

### ● General Description

The AGM30P16MBP 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

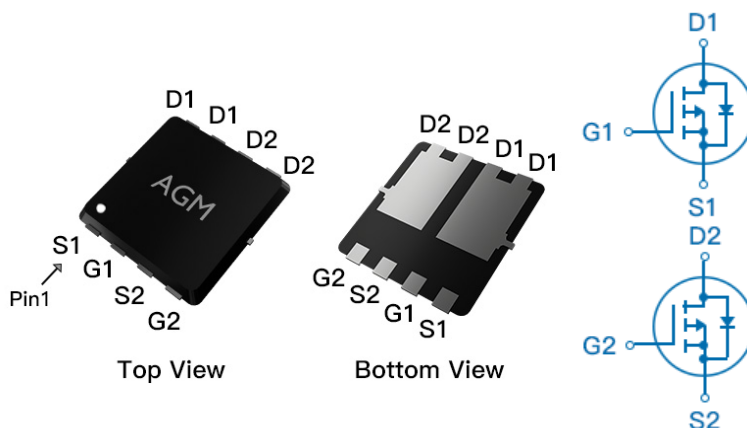
### ● Application

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

### Product Summary

BVDSS	RDSON	ID
-30V	13.4mΩ	-20A

### PDFN3.3\*3.3 Pin Configuration



### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM30P16MBP	AGM30P16MBP	PDFN3.3*3.3	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) <b>(Note 1)</b>	-20	A
	Drain Current-Continuous(Tc=100°C)	-12.7	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed <b>(Note 2)</b>	-80	A
PD	Maximum Power Dissipation(Tc=25°C)	24	w
	Maximum Power Dissipation(Tc=100°C)	9.6	w
EAS	Avalanche energy <b>(Note 3)</b>	72	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) <sup>1</sup>	---	56	°C/W
RθJC	Thermal Resistance Junction-Case <sup>1</sup>	---	5.2	°C/W

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	-30	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-30V,VGS=0V	--	--	-1.0	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	-2.2	V
gFS	Forward Transconductance	VDS=-5V,ID=-6A	--	5	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-10A	--	13.4	16	mΩ
		VGS=-4.5V, ID=-6A	--	18.2	21	mΩ
<b>Dynamic Characteristics</b>						
Ciss	Input Capacitance	VDS=-15V,VGS=0V F=1MHZ	--	1480	--	pF
Coss	Output Capacitance		--	210	--	pF
Crss	Reverse Transfer Capacitance		--	162	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	7.0	--	Ω
<b>Switching Times</b>						
td(on)	Turn-on Delay Time	VGS=-10V,VDS=-15V, RL=1Ω,RGEN=3Ω	--	18	--	nS
tr	Turn-on Rise Time		--	22	--	nS
td(off)	Turn-Off Delay Time		--	55	--	nS
tf	Turn-Off Fall Time		--	42	--	nS
Qg	Total Gate Charge	VGS=-10V,VDS=-15V	--	26	--	nC
Qgs	Gate-Source Charge		--	6.0	--	nC
Qgd	Gate-Drain Charge		--	4.3	--	nC
<b>Source-Drain Diode Characteristics</b>						
ISD	Source-Drain Current(Body Diode)		--	--	-20	A
VSD	Forward on Voltage	VGS=0V,IS=-10A	--	--	-1.2	V
trr	Reverse Recovery Time	IF=-10A , dl/dt=100A/μs , TJ=25°C	--	32	--	ns
Qrr	Reverse Recovery Charge		--	28	--	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°C,VDD=-15V,Vgs=-10V,ID=-38A, L=0.1mH,RG=25ohm

# Electrical Characteristics Diagrames

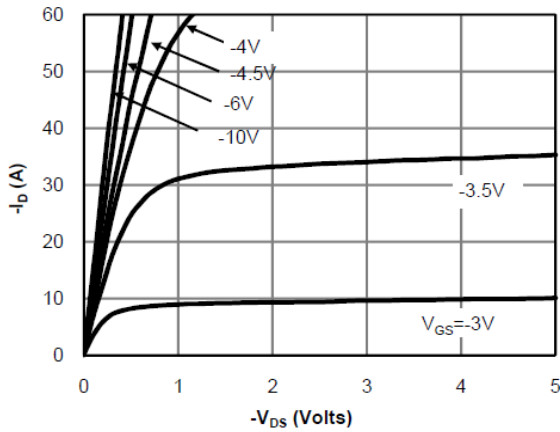
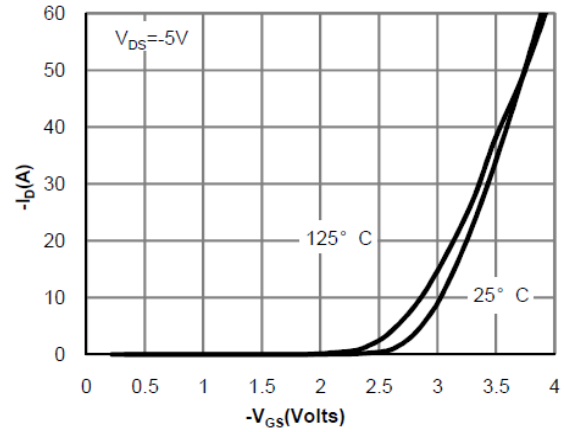
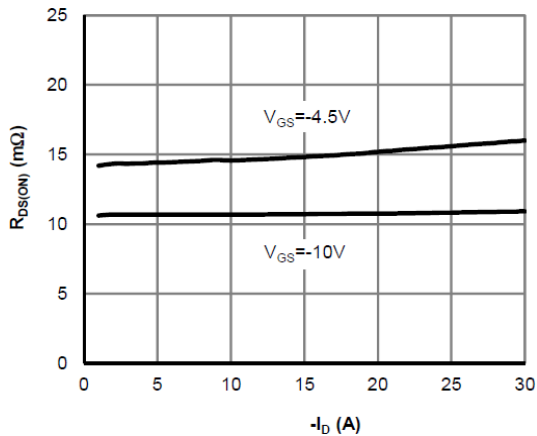
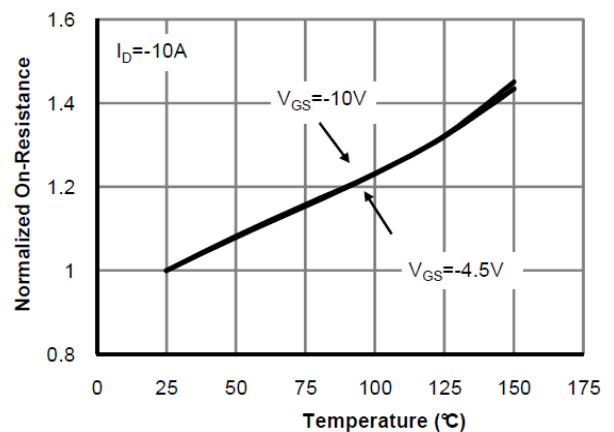
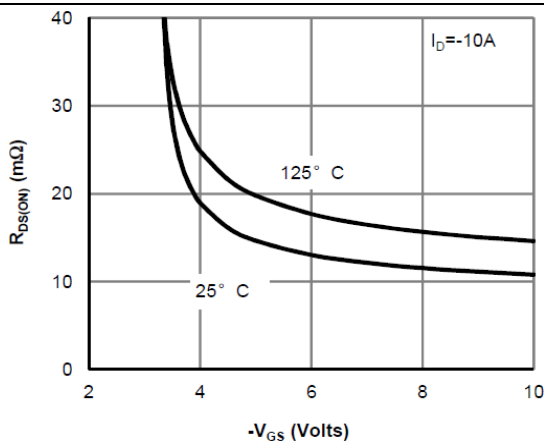
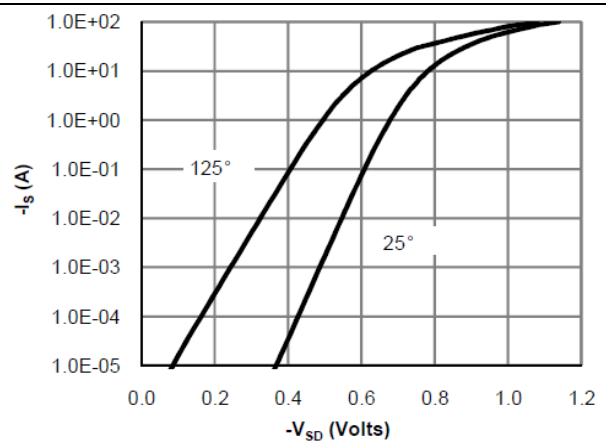
**Figure 1. On-Regin Characteristics**

**Figure 2. Transfer Characteristics**

**Figure 3. On-Resistance vs. Drain Current and Gate Voltage**

**Figure 4. On-Resistance vs. Junction Temperature**

**Figure 5. On-Resistance vs. Gate-Source Voltage**

**Figure 6. Body-Diode Characteristics**


Figure 7. Gate-Charge Characteristics

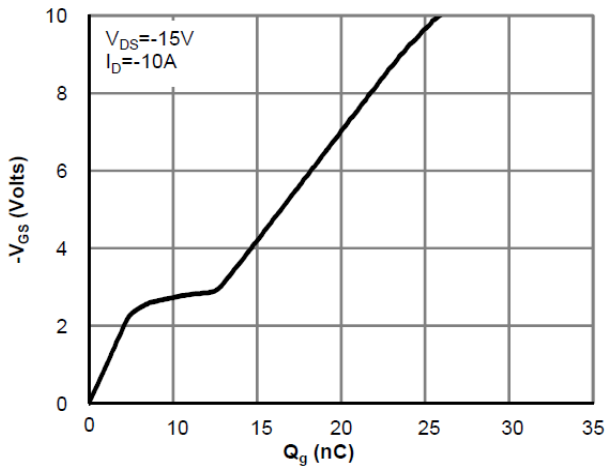


Figure 8. Capacitance Characteristics

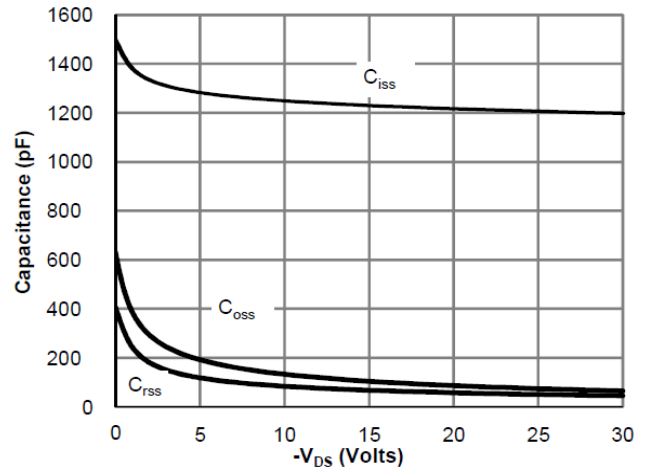


Figure 9. Maximum Forward Biased Safe Operating Area

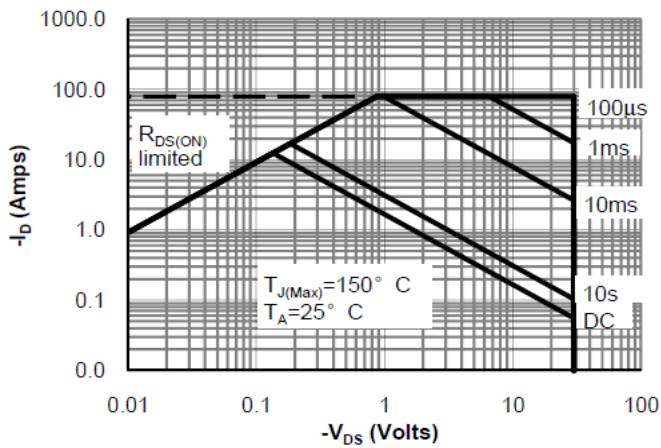


Figure 10. Single Pulse Power Rating Junction-to-Ambient

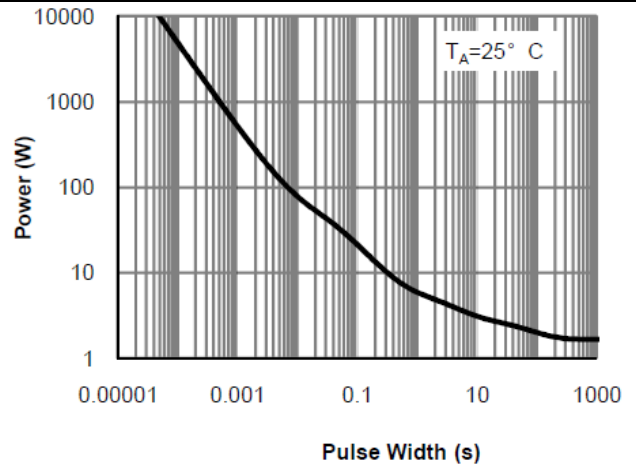
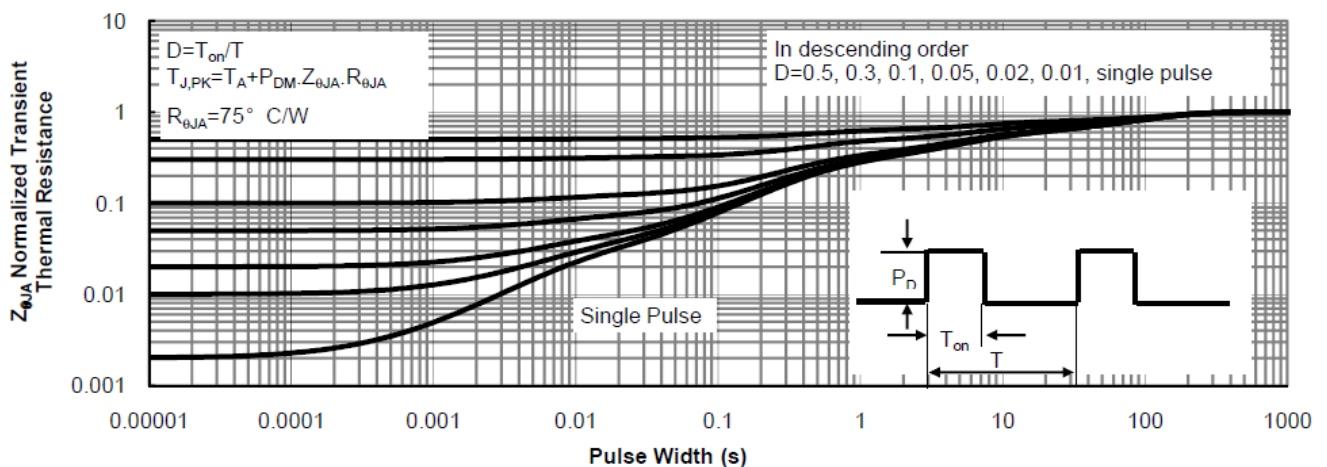
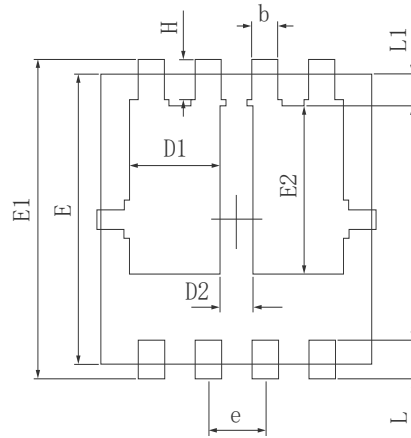
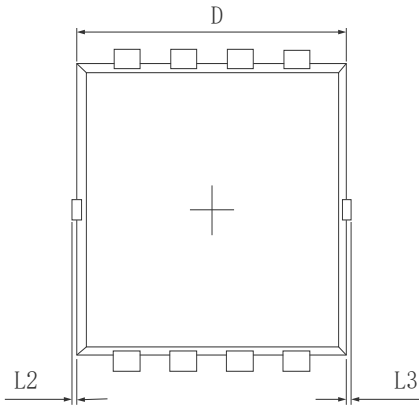
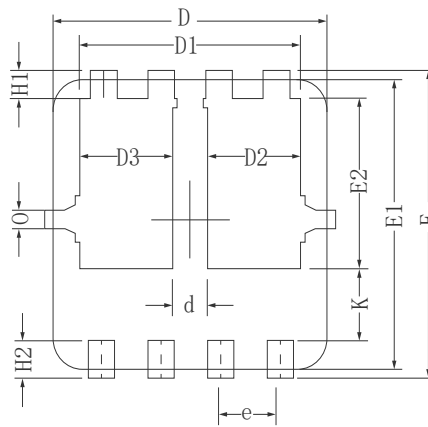
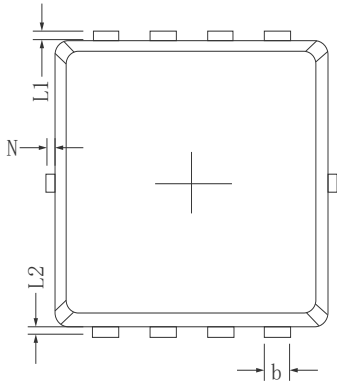
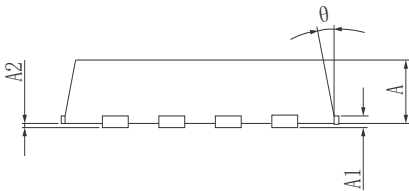


Figure 11. Normalized Maximum Transient Thermal Impedance

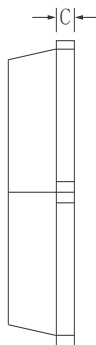
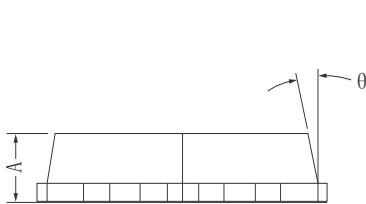


**●Dimensions (PDFN3.3\*3.3)**


SYMBOL	MILLIMETER	
	MIN	MAX
A	0.700	0.900
A1	0.152REF.	
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°

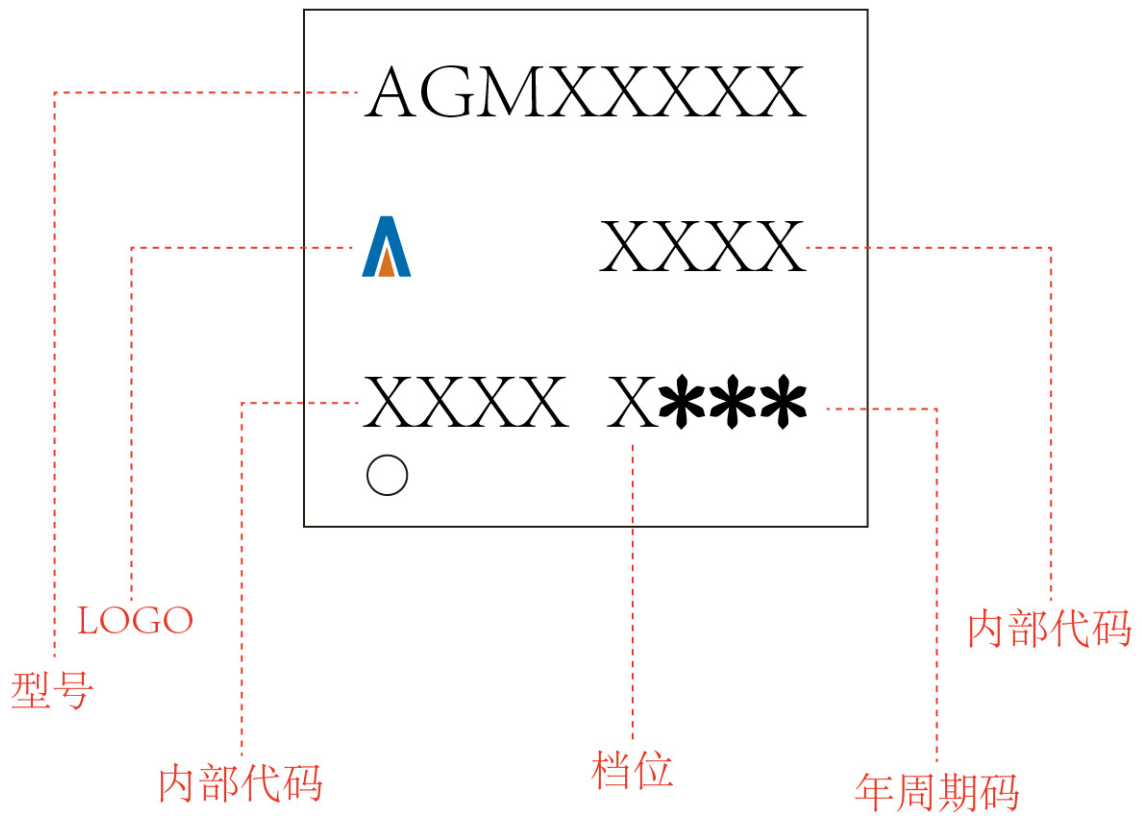


Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.65	0.75	0.85
b	0.25	0.30	0.35
C	0.15	0.20	0.25
D	3.00	3.10	3.20
D1	2.40	2.50	2.60
D2/D3	1.00	1.05	1.10
d	0.30	0.40	0.50
E	3.20	3.30	3.40
E1	3.00	3.10	3.20
E2	1.72	1.82	1.92
e	0.65 BSC.		
H1	0.21	0.31	0.41
H2	0.30	0.40	0.50
K	0.67	0.77	0.87
L1/L2	0.10 REF.		
θ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



PDFN3.3\*3.3

Marking Instructions:




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