● General Description

The AGM325ME 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

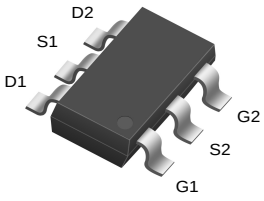
■POL application

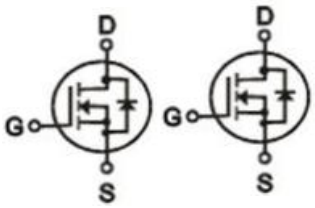
■BLDC Motor driver

Product Summary

BVDSS	RDSON	ID
30V	28mΩ	5.5A

SOT23-6 Pin Configuration





Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM325ME	AGM325ME	SOT23-6	--mm	--mm	3000

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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	30	V
V_{GS}	Gate-Source Voltage (V_{DS}=0V)	±12	V
I_D	Drain Current-Continuous(Tc=25℃) (Note 1)	5.5	A
	Drain Current-Continuous(Tc=100℃)	--	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	30	A
P_D	Total Power Dissipation(Tc=25℃)	1.15	W
	Total Power Dissipation(TA=100℃)	0.46	W
EAS	Avalanche energy (Note 3)	--	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	℃

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Steady State)[1]	---	125	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	108	℃/W

Table 3. N- Channel Electrical Characteristics (TA=25℃unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	VDS= 30V,VGS=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	VGS=±12V,VDS=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	VDS=VGS,ID=250μA	0.6	--	1.4	V
gFS	Forward Transconductance	VDS=5V,ID=5A	--	8	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=3.4A	--	28	32	mΩ
		VGS=4.5V, ID=3A	--	32	38	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=15V,VGS=0V, F=1MHZ	--	390	--	pF
Coss	Output Capacitance		--	54.5	--	pF
Crss	Reverse Transfer Capacitance		--	41	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	3	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=15V, ID=4A,RGEN=6Ω	--	4	--	nS
tr	Turn-on Rise Time		--	2	--	nS
td(off)	Turn-Off Delay Time		--	22	--	nS
tf	Turn-Off Fall Time		--	3	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=15V, ID=4A	--	4.5	--	nC
Qgs	Gate-Source Charge		--	1.4	--	nC
Qgd	Gate-Drain Charge		--	0.6	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	5.5	A
VSD	Forward on Voltage	VGS=0V,IS=4A	--	0.8	1.3	V
trr	Reverse Recovery Time	IF=4A , dI/dt=100A/μs , TJ=25℃	--	11	--	ns
Qrr	Reverse Recovery Charge		--	5.5	--	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: T_J=25℃

N Channel Typical Characteristics

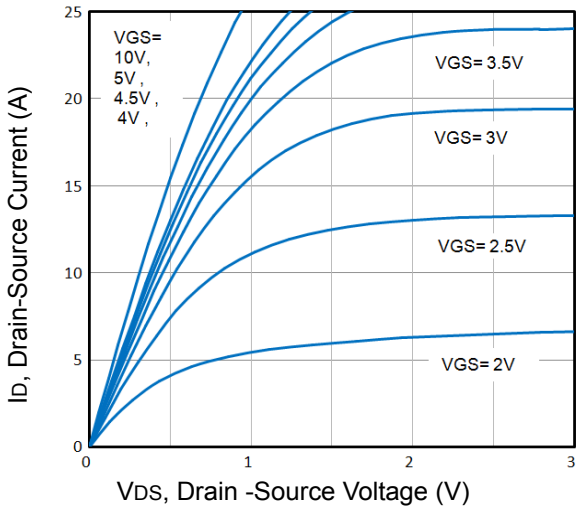


Fig1. Typical Output Characteristics

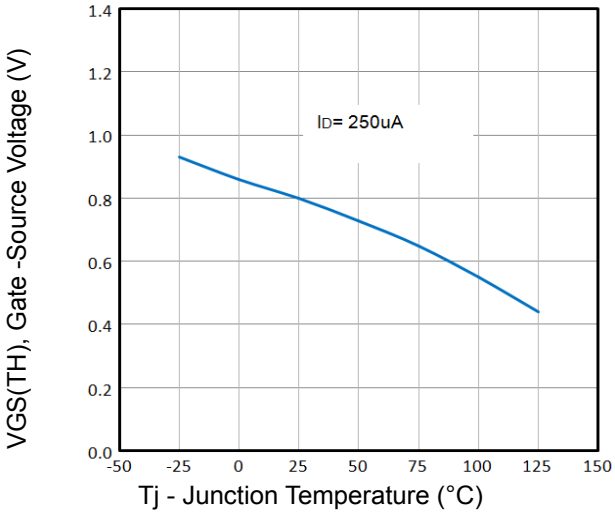


Fig2. Normalized Threshold Voltage Vs. Temperature

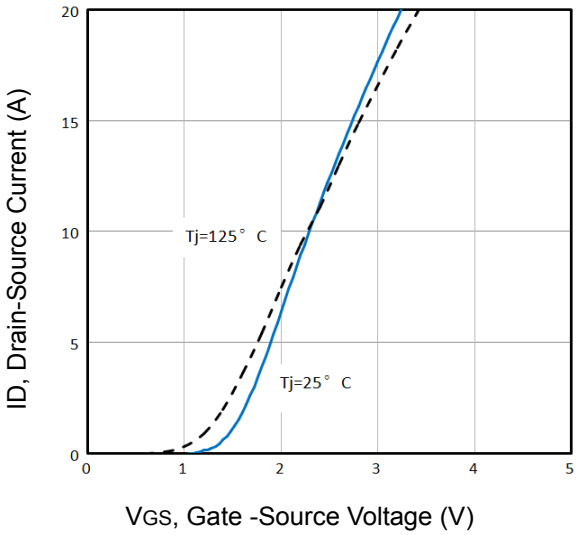


Fig3. Typical Transfer Characteristics

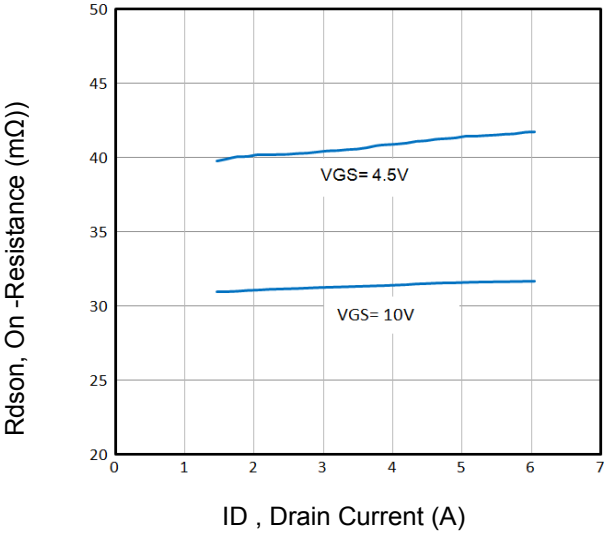


Fig4. On-Resistance vs. Drain Current and Gate

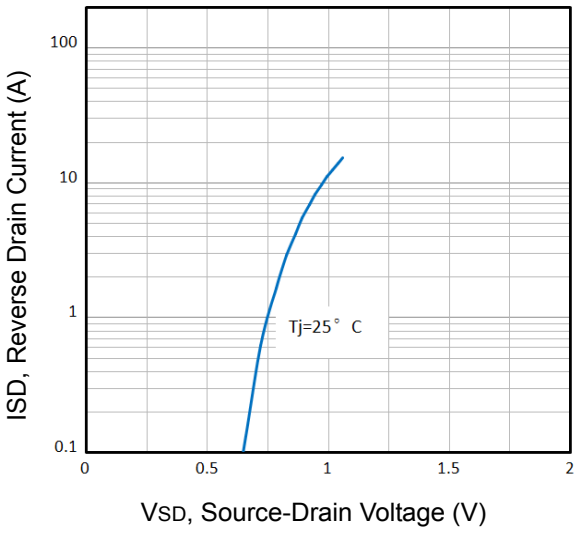


Fig5. Typical Source-Drain Diode Forward Voltage

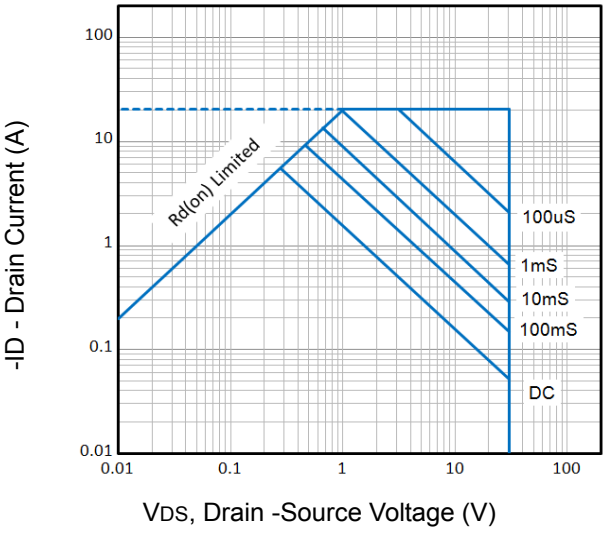


Fig6. Maximum Safe Operating Area

N Channel Typical Characteristics

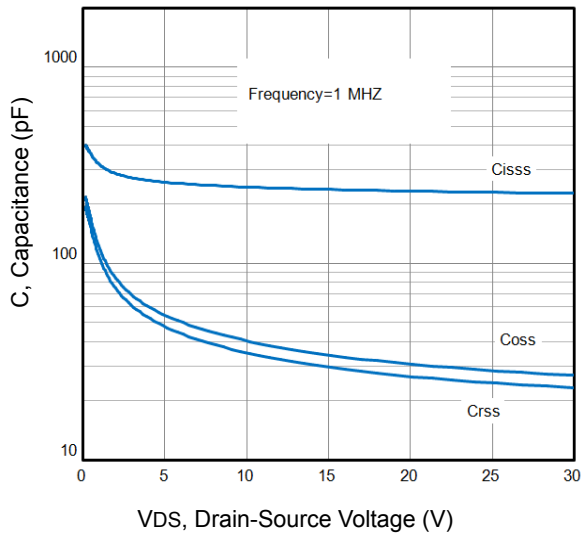


Fig7. Typical Capacitance Vs. Drain-Source Voltage

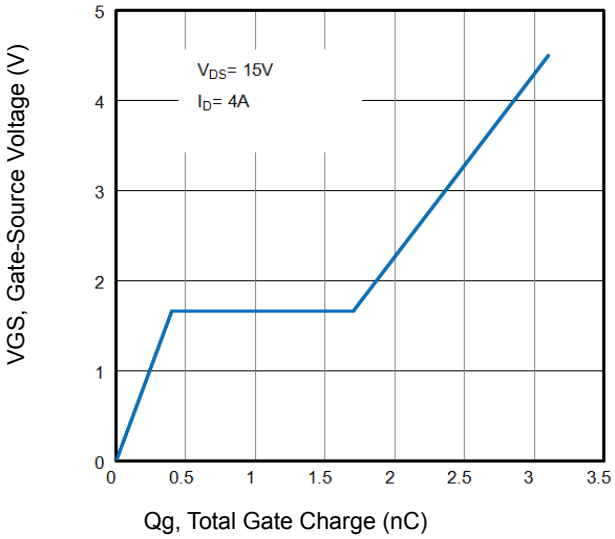


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

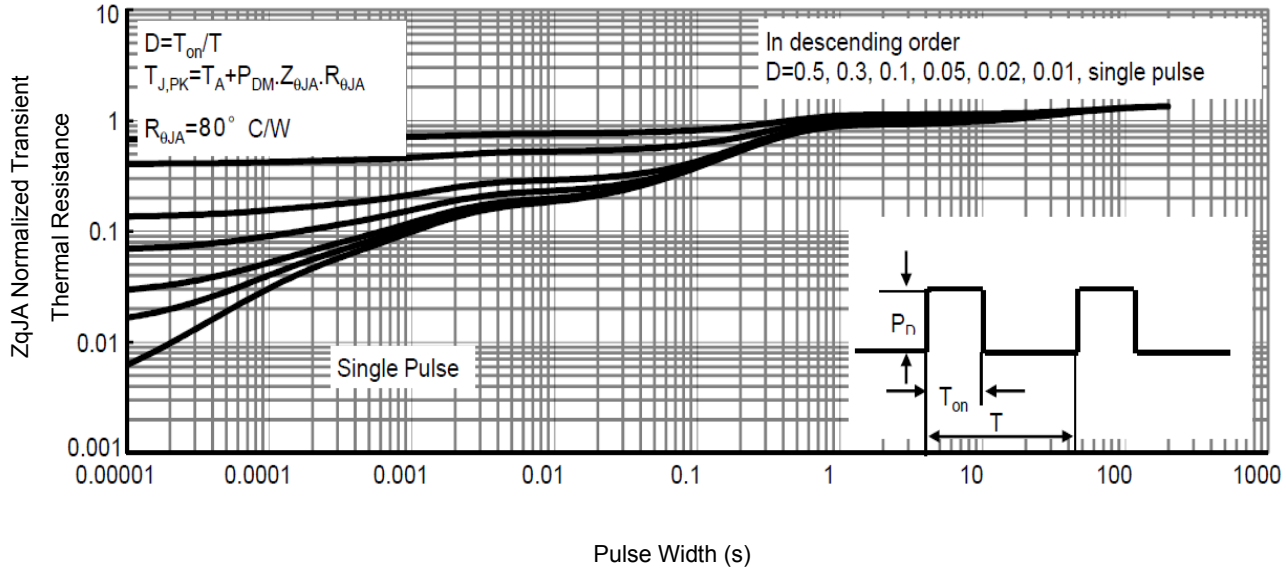


Fig9. Normalized Maximum Transient Thermal Impedance

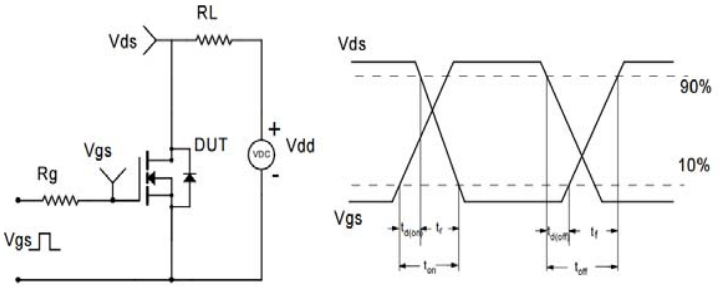
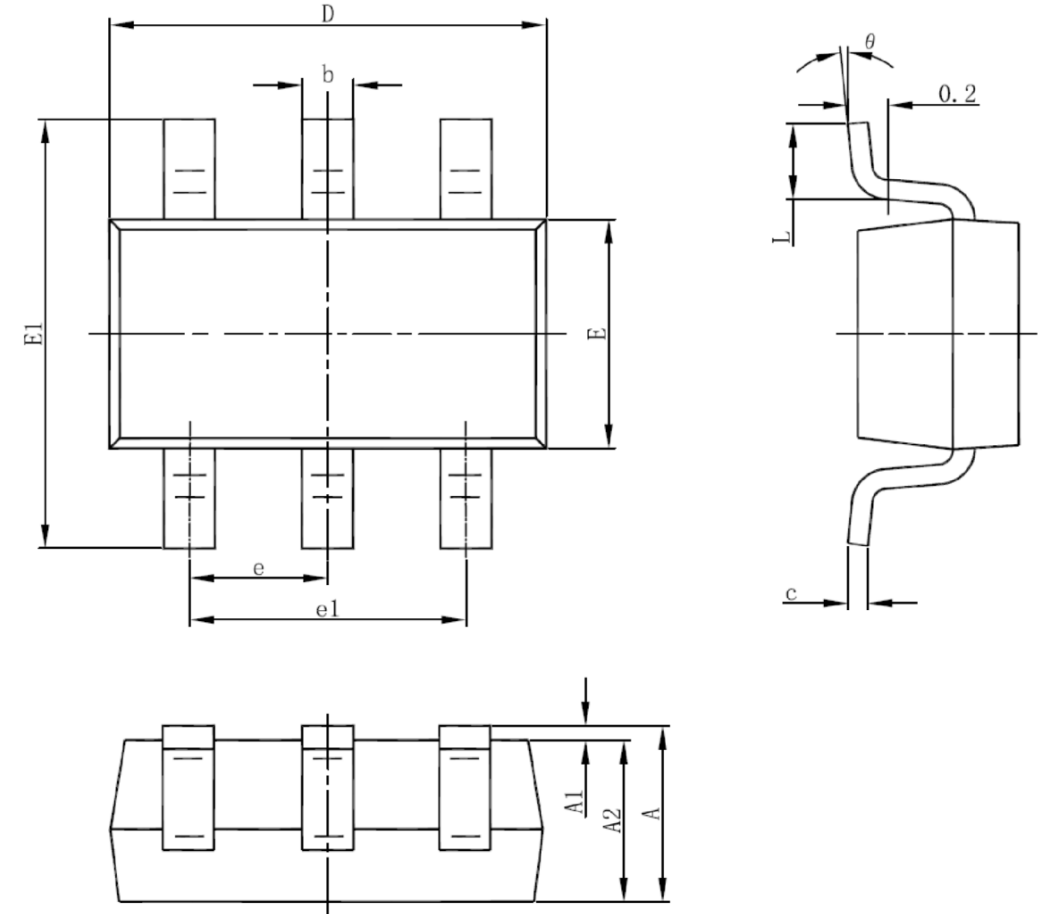


Fig10. Switching Time Test Circuit and waveforms

Package Mechanical Data-SOT23-6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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