

### ● 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

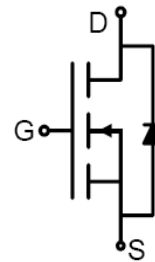
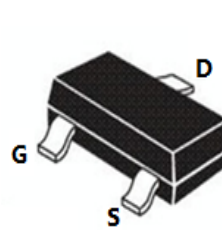
### ● Application

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

### Product Summary

BVDSS	RDSON	ID
40V	35mΩ	5A

### SOT-23-3 Pin Configuration



### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM435E	AGM435E	SOT-23-3	----	----	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(Tc=25°C) <b>(Note 1)</b>	5	A
	Drain Current-Continuous(Tc=100°C)	3.2	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed <b>(Note 2)</b>	20	A
PD	Maximum Power Dissipation(Tc=25°C)	1.2	w
	Maximum Power Dissipation(Tc=100°C)	0.24	w
EAS	Avalanche energy <b>(Note 3)</b>	--	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>	---	104	°C/W
RθJC	Thermal Resistance Junction-Case <sup>1</sup>	---	--	°C/W

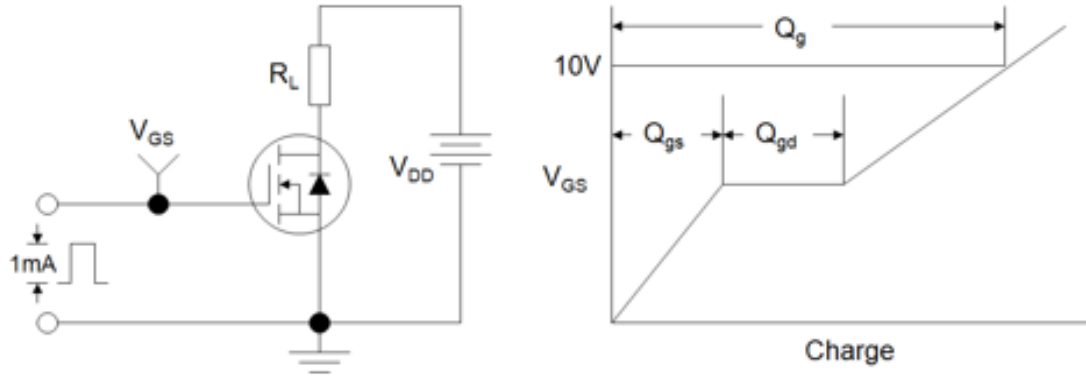
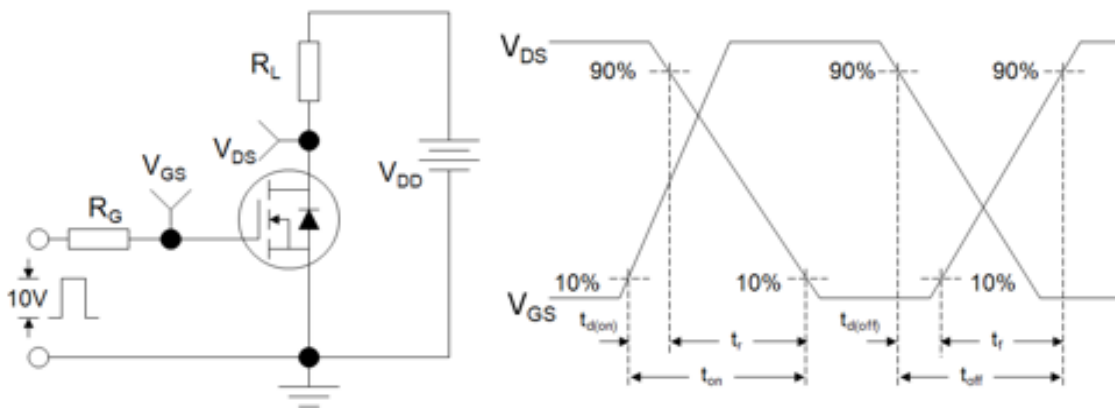
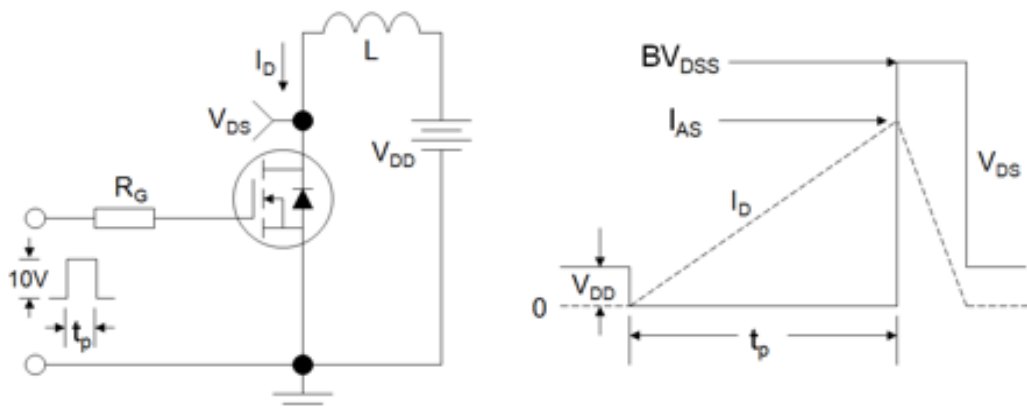
**Table 3. Electrical Characteristics (TA=25°C unless otherwise noted)**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	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	1.0	1.5	2.5	V
gFS	Forward Transconductance	VDS=5V,ID=2A	--	--	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=5A	--	35	45	mΩ
		VGS=4.5V, ID=3A	--	45	60	mΩ
<b>Dynamic Characteristics</b>						
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
<b>Switching Times</b>						
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
<b>Source-Drain Diode Characteristics</b>						
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 , 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

**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

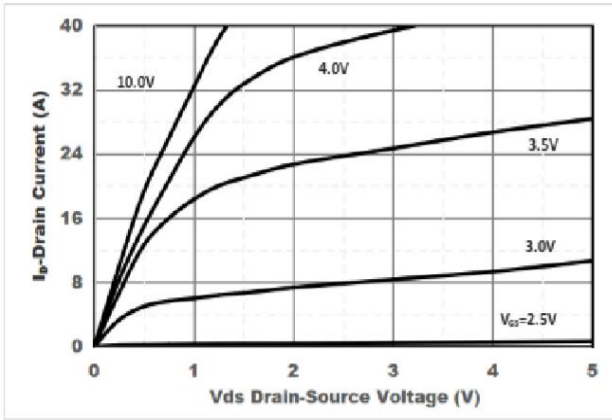


Figure1. Output Characteristics

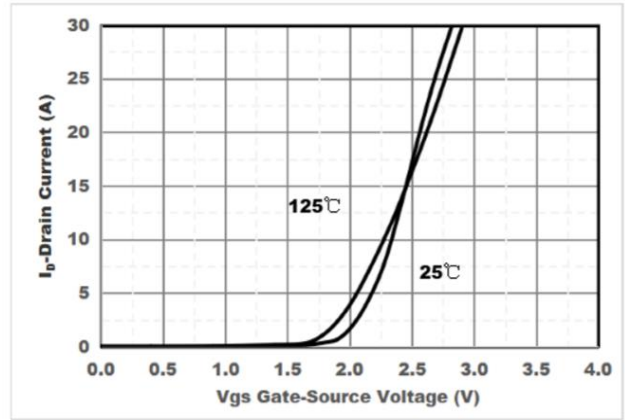


Figure2. Transfer Characteristics

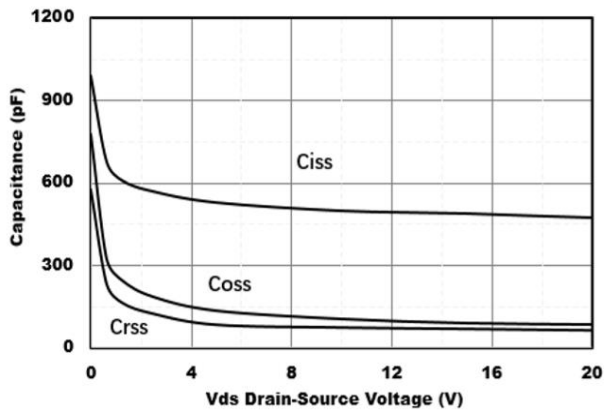


Figure3. Capacitance Characteristics

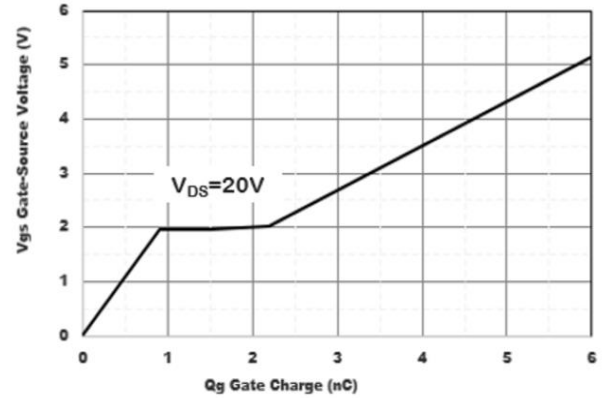


Figure4. Gate Charge

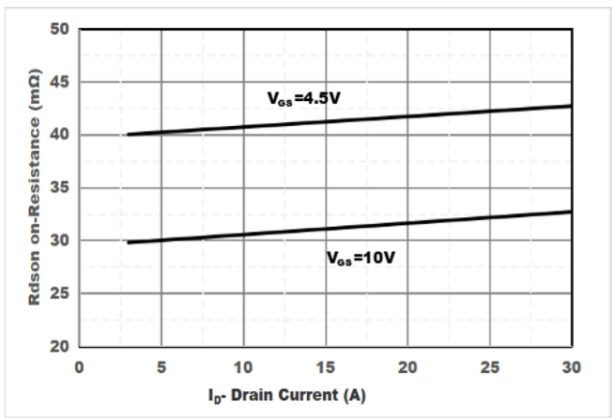


Figure5. Drain-Source on Resistance

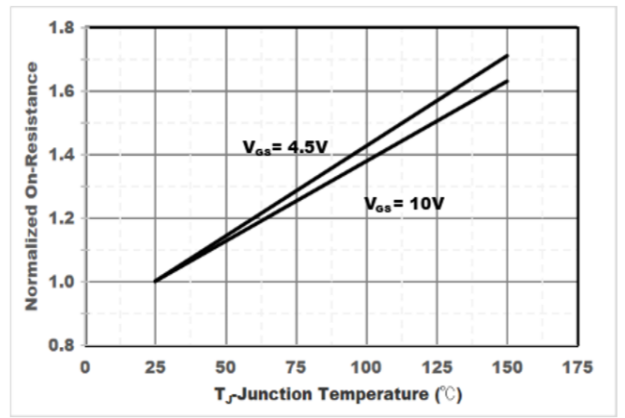


Figure6. Drain-Source on Resistance

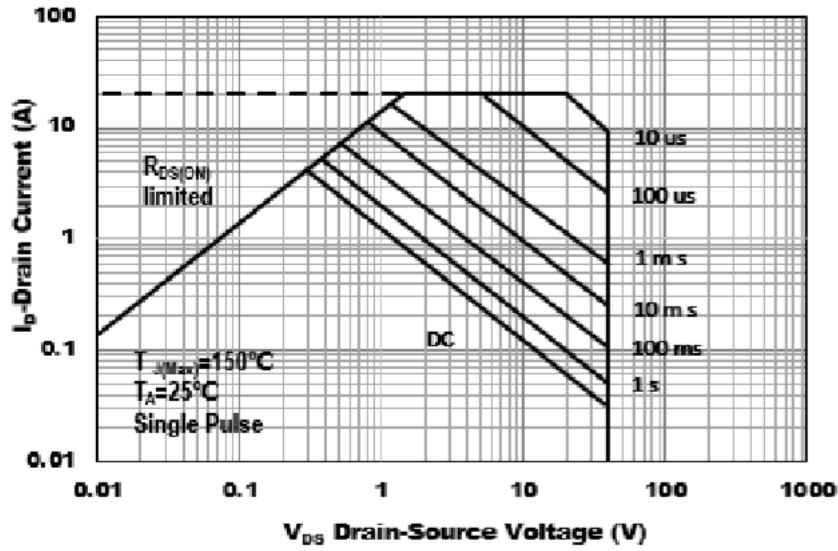
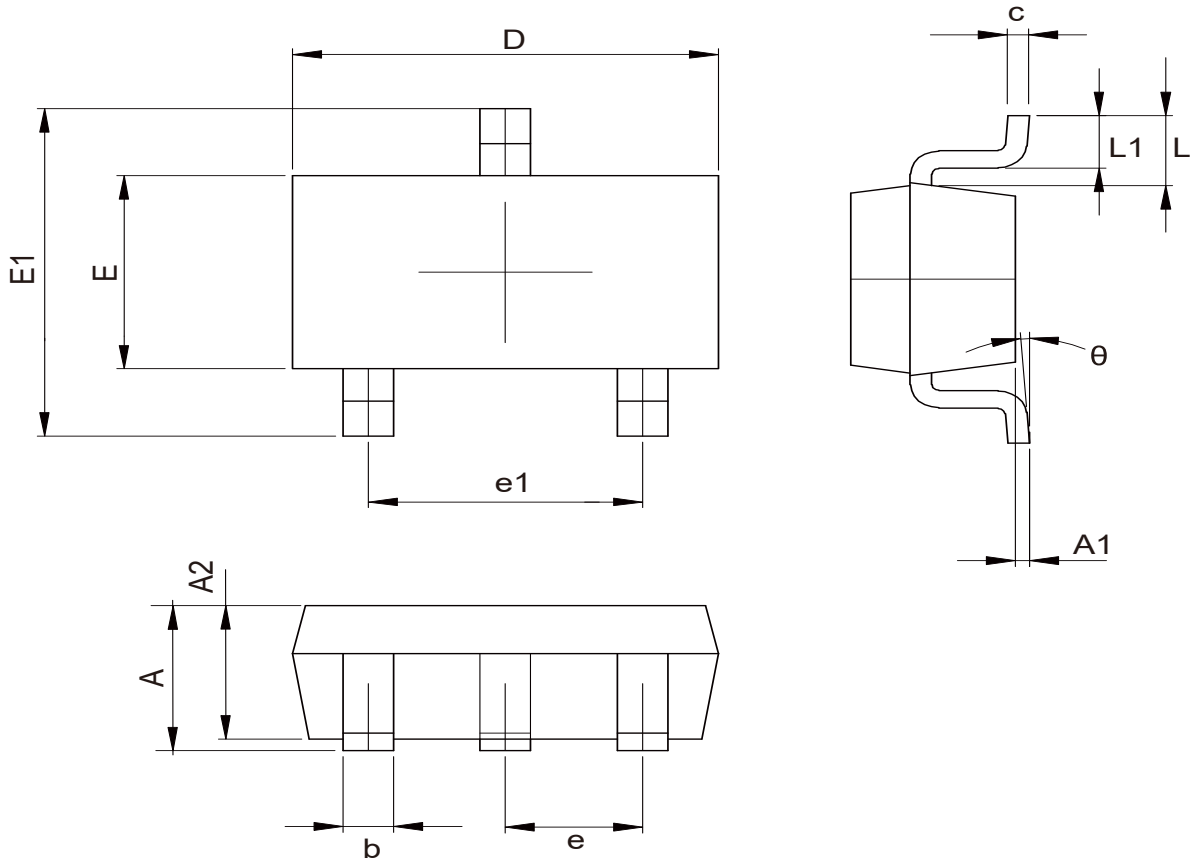


Figure7. Safe Operation Area

SOT-23-3L  
PACKAGE OUTLINE DIMENSIONS



COMMON DIMENSIONS			
CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	1.050	---	1.300
A1	0.000	---	0.200
A2	1.050	---	1.200
b	0.300	0.400	0.500
c	0.100	---	0.200
D	2.820	2.900	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.6REF		
L1	0.300	0.450	0.600
theta	0°	--	8°

Unit:mm


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