

● General Description

The AGM30P14MBP 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

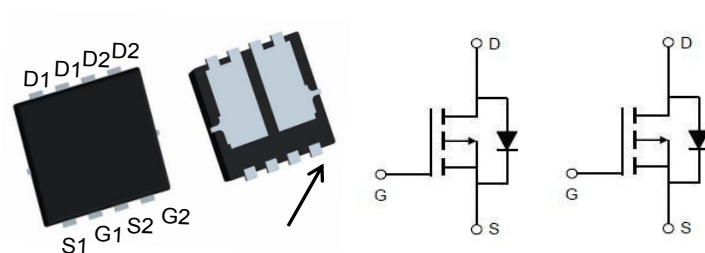
● Application

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

Product Summary

BVDSS	RDSON	ID
-30V	15mΩ	-21A

PDFN3*3 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM30P14MBP	AGM30P14MBP	PDFN3*3	----	----	5000

Table 1. Absolute Maximum Ratings (TA=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)	-21	A
	Drain Current-Continuous(Tc=100°C)	-14.3	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	-64	A
PD	Maximum Power Dissipation(Tc=25°C)	30	w
	Maximum Power Dissipation(Tc=100°C)	12	w
EAS	Avalanche energy (Note 3)	--	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	---	62	°C/W
RθJC	Thermal Resistance Junction-Case ¹	---	4.2	°C/W

Table 3. Electrical Characteristics (TA=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	--	--	-1.0	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	-2.5	V
gFS	Forward Transconductance	VDS=-10V,ID=-5A	--	5	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-8A	--	15	23	mΩ
		VGS=-4.5V, ID=-5A	--	20	28	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=-15V,VGS=0V F=1MHZ	--	1350	--	pF
Coss	Output Capacitance		--	194	--	pF
Crss	Reverse Transfer Capacitance		--	158	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	5	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=-10V,VDS=-15V, RL=0.75Ω,RGEN=3.3Ω	--	10.5	--	nS
tr	Turn-on Rise Time		--	11	--	nS
td(off)	Turn-Off Delay Time		--	51	--	nS
tf	Turn-Off Fall Time		--	28	--	nS
Qg	Total Gate Charge	VGS=-10V, VDS=-15V, ID=-9A	--	14	--	nC
Qgs	Gate-Source Charge		--	5.2	--	nC
Qgd	Gate-Drain Charge		--	5.0	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	-21	A
VSD	Forward on Voltage	VGS=0V,IS=-9A	--	--	-1.2	V
trr	Reverse Recovery Time	IF=-9A , dI/dt=100A/μs , TJ=25°C	--	--	--	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°C

Typical Electrical and Thermal Characteristics (Curves)

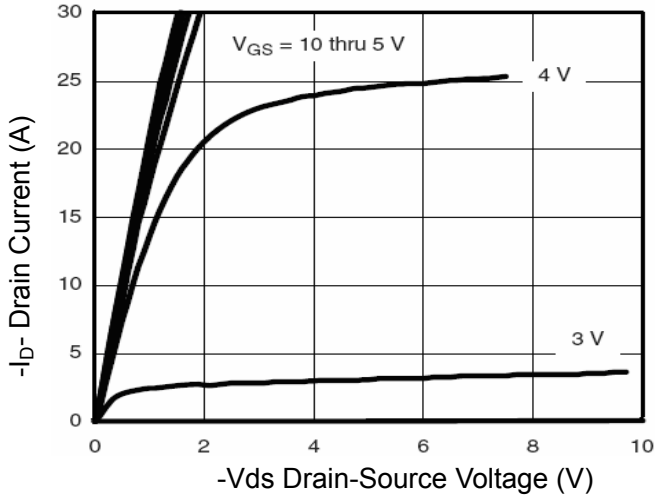


Figure 1 Output Characteristics

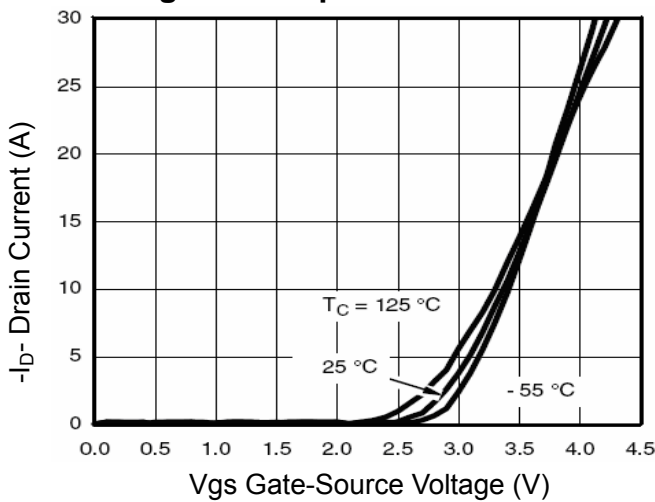


Figure 2 Transfer Characteristics

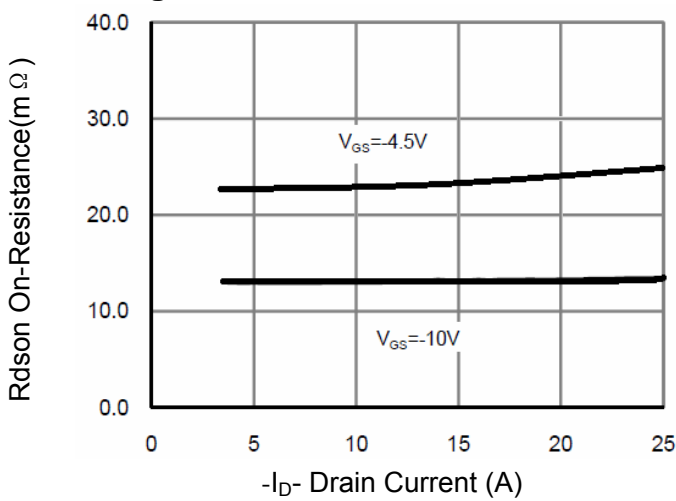


Figure 3 Rdson- Drain Current

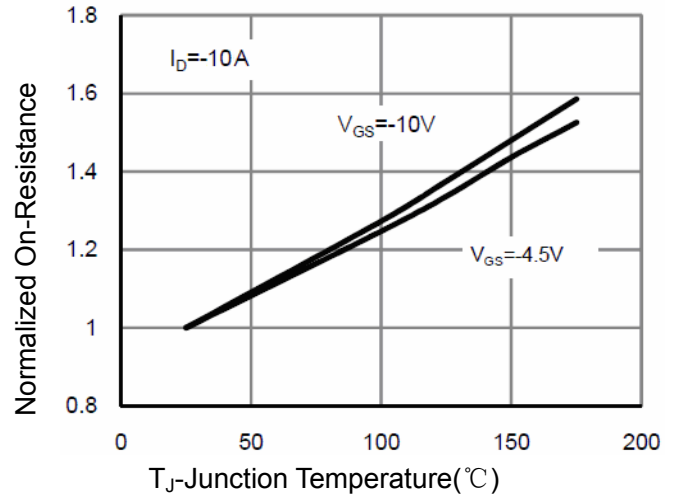


Figure 4 Rdson-Junction Temperature

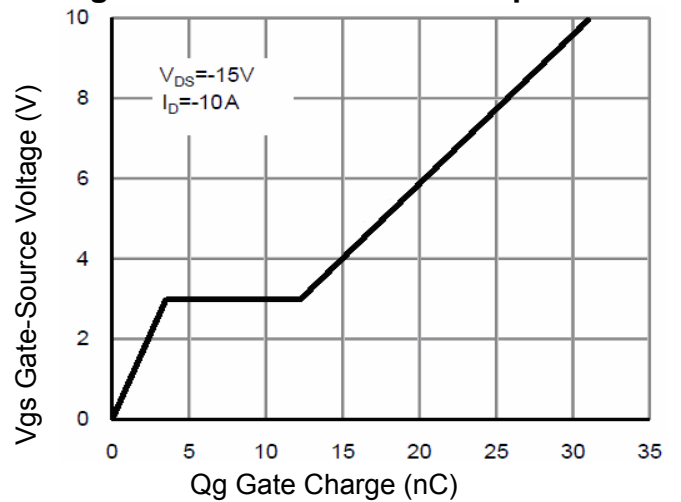


Figure 5 Gate Charge

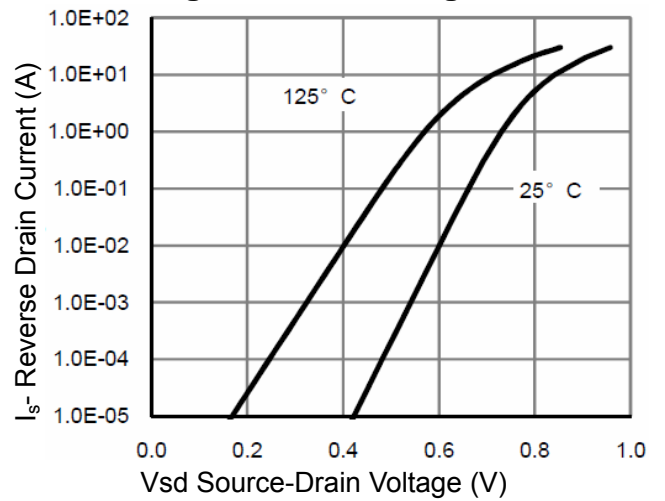


Figure 6 Source- Drain Diode Forward

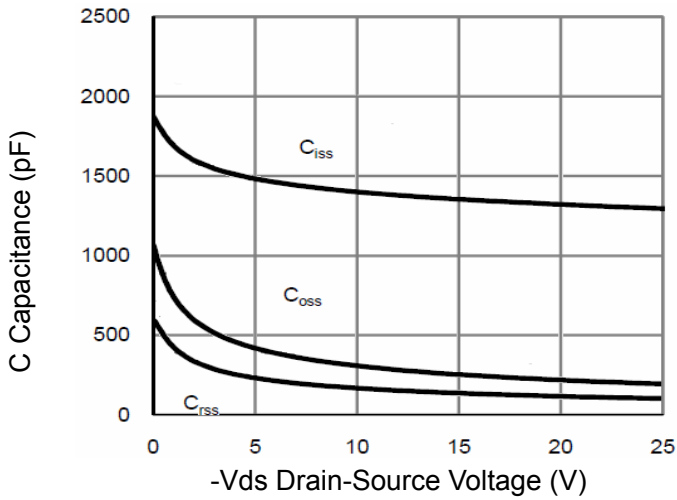


Figure 7 Capacitance vs Vds

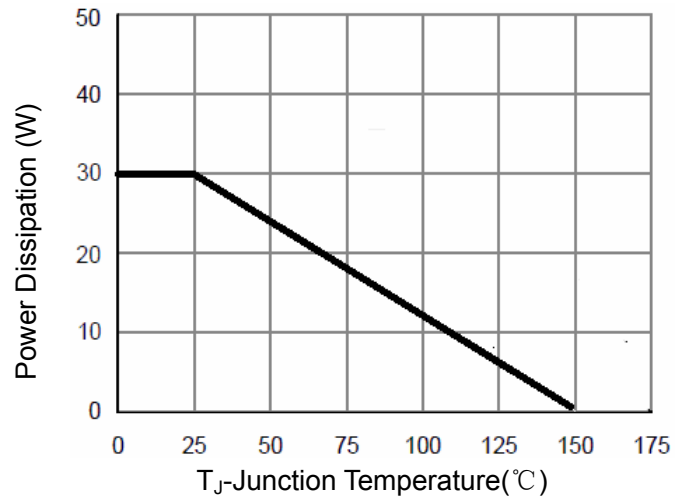


Figure 9 Power De-rating

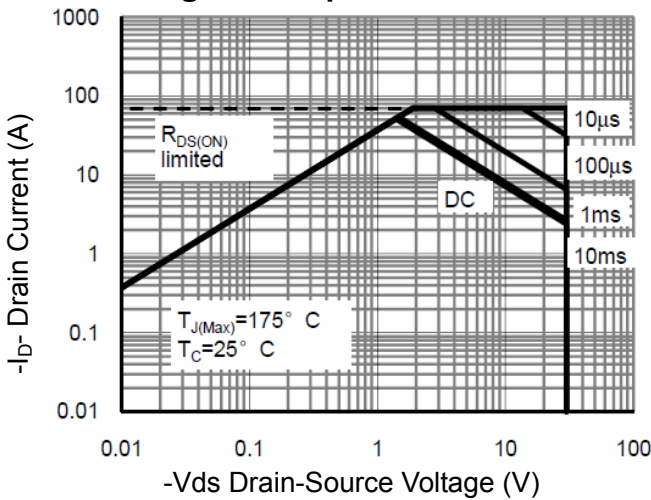


Figure 8 Safe Operation Area

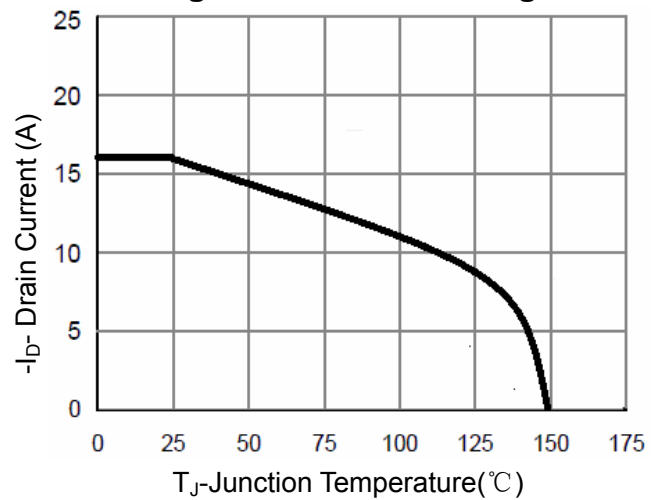


Figure 10 ID Current Derating

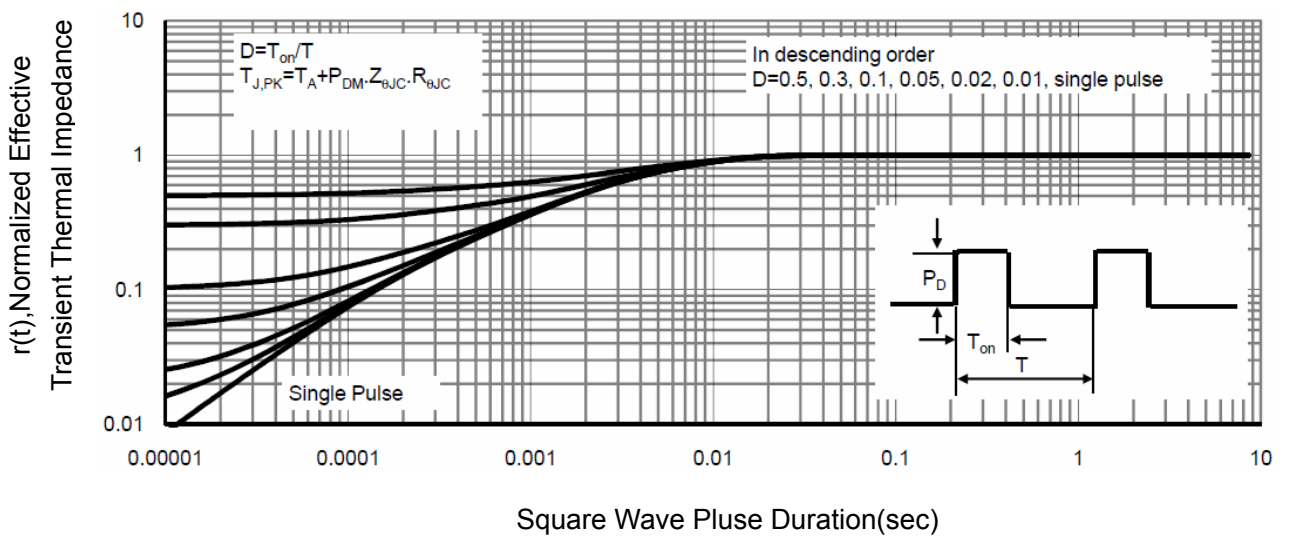
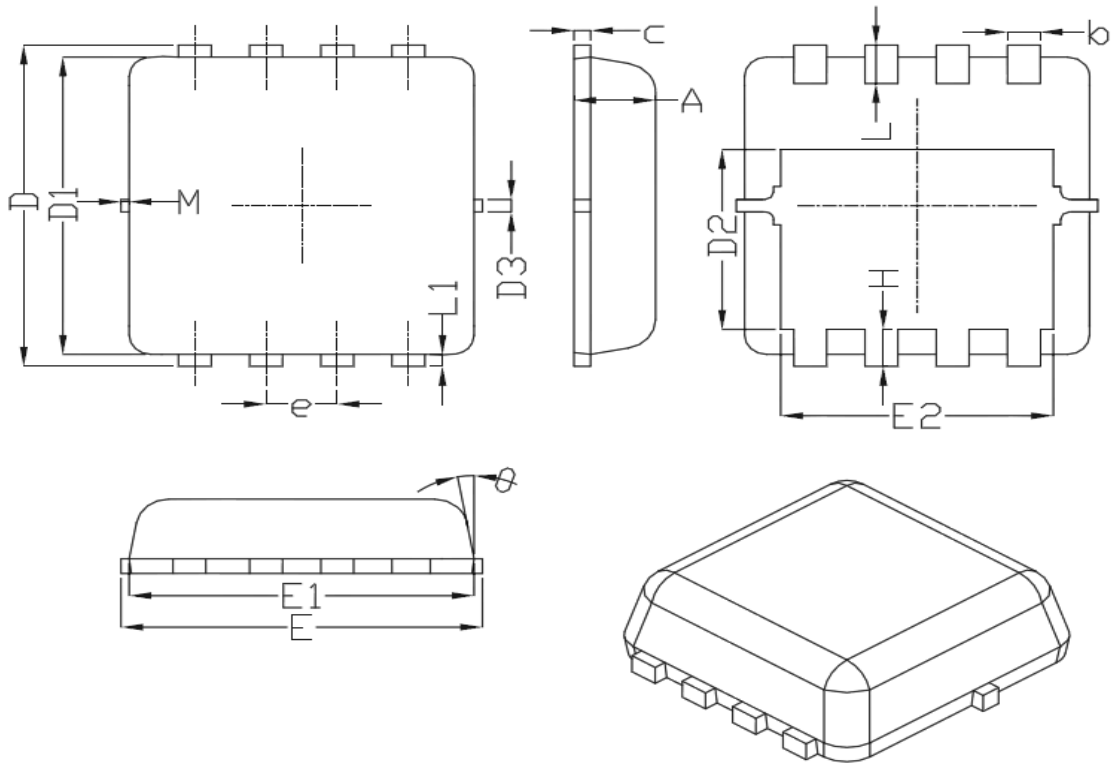


Figure 11 Normalized Maximum Transient Thermal Impedance

PDFN3333 Package Outline Data

DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.70	0.75	0.80	b	0.25	0.30	0.35
C	0.10	0.15	0.25	D	3.25	3.35	3.45
D1	3.00	3.10	3.20	D2	1.78	1.88	1.98
D3	--	0.13	--	E	3.20	3.30	3.40
E1	3.00	3.15	3.20	E2	2.39	2.49	2.59
e	0.65BSC			H	0.30	0.39	0.50
L	0.30	0.40	0.50	L1	--	0.13	--
θ	--	10°	12°	M	*	*	0.15
*Not specified							


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