● General Description

The AGM635E 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

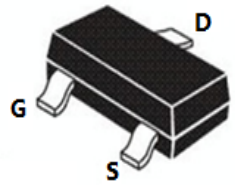
● Application

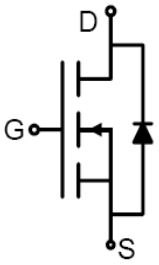
- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

Product Summary

BVDSS	RDSON	ID
60V	32mΩ	5A

SOT-23-3 Pin Configuration





Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
635E	AGM635E	SOT-23-3	----	----	3000

Table 1. Absolute Maximum Ratings (TA=25℃)

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	60	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Ta=25℃) **(Note 1)**	5.0	A
	Drain Current-Continuous(Ta=100℃)	2.9	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed **(Note 2)**	20	A
PD	Maximum Power Dissipation(Ta=25℃)	1.2	w
	MaximumPowerDissipation(Ta=100 ℃)	0.5	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
RθJA	Thermal Resistance Junction-ambient (Steady State)[1]	---	104	℃/W
RθJC	Thermal Resistance Junction-Case[1]	---	--	℃/W

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	60	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V,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=4.2A	--	--	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=5A	--	32	45	mΩ
		VGS=4.5V, ID=3A	--	45	52	mΩ
		VGS=2.5V, ID=2A	--	--	--	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=20V,VGS=0V, F=1MHZ	--	980	--	pF
Coss	Output Capacitance		--	58	--	pF
Crss	Reverse Transfer Capacitance		--	49	--	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	--	7.6	--	nS
tr	Turn-on Rise Time		--	20	--	nS
td(off)	Turn-Off Delay Time		--	3.7	--	nS
tf	Turn-Off Fall Time		--	5.3	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=20V, ID=5A	--	20	--	nC
Qgs	Gate-Source Charge		--	7.6	--	nC
Qgd	Gate-Drain Charge		--	15	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	5.0	A
VSD	Forward on Voltage	VGS=0V,IS=5A	--	--	1.4	V
trr	Reverse Recovery Time	IF=5A , dI/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: TJ=25℃

Test Circuit

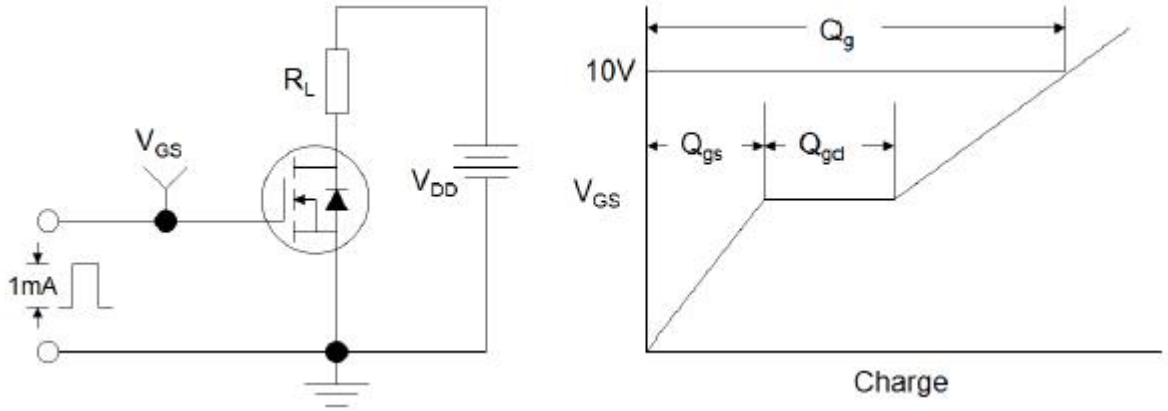


Figure1:Gate Charge Test Circuit & Waveform

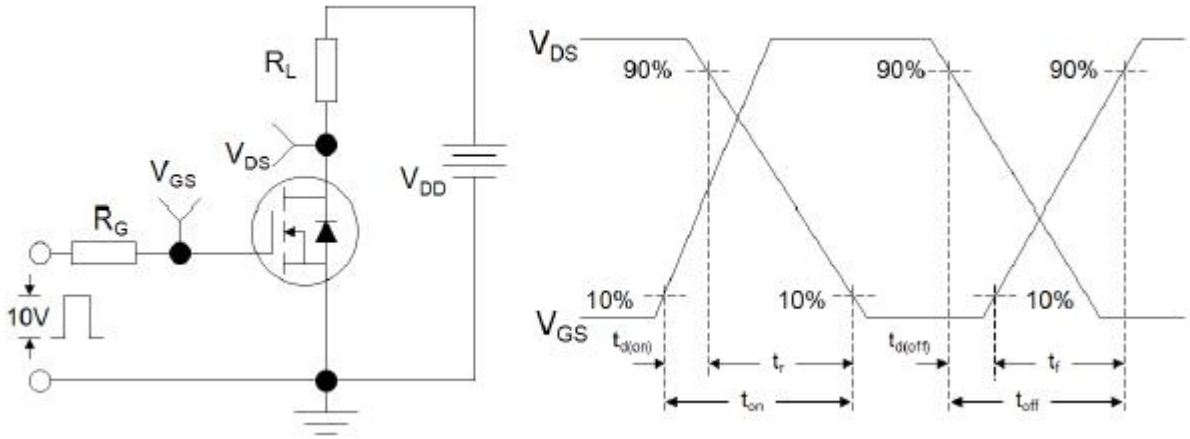


Figure 2: Resistive Switching Test Circuit & Waveforms

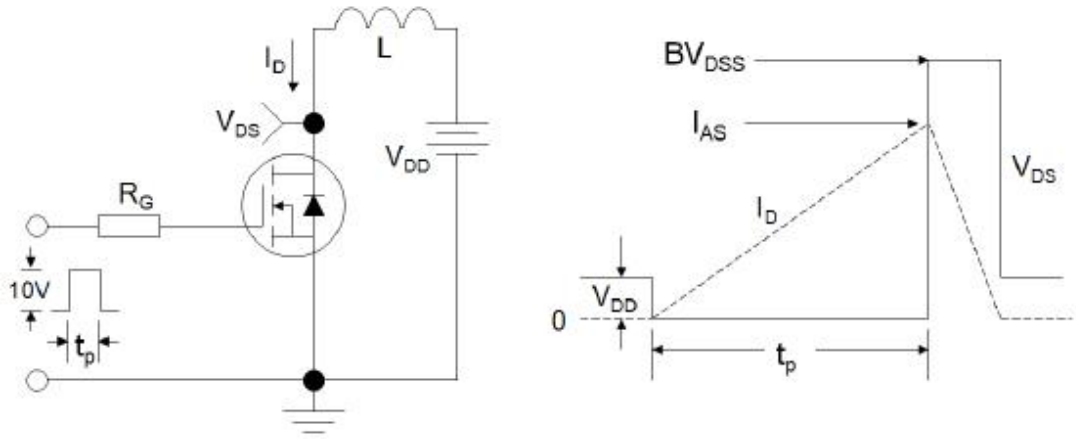
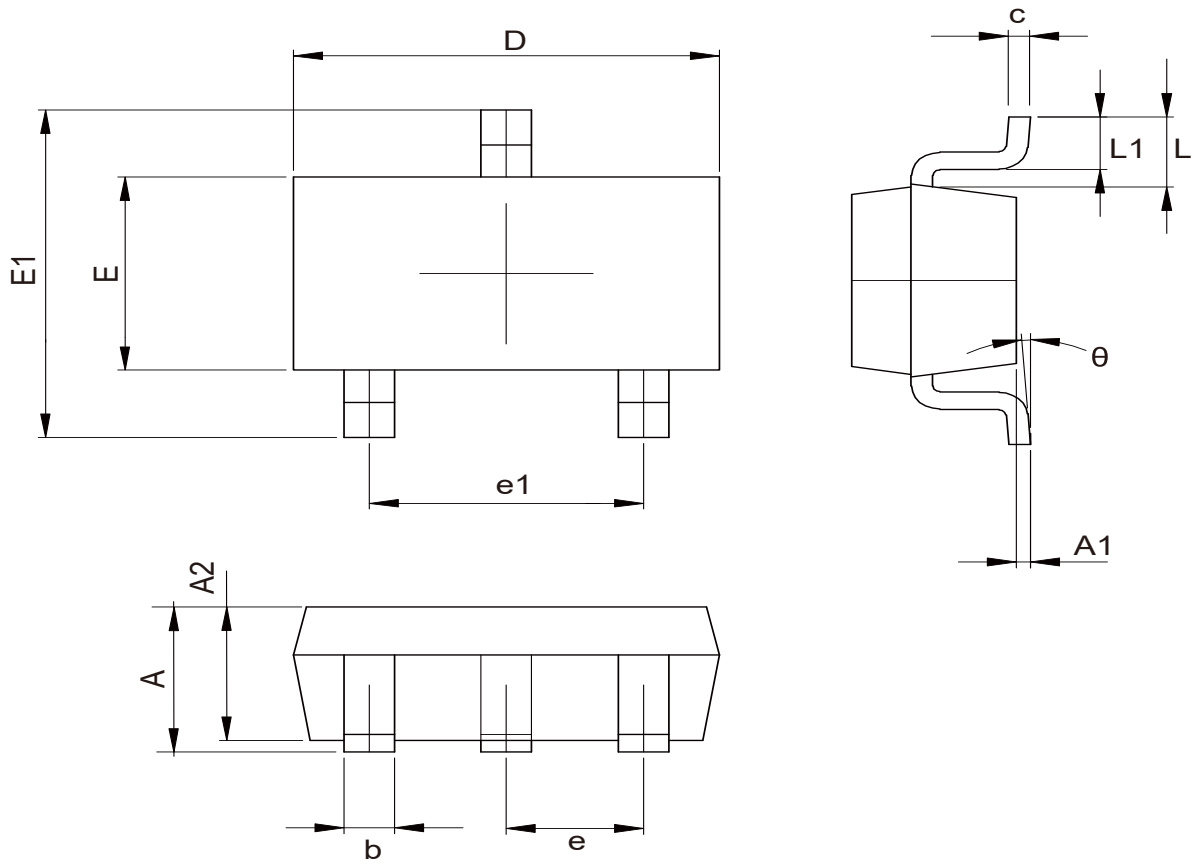


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

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
θ	0°	--	8°

Unit:mm

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