

● General Description

The AGM408M combines advanced trenchMOSFET 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

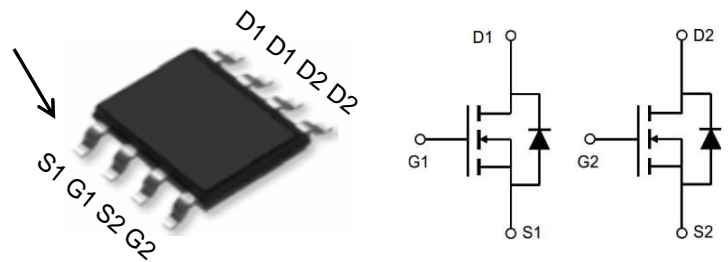
● Application

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

Product Summary

BVDSS	RDSON	ID
40V	11mΩ	7.5A

SOP-8 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM408M	AGM408M	SOP8	330mm	12mm	3000

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

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	40	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Ta=25°C) (Note 1)	7.5	A
	Drain Current-Continuous(Ta=100°C)	4.5	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	30	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)	31	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

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	40	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=32V,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	--	2.1	V
gFS	Forward Transconductance	VDS=5V,ID=10A	--	11	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=15A	--	11	15	mΩ
		VGS=4.5V, ID=10A	--	15	21	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=50V,VGS=0V, F=1MHZ	--	1314	--	pF
Coss	Output Capacitance		--	120	--	pF
Crss	Reverse Transfer Capacitance		--	88	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	2.1	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=12V, ID=6A,RGEN=3.3Ω	--	8.6	--	nS
tr	Turn-on Rise Time		--	3.4	--	nS
td(off)	Turn-Off Delay Time		--	25	--	nS
tf	Turn-Off Fall Time		--	2.2	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=20V, ID=6A	--	10.7	--	nC
Qgs	Gate-Source Charge		--	3.3	--	nC
Qgd	Gate-Drain Charge		--	4.2	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	7.5	A
VSD	Forward on Voltage	VGS=0V,IS=15A	--	0.7	1.2	V
trr	Reverse Recovery Time	IF=15A , dl/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

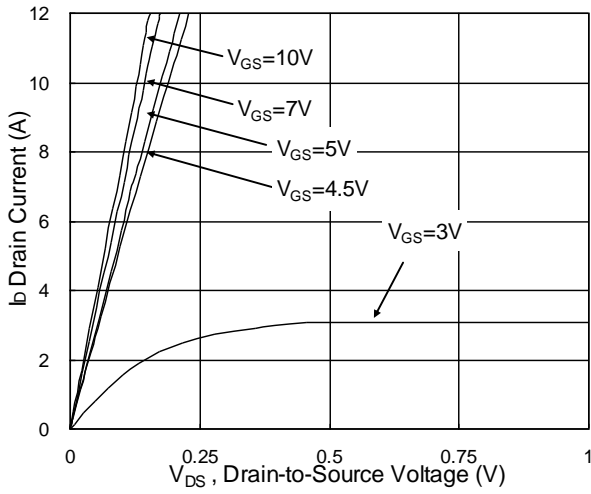


Fig.1 Typical Output Characteristics

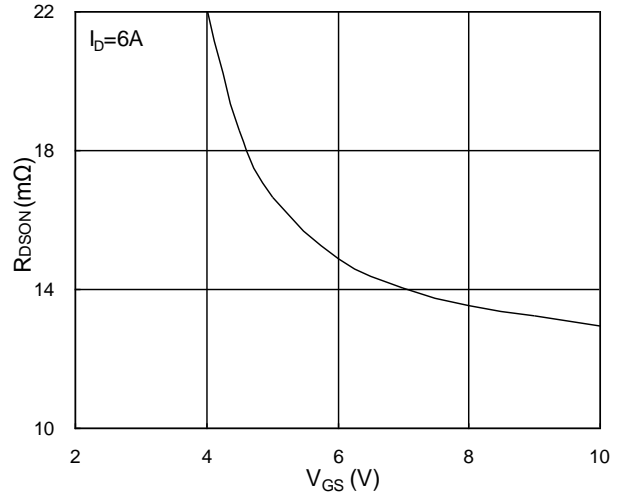


Fig.2 On-Resistance vs. G-S Voltage

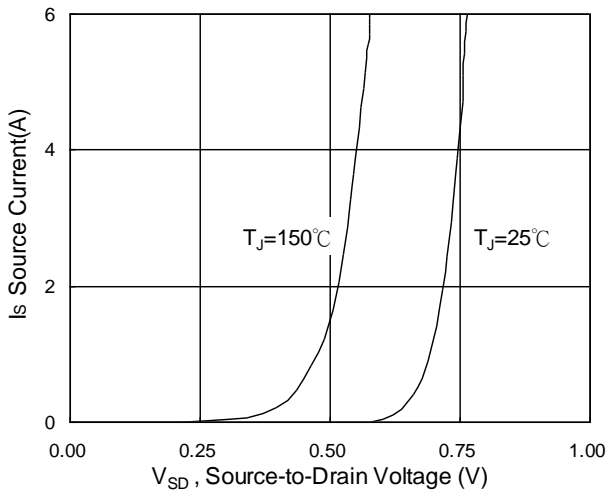


Fig.3 Forward Characteristics of Reverse

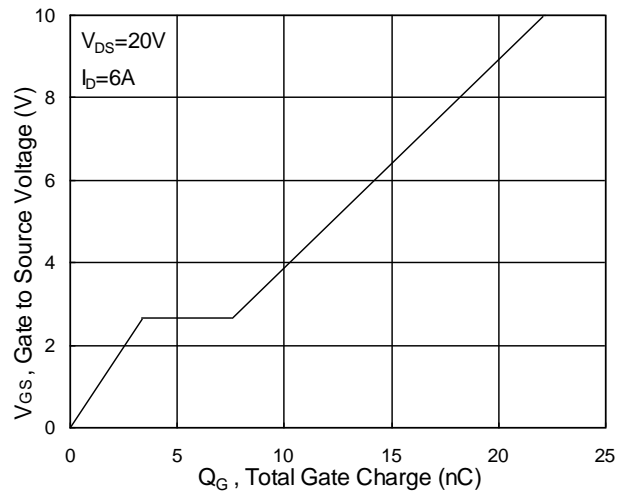


Fig.4 Gate-Charge Characteristics

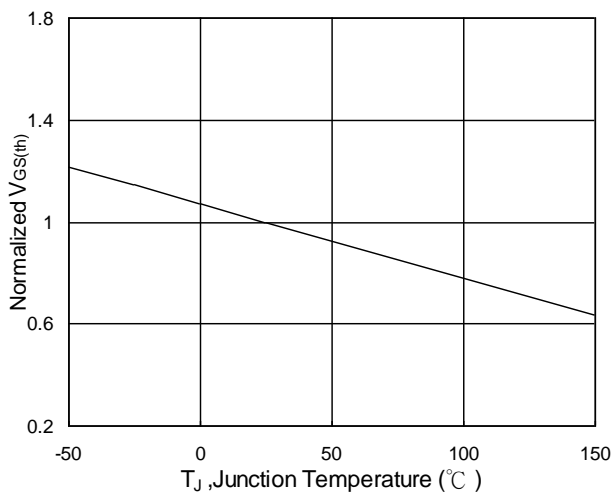


Fig.5 Normalized V_{GS(th)} vs. T_J

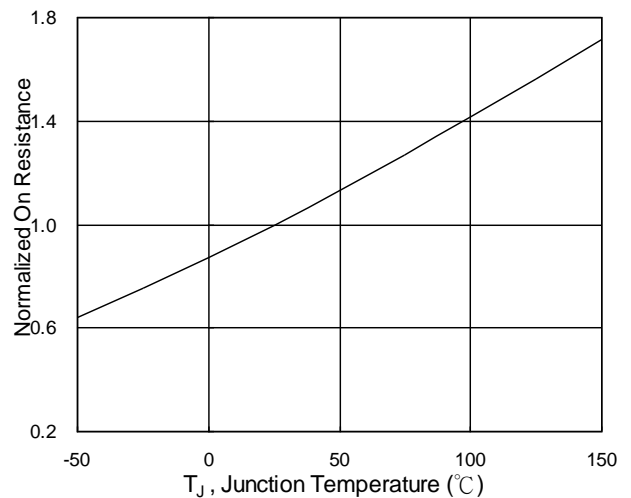


Fig.6 Normalized R_{DS(on)} vs. T_J

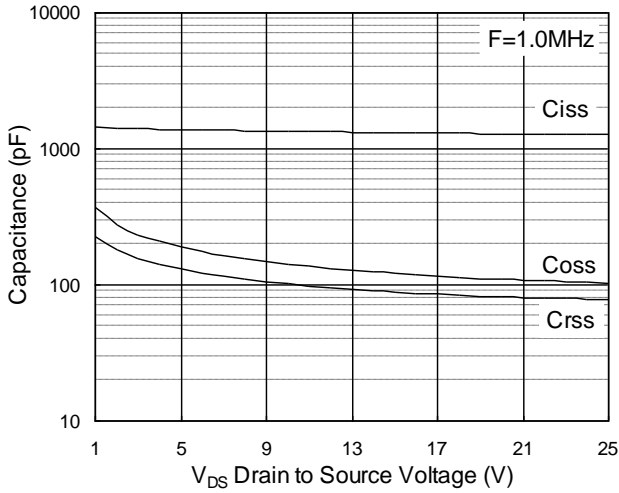


Fig.7 Capacitance

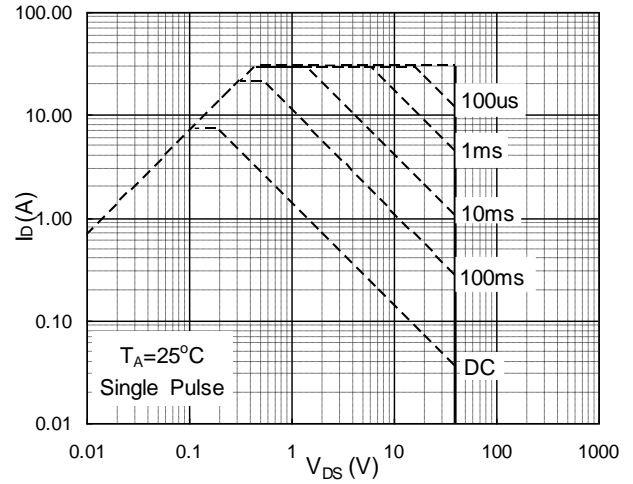


Fig.8 Safe Operating Area

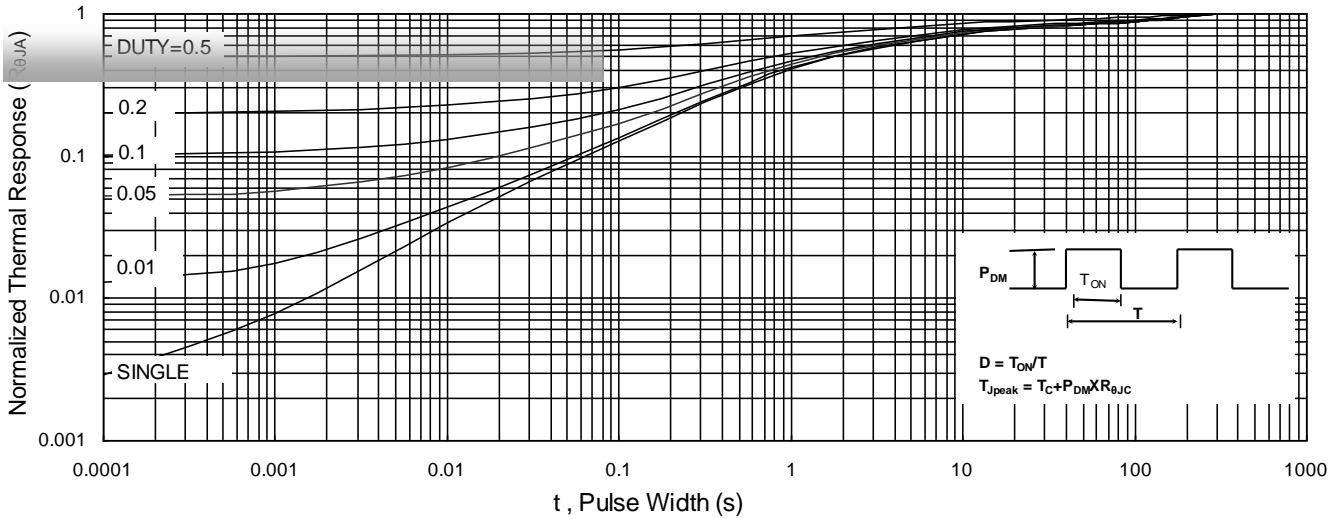


Fig.9 Normalized Maximum Transient Thermal Impedance

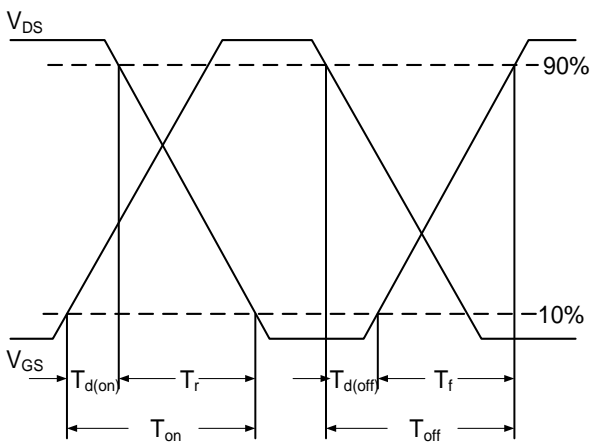


Fig.10 Switching Time Waveform

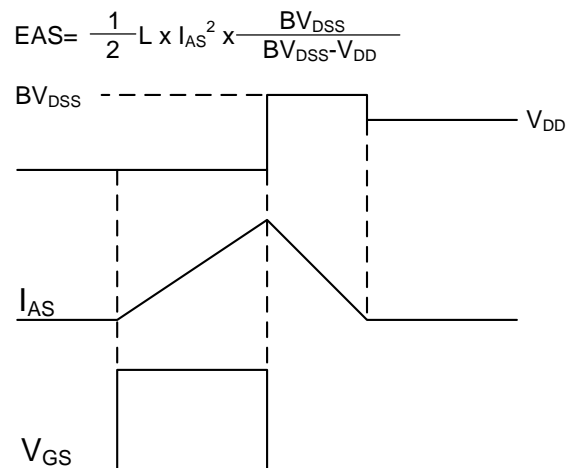
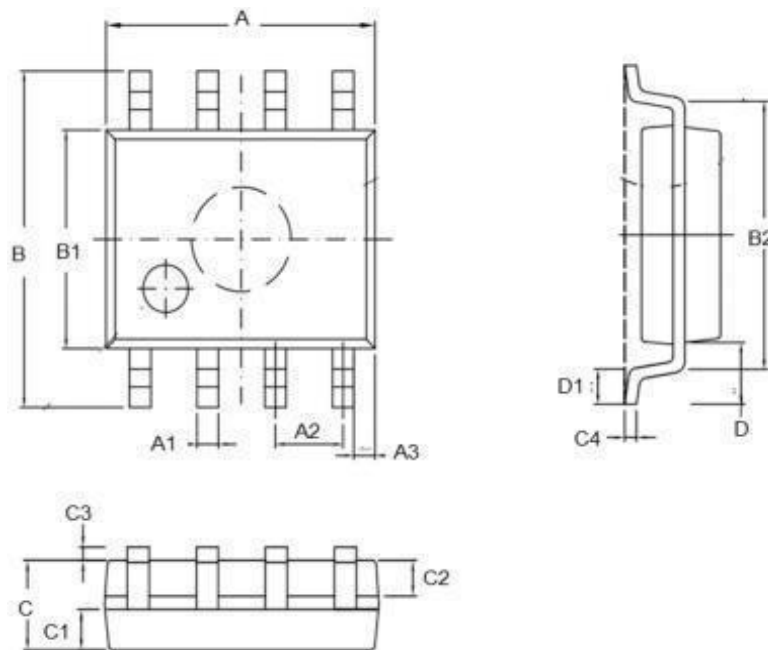


Fig.11 Unclamped Inductive Switching Waveform

•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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