

● General Description

The AGM435E 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

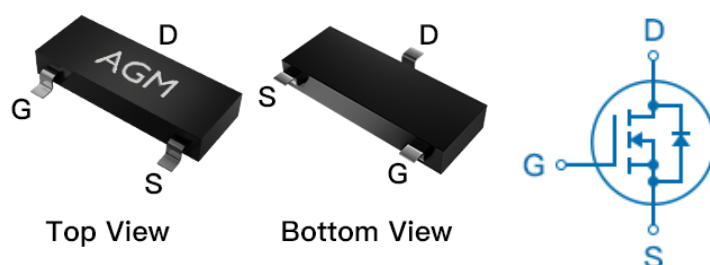
● Application

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

Product Summary

BVDSS	RDSON	ID
40V	20mΩ	5A

SOT23-3 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
435	AGM435E	SOT23-3	178mm	8mm	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)	5.0	A
	Drain Current-Continuous(TA=70°C)	3.2	A
IDM (pluse)	Drain Current-Pulsed (Note 2)	20	A
PD	Maximum Power Dissipation(TA=25°C)	1.2	w
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	---	104	°C/W

Table 3. Electrical Characteristics (T_J=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=40V,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	1.5	2.2	V
gFS	Forward Transconductance	VDS=5V,ID=3A	--	8	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=5A	--	20	25	mΩ
		VGS=4.5V, ID=3A	--	24	30	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=20V,VGS=0V, F=1MHZ	--	480	--	pF
Coss	Output Capacitance		--	92	--	pF
Crss	Reverse Transfer Capacitance		--	68	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	--	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=20V, RGEN=3Ω,ID=5A	--	12	--	nS
tr	Turn-on Rise Time		--	52	--	nS
td(off)	Turn-Off Delay Time		--	17	--	nS
tf	Turn-Off Fall Time		--	10	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=20V, ID=5A	--	5.2	--	nC
Qgs	Gate-Source Charge		--	0.9	--	nC
Qgd	Gate-Drain Charge		--	1.4	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	5.0	A
VSD	Forward on Voltage	VGS=0V,IS=5A	--	--	1.2	V
trr	Reverse Recovery Time	IF=5A , dl/dt=100A/μs , TJ=25℃	--	--	--	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: T_J=25°C, V_{DD}=25V, V_{gs}=10V, I_D=18A, L=0.5mH, R_G=25ohm

Figure A: Gate Charge Test Circuit and Waveform

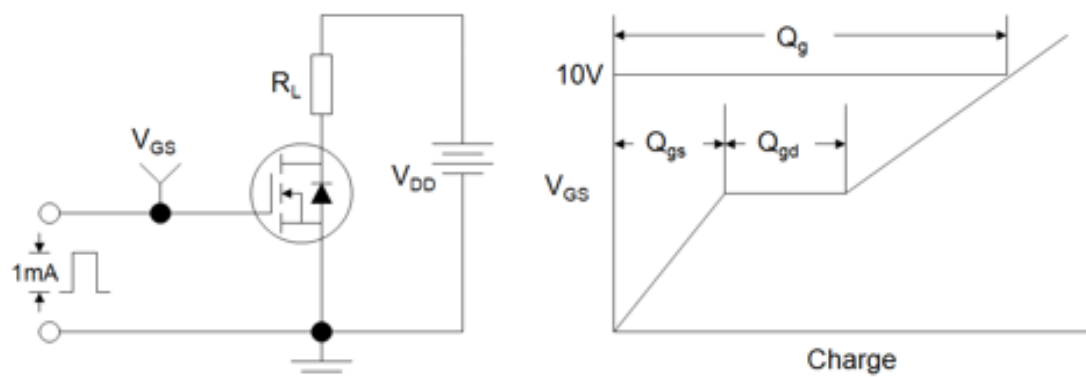


Figure B: Resistive Switching Test Circuit and Waveform

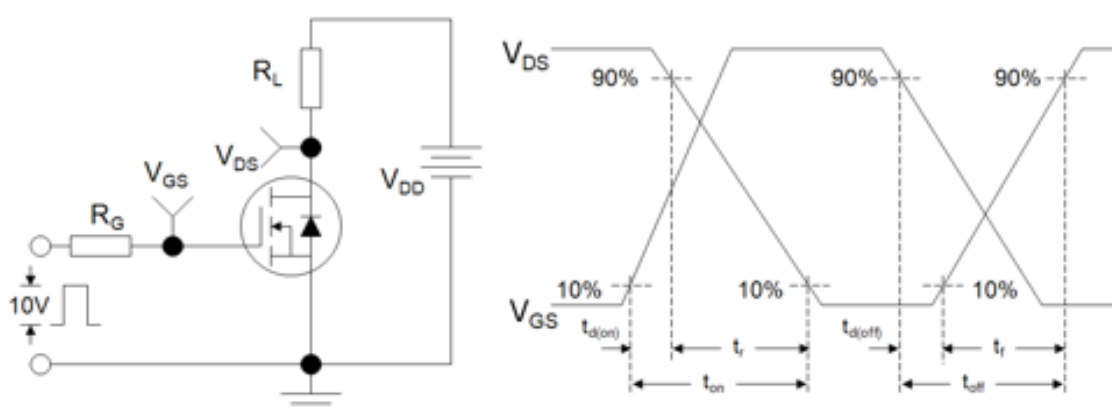
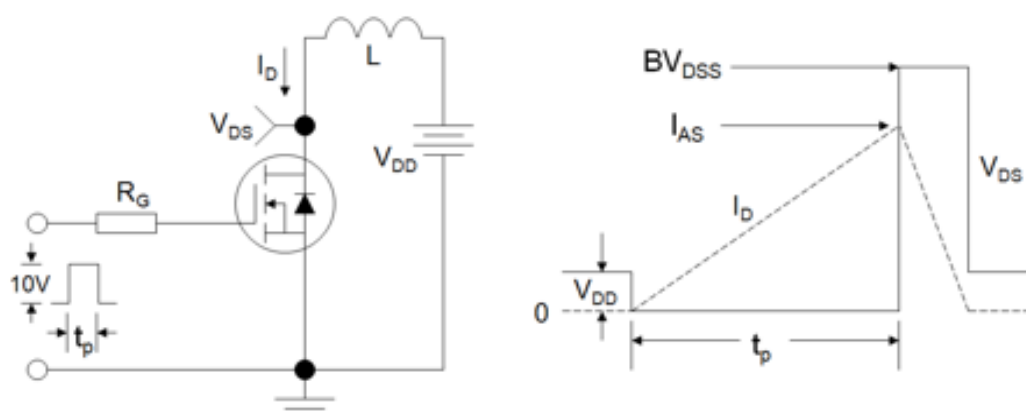


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



Typical Performance Characteristics

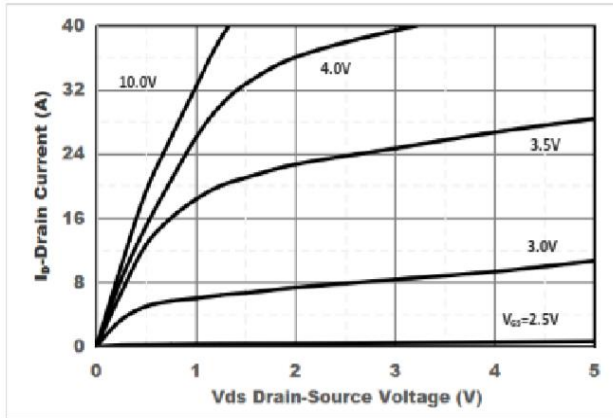


Figure1. Output Characteristics

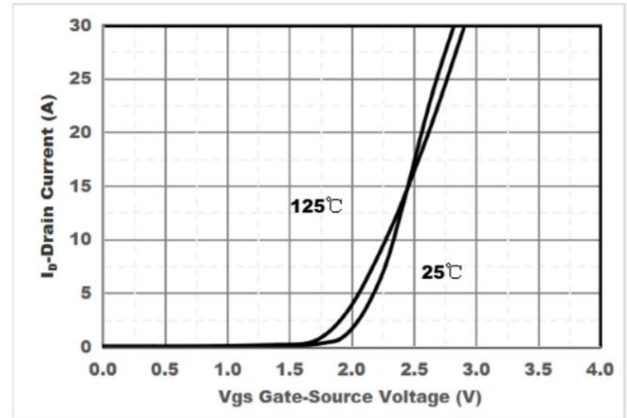


Figure2. Transfer Characteristics

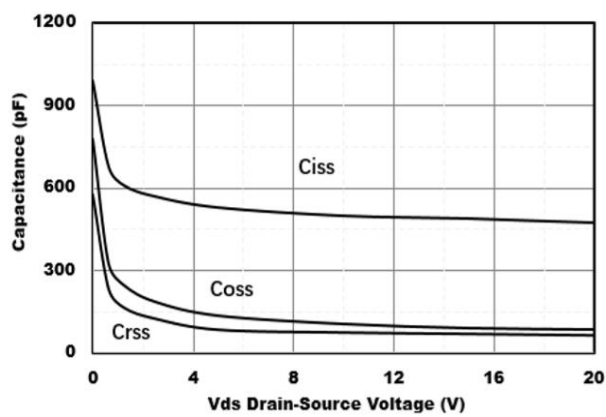


Figure3. Capacitance Characteristics

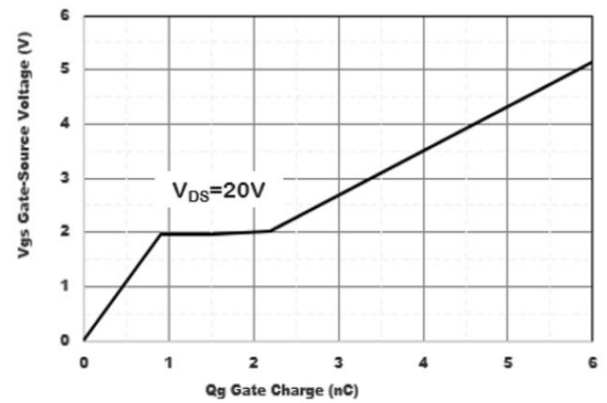


Figure4. Gate Charge

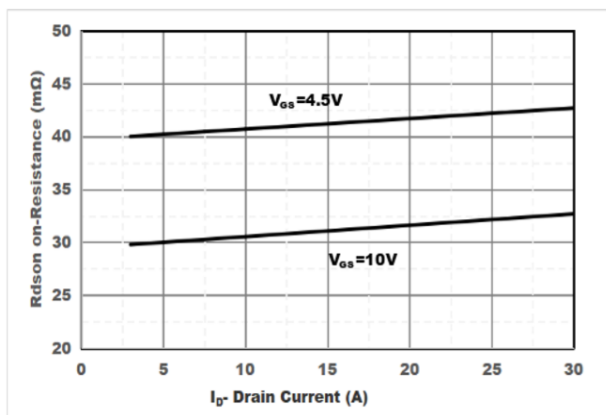


Figure5. Drain-Source on Resistance

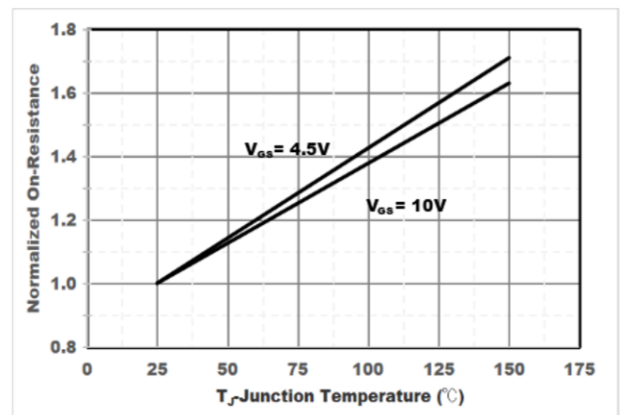


Figure6. Drain-Source on Resistance

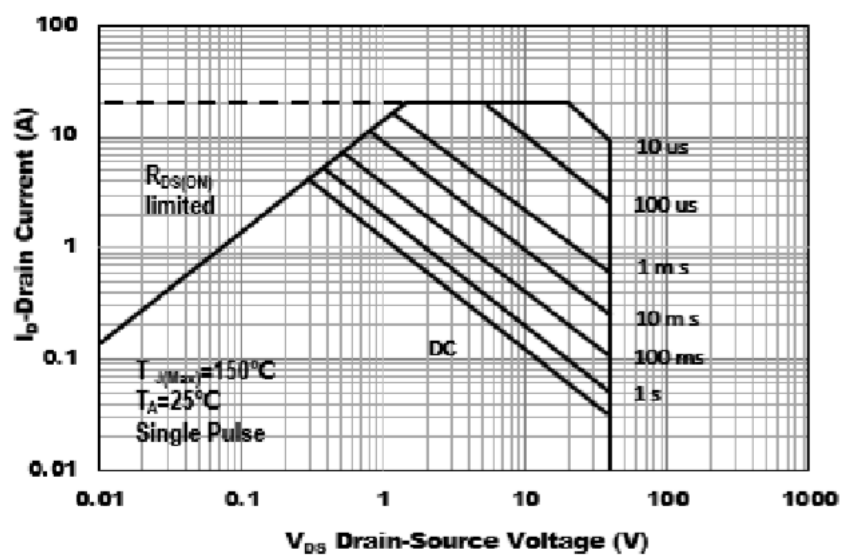
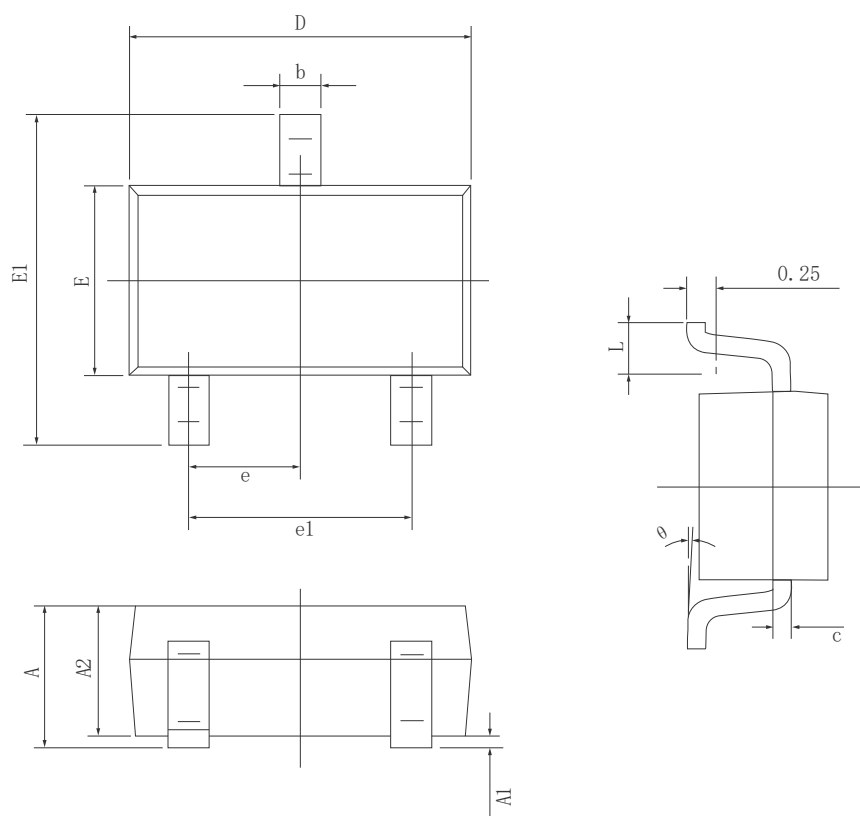
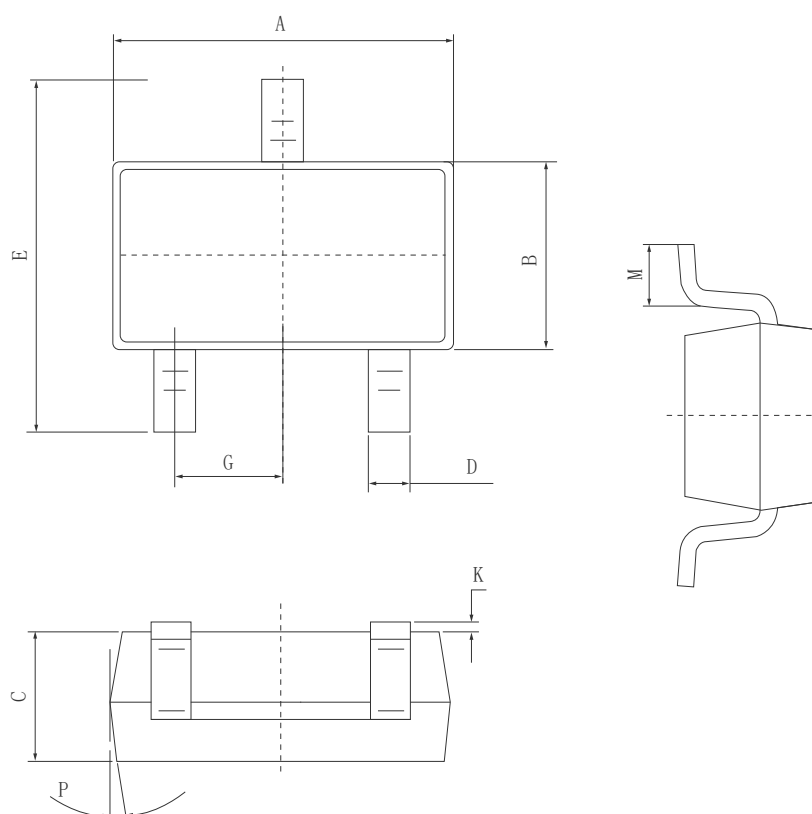


Figure7. Safe Operation Area

Dimensions (SOT23-3)



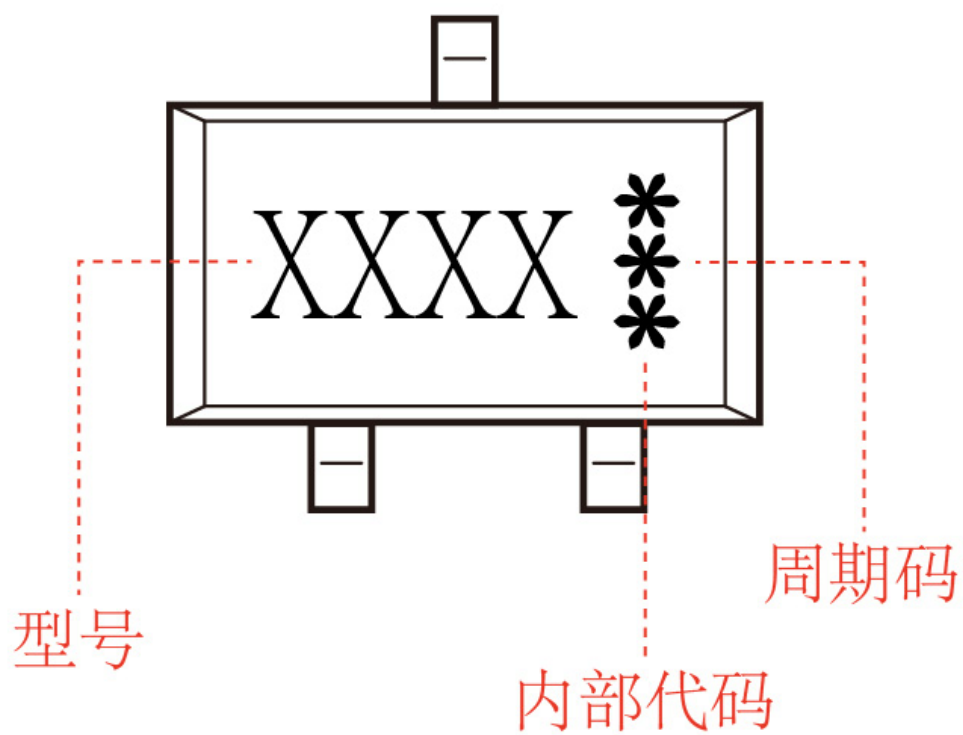
SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.25
A1	0.03	—	0.10
A2	1.05	1.10	1.15
b	0.30	0.35	0.40
c	0.13	—	0.17
D	2.87	2.92	2.97
E	1.55	1.60	1.65
E1	2.70	2.85	3.00
e	0.95 BSC.		
e1	1.80	—	2.00
L	0.35	0.45	0.55
θ	0°	—	8°



DIM	MILLIMETERS
A	2.82~3.02
B	1.60±0.10
C	1.10±0.05
D	0.40±0.10
E	2.65~2.95
G	0.95typ
K	0.00~0.10
M	0.20MIN
P	9±2°

SOT23-3

Marking Instructions:



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