

### ● General Description

The AGM30P18S 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

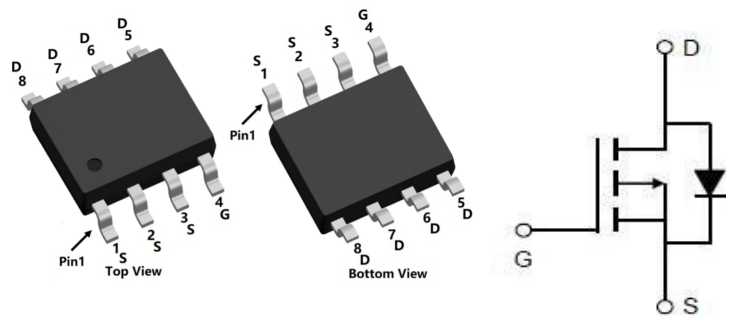
### ● Application

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

### Product Summary

BVDS	RDS(ON)	ID
-30V	7.0mΩ	-17A

### SOP8 Pin Configuration



### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM30P18S	AGM30P18S	SOP8	330mm	12mm	3000

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(Ta=25°C) (Note 1)	-17	A
	Drain Current-Continuous(Ta=100°C)	-10	A
IDM (pulse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	-68	A
PD	Maximum Power Dissipation(Ta=25°C)	2.5	w
	Maximum Power Dissipation(Ta=100°C)	1.0	w
EAS	Avalanche energy (Note 3)	81	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>	---	50	°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	-1.0	-1.6	-2.5	V
gFS	Forward Transconductance	VDS=-10V,ID=-10A	--	15	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-15A	--	7.0	8.0	mΩ
		VGS=-4.5V, ID=-10A	--	10	12	mΩ
<b>Dynamic Characteristics</b>						
Ciss	Input Capacitance	VDS=-15V,VGS=0V F=1MHZ	--	3020	--	pF
Coss	Output Capacitance		--	365	--	pF
Crss	Reverse Transfer Capacitance		--	225	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	2.2	--	Ω
<b>Switching Times</b>						
td(on)	Turn-on Delay Time	VGS=-10V,VDS=-15V, ID=-10A,RGEN=6.8Ω	--	16	--	nS
tr	Turn-on Rise Time		--	31	--	nS
td(off)	Turn-Off Delay Time		--	66	--	nS
tf	Turn-Off Fall Time		--	20	--	nS
Qg	Total Gate Charge	VGS=-10V VDS=-15V, ID=-10A	--	36	--	nC
Qgs	Gate-Source Charge		--	6	--	nC
Qgd	Gate-Drain Charge		--	10	--	nC
<b>Source-Drain Diode Characteristics</b>						
ISD	Source-Drain Current(Body Diode)		--	--	-17	A
VSD	Forward on Voltage	VGS=0V,IS=-15A	--	--	-1.2	V
trr	Reverse Recovery Time	IF=-15A , 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 Characteristics

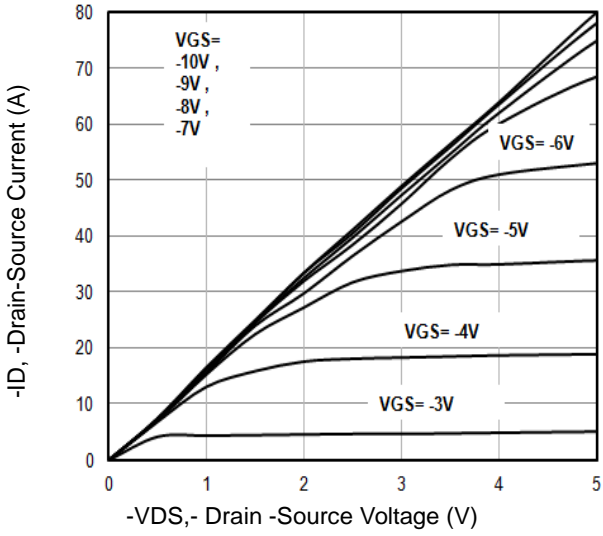


Fig1. Typical Output Characteristics

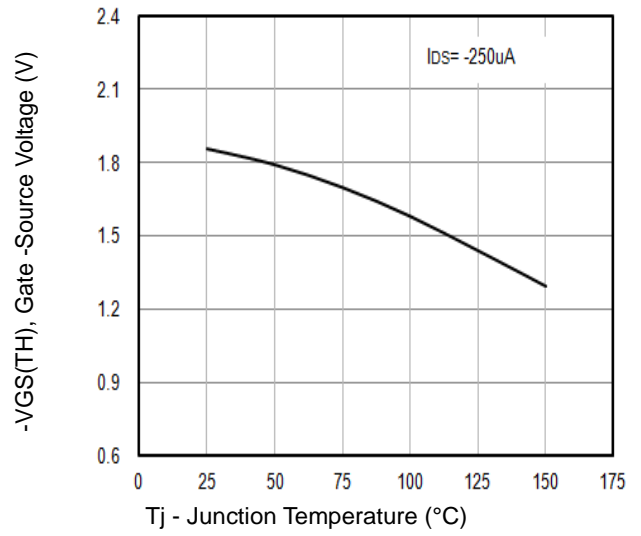


Fig2.  $-V_{GS(TH)}$  Gate -Source Voltage Vs.  $T_j$

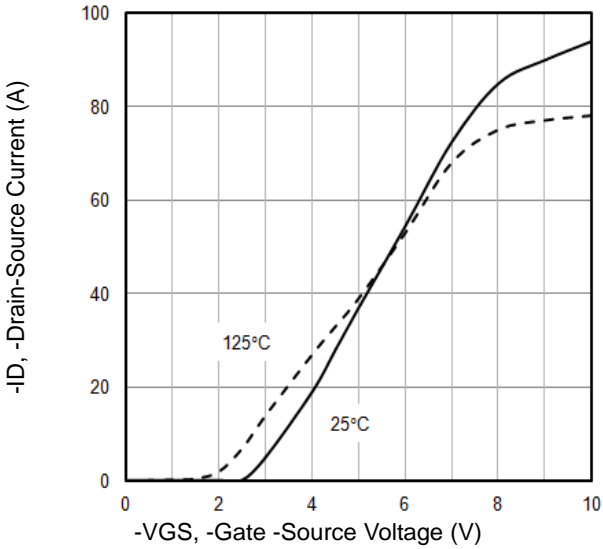


Fig3. Typical Transfer Characteristics

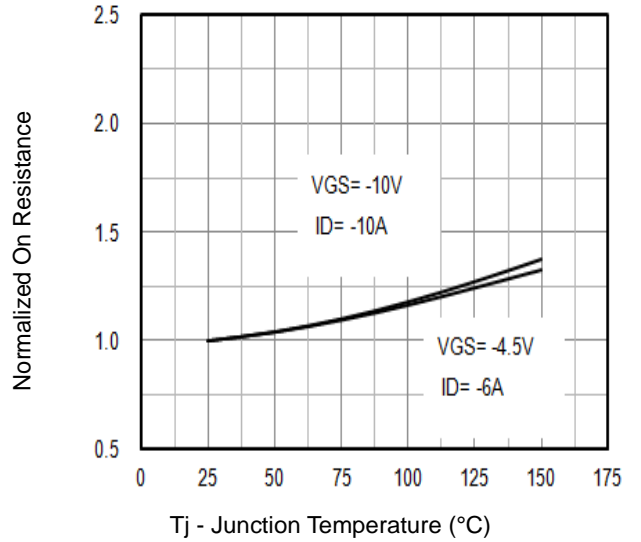


Fig4. Normalized On-Resistance Vs.  $T_j$

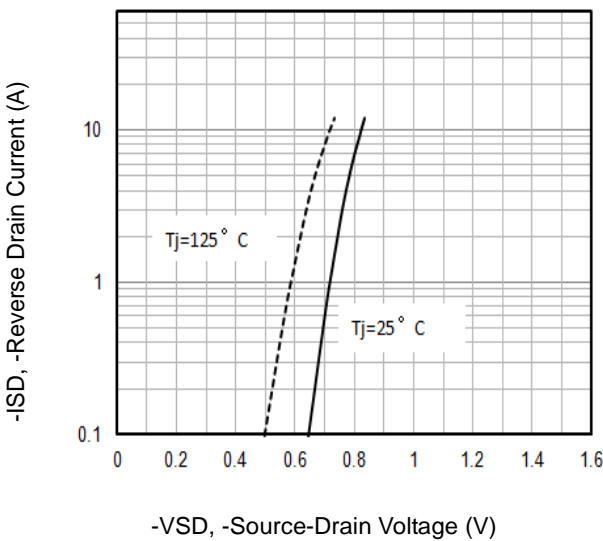


Fig5. Typical Source-Drain Diode Forward Voltage

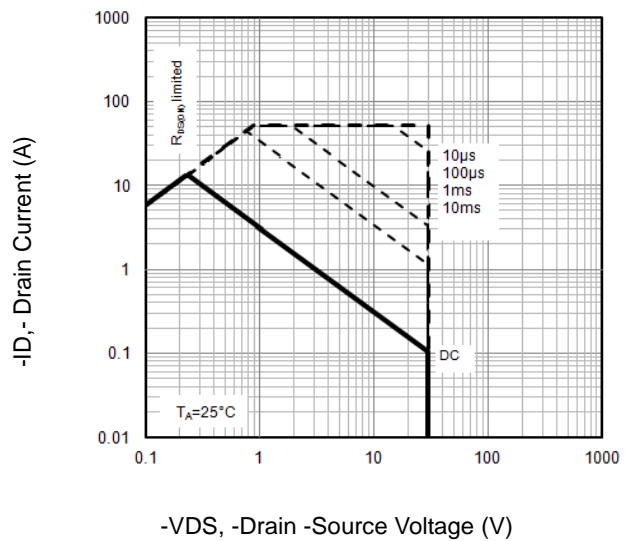
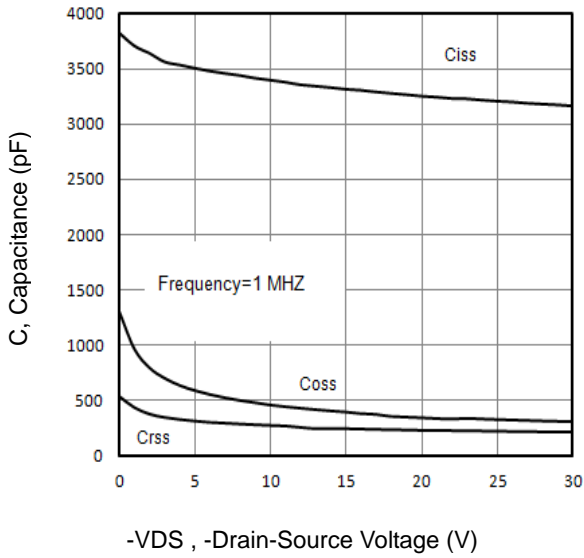
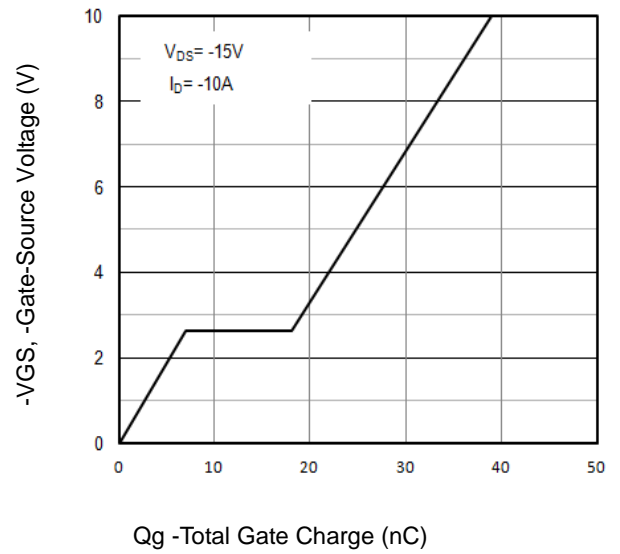


Fig6. Maximum Safe Operating Area

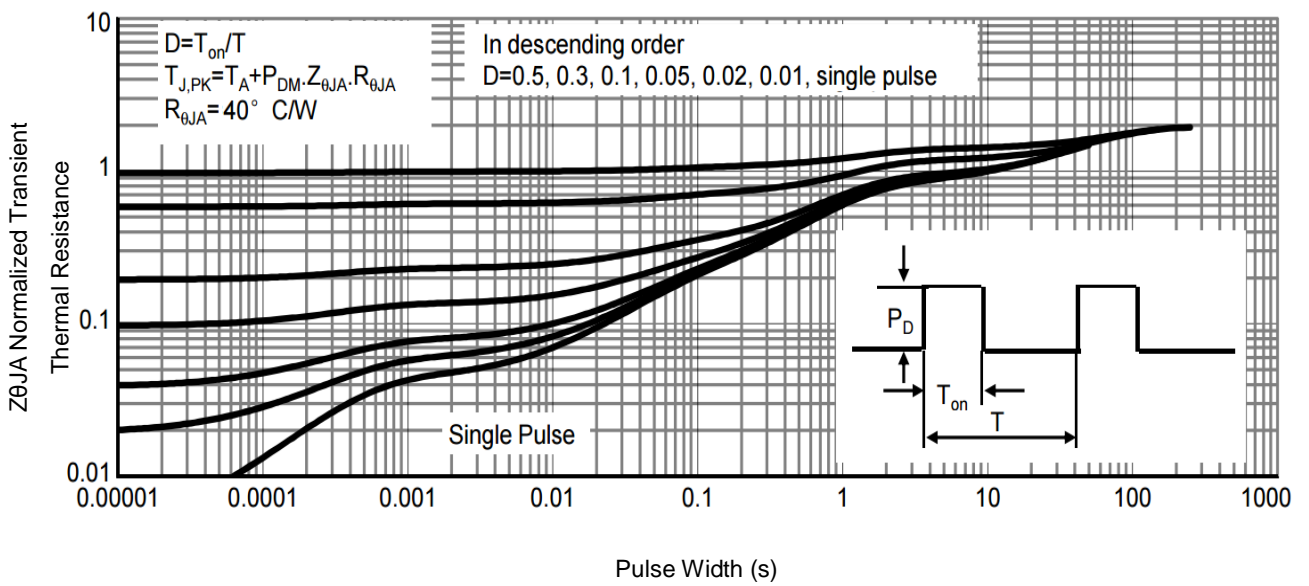
### Typical Characteristics



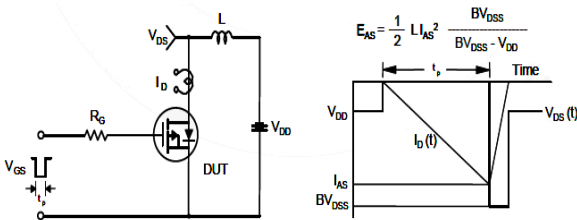
**Fig7.** Typical Capacitance Vs. Drain-Source Voltage



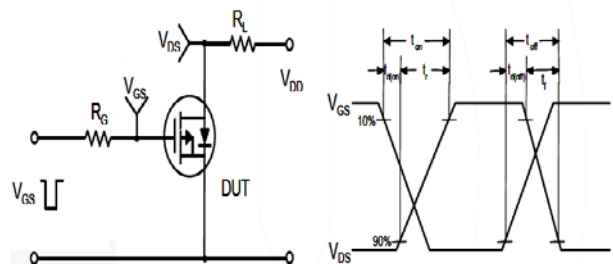
**Fig8.** Typical Gate Charge Vs. Gate-Source Voltage



**Fig9.** Normalized Maximum Transient Thermal Impedance



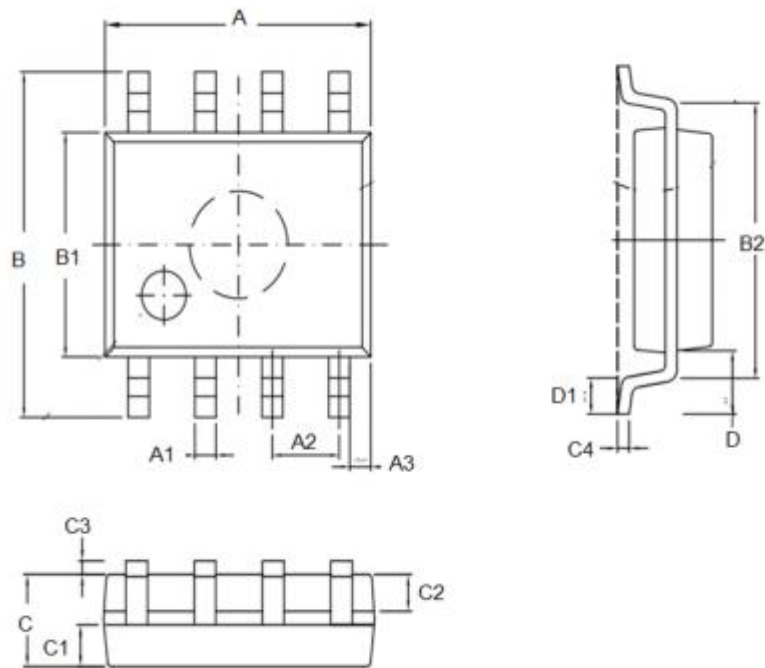
**Fig10.** Unclamped Inductive Test Circuit and Waveforms



**Fig11.** Switching Time Test Circuit and waveforms

**•Dimensions(SOP8)**

SYMBOL	min	TYP	max	SYMBOL	min		max
A	4.80		5.00	C	1.30		1.50
A1	0.37		0.47	C1	0.55		0.75
A2		1.27		C2	0.55		0.65
A3		0.41		C3	0.05		0.20
B	5.80		6.20	C4	0.19	0.20	0.23
B1	3.80		4.00	D		1.05	
B2		5.00		D1	0.40		0.62




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