10.7	--	nS
td(off)	Turn-Off Delay Time		--	22.4	--	nS
tf	Turn-Off Fall Time		--	9.6	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=20V, ID=12A	--	25	--	nC
Qgs	Gate-Source Charge		--	3	--	nC
Qgd	Gate-Drain Charge		--	7	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	46	A
VSD	Forward on Voltage	VGS=0V,IS=20A	--	--	1.2	V
trr	Reverse Recovery Time	IF=20A , dl/dt=100A/μs , TJ=25℃	--	--	--	ns
Qrr	Reverse Recovery Charge		--	--	--	nc

Notes 1.The maximum current rating is package limited.

Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 3.EAS condition: T_J=25°C

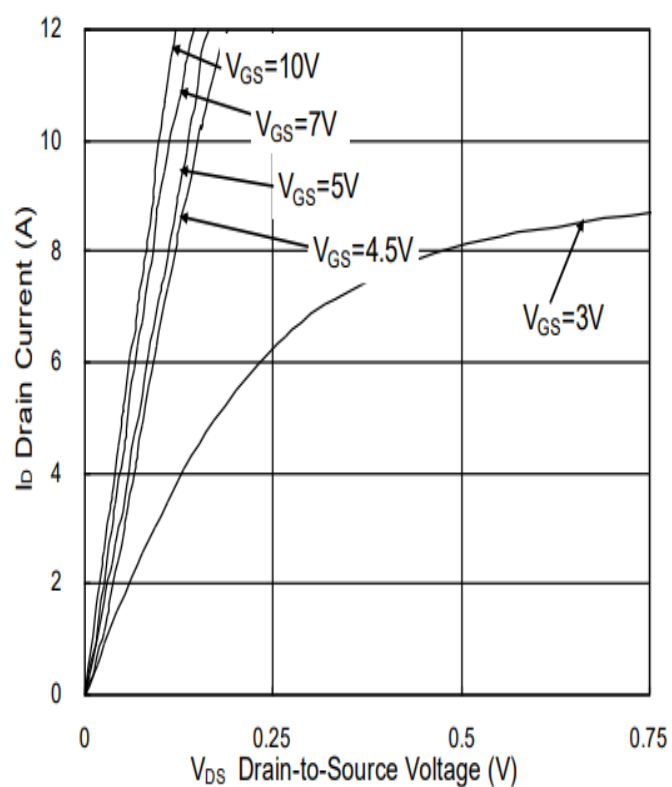


Fig 1, Typical Output Characteristics

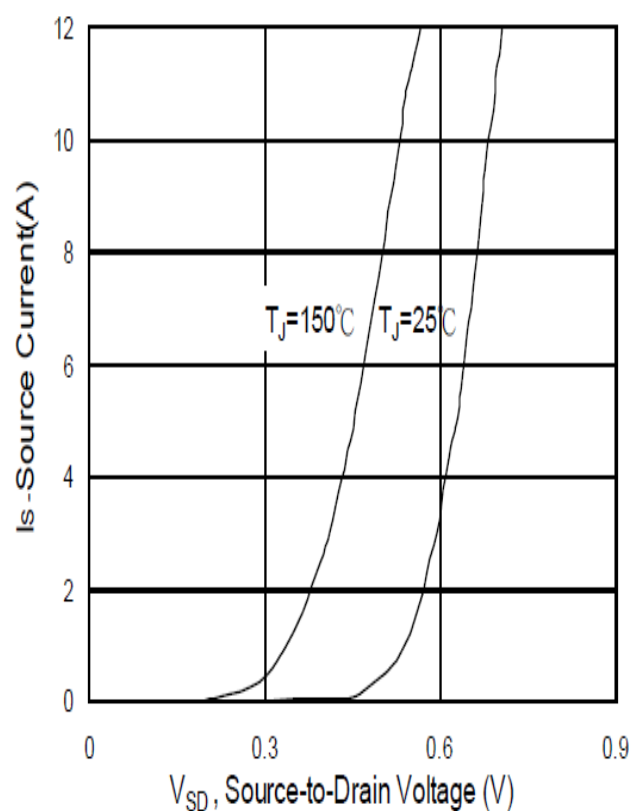


Fig 2, Forward Characteristics Of Reverse

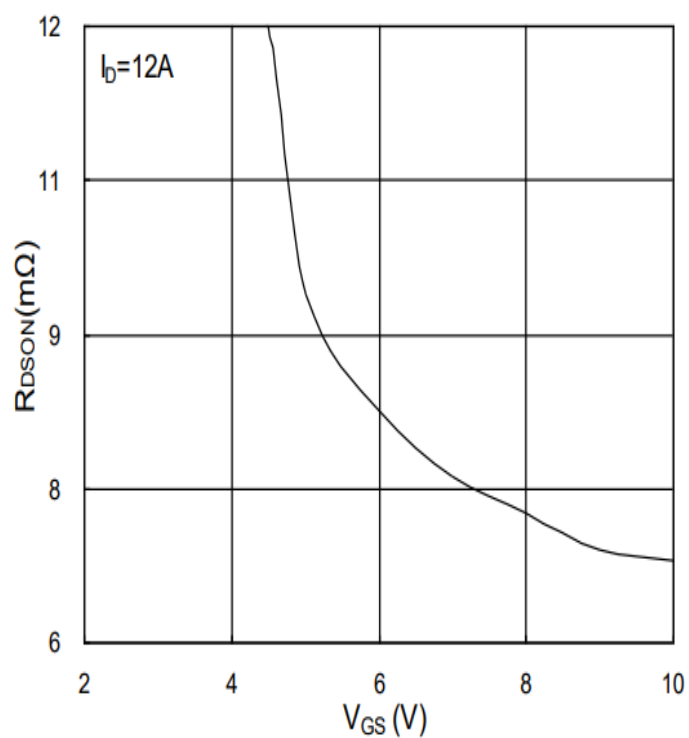


Fig 3, On-Resistance vs. Gate-Source

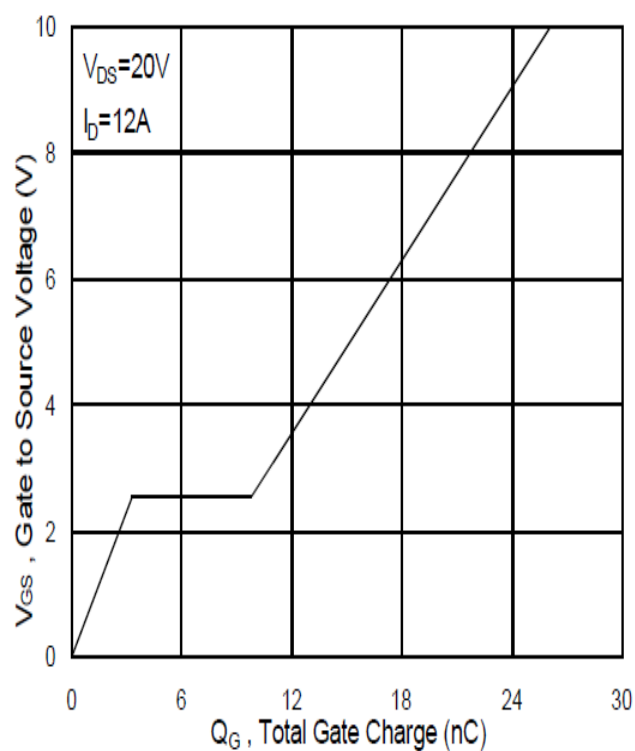


Fig 4, Gate-Charge Characteristics

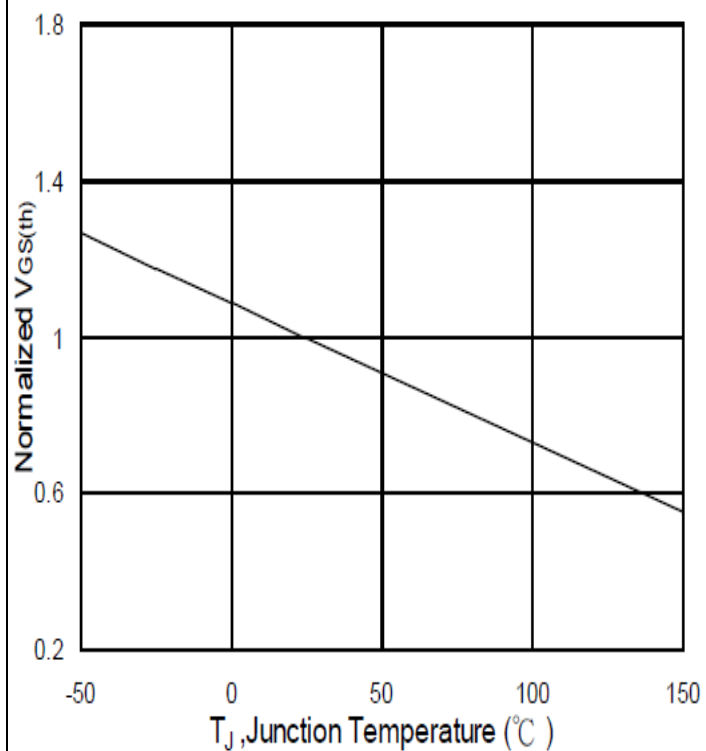


Fig 5, Vgs(th) vs. Junction Temperature

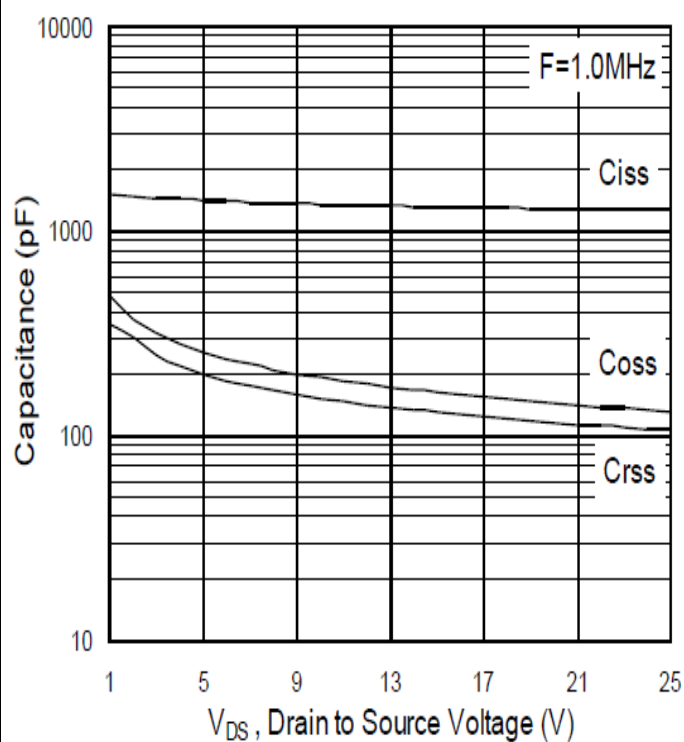


Fig 6, Typical Capacitance vs. Drain-to-Source Voltage

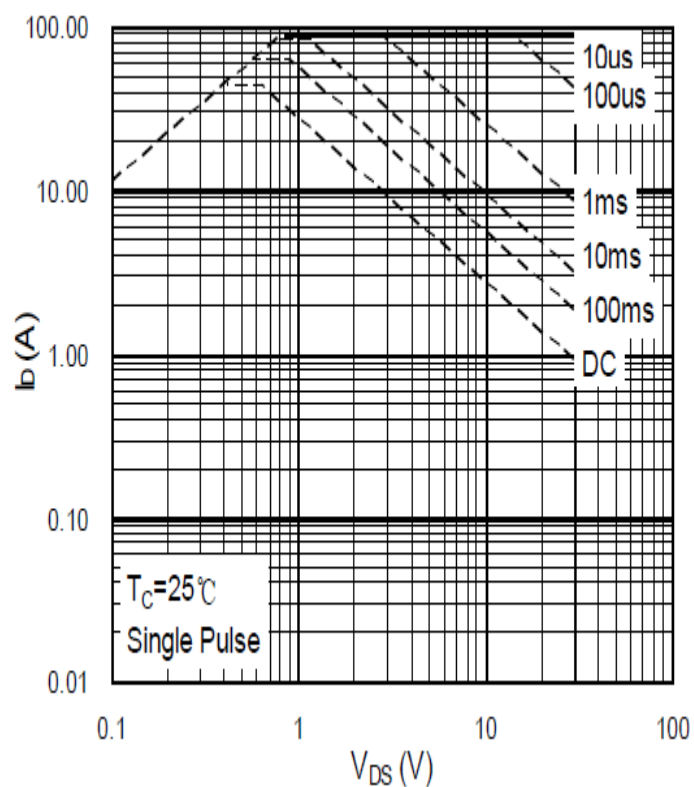
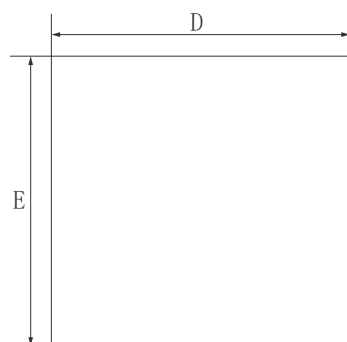
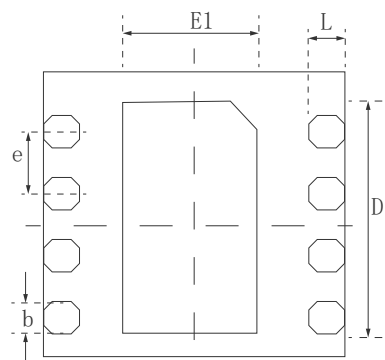


Fig 7, Maximum Safe Operating Area

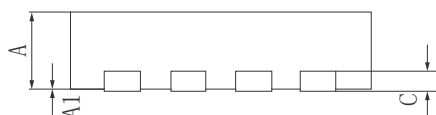
●Dimensions (DFN3*3)



TOP VIEW

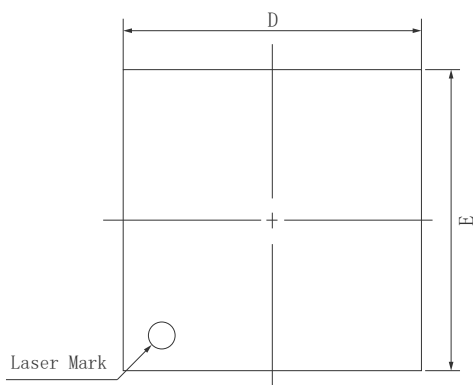


BOTTOM VIEW

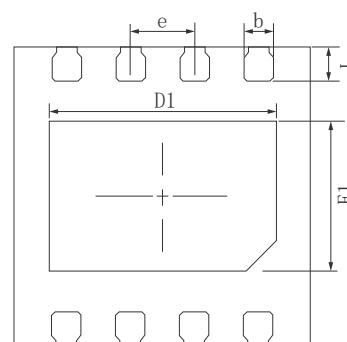


SIDE VIEW

Symbol	Dimensions In Millimeters		
	Min	Nom	Max
D	2.90	3.00	3.10
E	2.90	3.00	3.10
D1	2.25	2.30	2.35
E1	1.45	1.50	1.55
b	0.25	0.30	0.35
L	0.25	0.30	0.35
e	0.65BSC		
A	0.70	0.75	0.80
c	0.203BSC		
A1	0	0.02	0.05

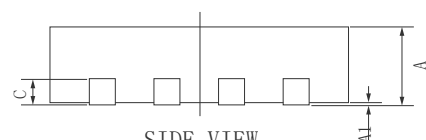


TOP VIEW



BOTTOM VIEW

Laser Mark
PIN 1 I.D.



SIDE VIEW

COMMON DIMENSIONS
(UNITS OF MEASURE=mm)

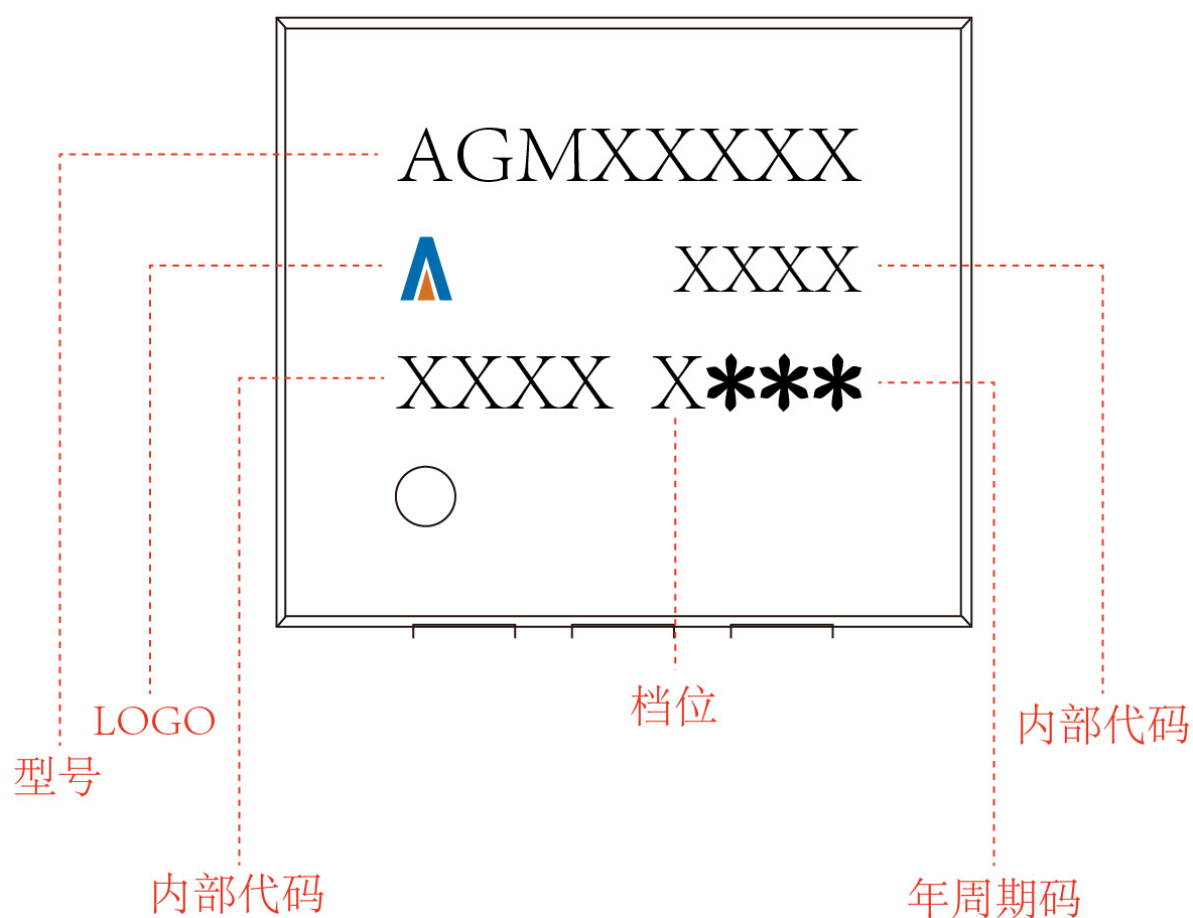
Symbol	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
b	0.25	0.30	0.35
D	2.95	3.00	3.07
E	2.95	3.00	3.07
D1	2.25	2.30	2.35
E1	1.40	1.50	1.60
L	0.25	0.35	0.45
C	0.203 REF		
e	0.65 BSC		

其它厚度尺寸如下

A	0.55	0.60	0.65
A	0.50	0.55	0.60

DFN3*3

Marking Instructions:



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