General Description

The AGM315MBP 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

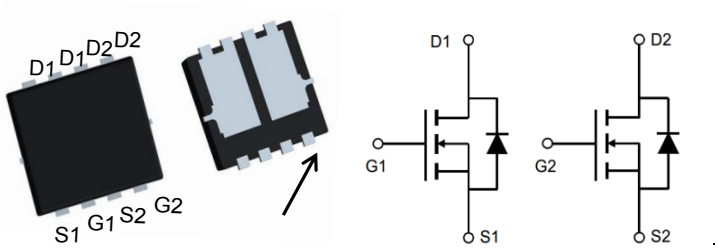
Application

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

Product Summary

BVDSS	RDSON	ID
30V	12mΩ	15A

PDFN3.3*3.3 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM315MBP	AGM315MBP	PDFN3.3*3.3	330mm	12mm	5000

Table 1. Absolute Maximum Ratings (Tc=25℃)

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℃) **(Note 1)**	15	A
	Drain Current-Continuous(Tc=100℃)	10	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed **(Note 2)**	60	A
PD	Maximum Power Dissipation(Tc=25℃)	20	w
	Maximum Power Dissipation(Tc=100℃)	8.0	w
EAS	Avalanche energy **(Note 3)**	14	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	℃

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
RθJA	Thermal Resistance Junction-ambient (Steady State)[1]	---	62	℃/W
RθJC	Thermal Resistance Junction-Case[1]	---	6.4	℃/W

Table 3. Electrical Characteristics (TJ=25℃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	1.5	2.5	V
gFS	Forward Transconductance	VDS=5V,ID=6A	--	13	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=10A	--	12	16	mΩ
		VGS=4.5V, ID=6A	--	19	25	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=15V,VGS=0V, F=1MHZ	--	345	--	pF
Coss	Output Capacitance		--	55	--	pF
Crss	Reverse Transfer Capacitance		--	32	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	--	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VDS=15V, ID=1A, RGEN=6Ω	--	2.8	--	nS
tr	Turn-on Rise Time		--	7.2	--	nS
td(off)	Turn-Off Delay Time		--	15.8	--	nS
tf	Turn-Off Fall Time		--	4.6	--	nS
Qg	Total Gate Charge	VGS=4.5V, VDS=15V, ID=8A	--	4.1	--	nC
Qgs	Gate-Source Charge		--	1.0	--	nC
Qgd	Gate-Drain Charge		--	2.1	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	15	A
VSD	Forward on Voltage	VGS=0V,Is=15A	--	--	1.2	V
trr	Reverse Recovery Time	IF=15A , dI/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: TJ=25℃

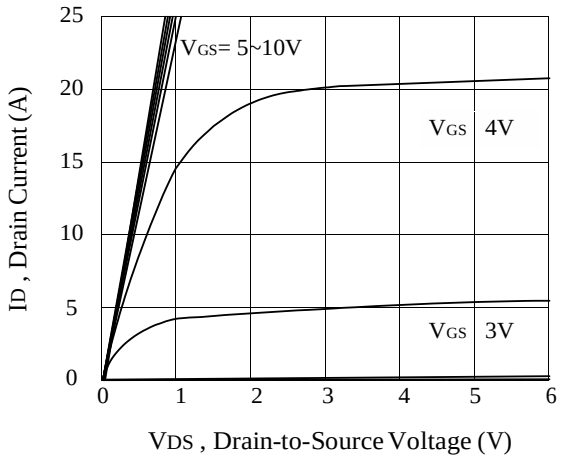


Figure 1. Output Characteristics

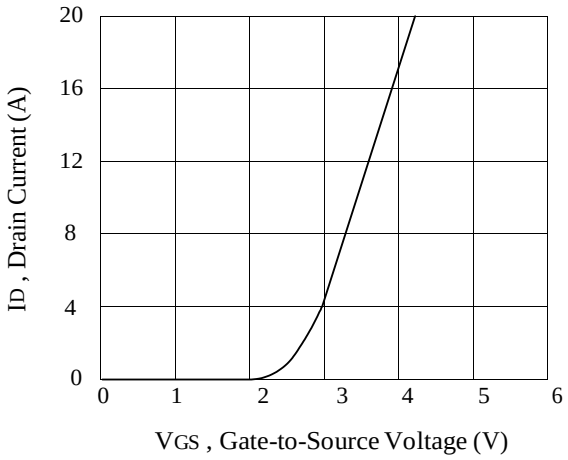


Figure 2. Transfer Characteristics

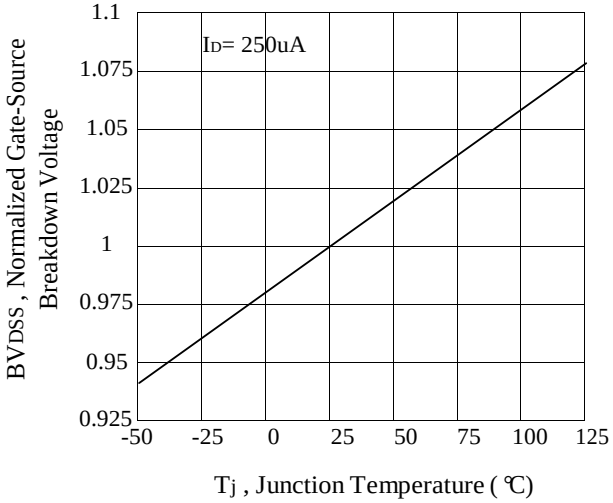


Figure 3. Breakdown Voltage Variation with Temperature

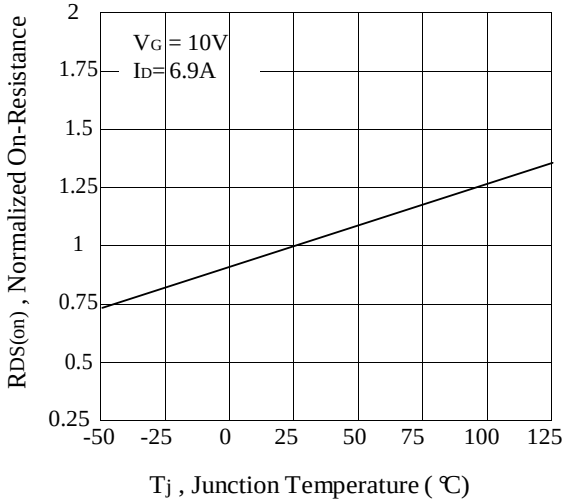


Figure 4. On-Resistance Variation with Temperature

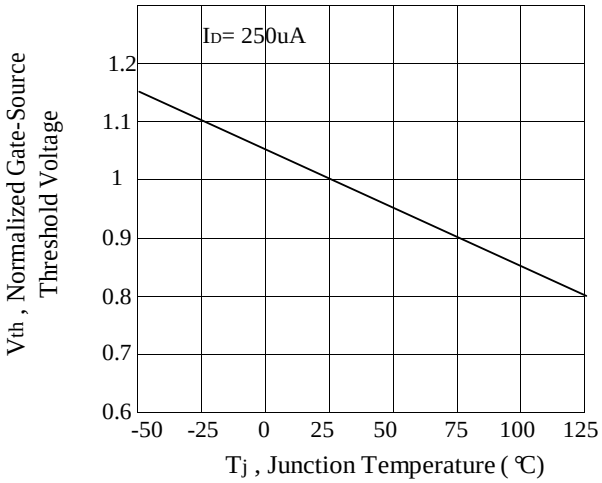


Figure 5. Gate Threshold Variation with Temperature

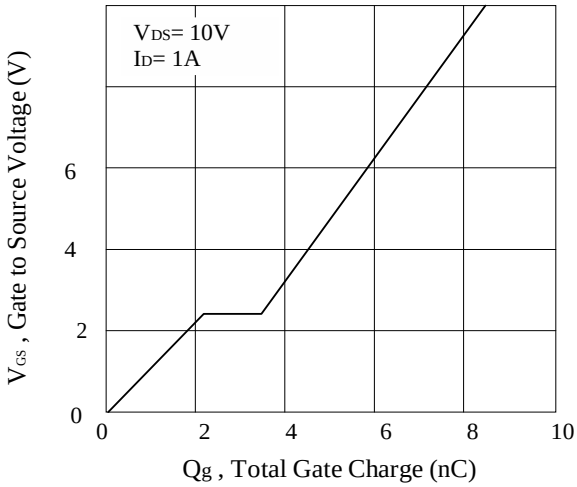


Figure 6. Gate Charge

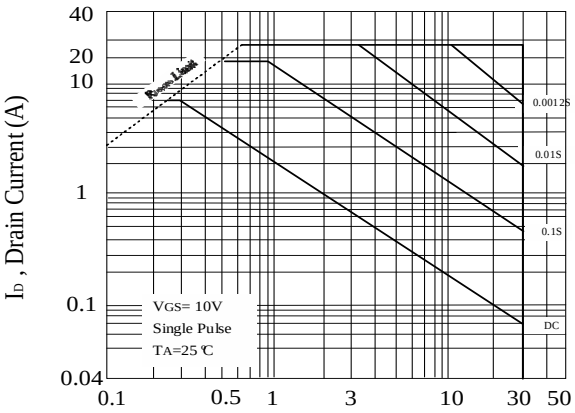


Figure 7. Maximum Safe Operating Area

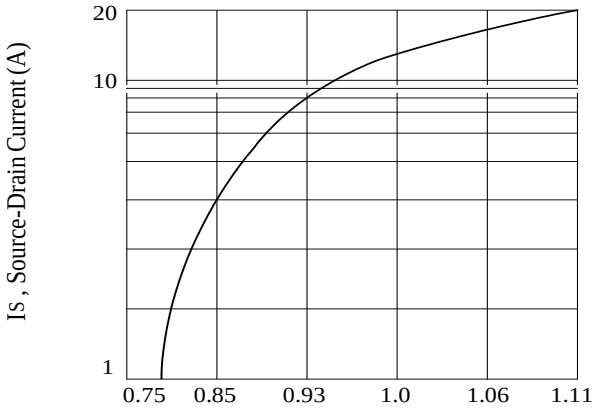


Figure 8. Body Diode Forward Voltage Variation with Source Current

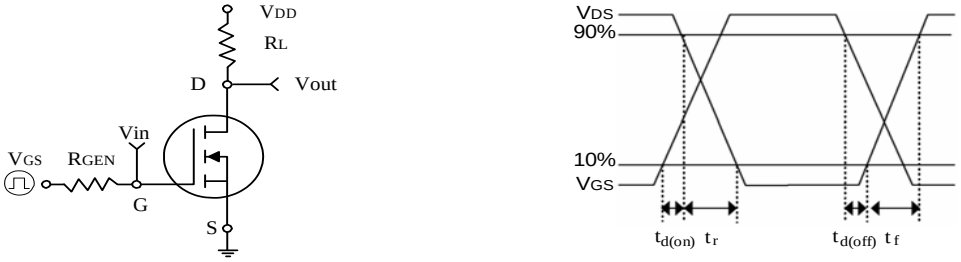


Figure 9. Switching Test Circuit and Switching Waveforms

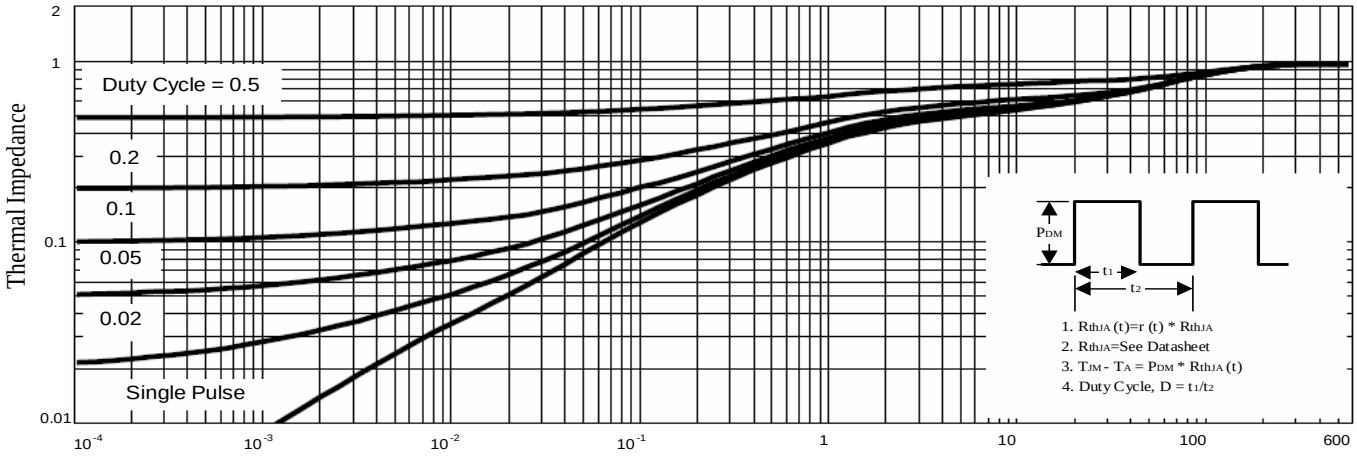
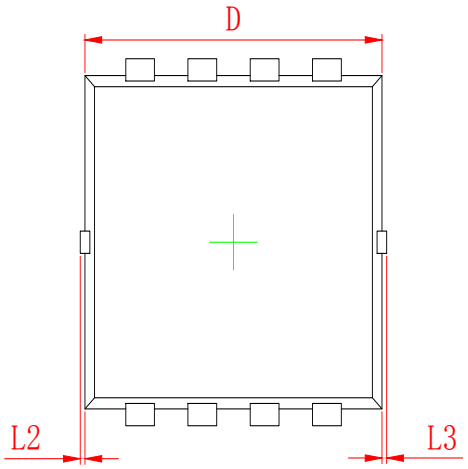
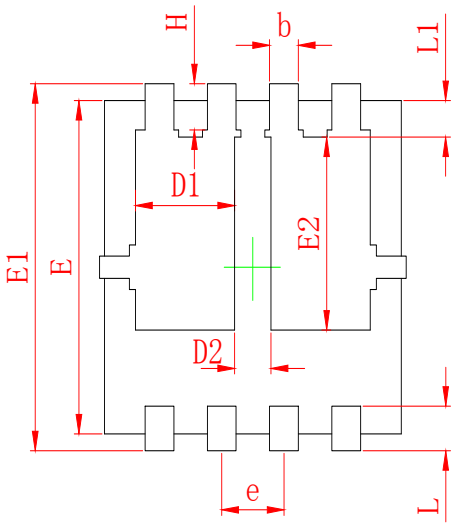


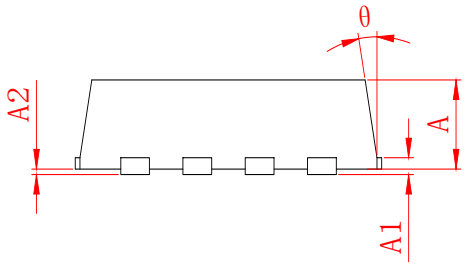
Figure 10. Normalized Thermal Transient Impedance Curve

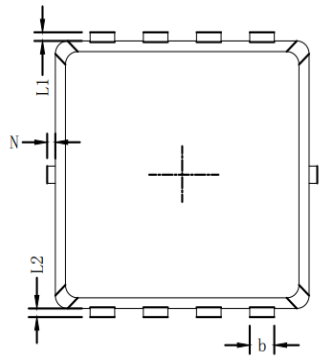
●Dimensions（PDFN3.3×3.3）

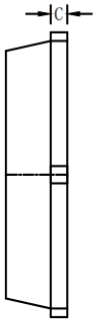


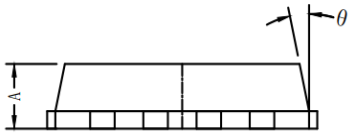


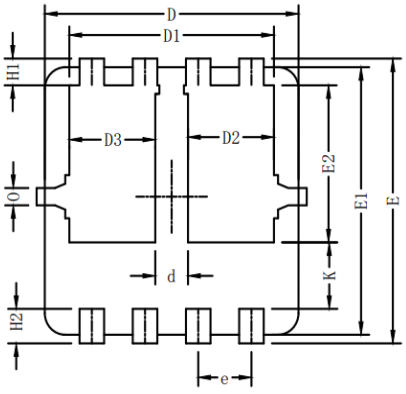
SYMBOL	MILLIMETER	
	MIN	MAX
A	0.700	0.900
A1	0.152 REF.	
A2	0~0.05	
D	3.000	3.200
D1	0.935	1.135
D2	0.280	0.480
E	2.900	3.100
E1	3.150	3.450
E2	1.535	1.935
b	0.200	0.400
e	0.550	0.750
L	0.300	0.500
L1	0.180	0.480
L2	0~0.100	
L3	0~0.100	
H	0.315	0.515
θ	8°	12°











Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.65	0.75	0.85
b	0.25	0.30	0.35
C	0.15	0.20	0.25
D	3.00	3.10	3.20
D1	2.40	2.50	2.60
D2/D3	1.00	1.05	1.10
d	0.30	0.40	0.50
E	3.20	3.30	3.40
E1	3.00	3.10	3.20
E2	1.72	1.82	1.92
e	0.65 BSC.		
H1	0.21	0.31	0.41
H2	0.30	0.40	0.50
K	0.67	0.77	0.87
L1/L2	0.10 REF.		
θ	11°	12°	13°
N	0	-	0.15
O	0.2 REF.		

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This document is the fourth version issued on July 10th, 2023. This document replaces all previously provided information.