

### ● General Description

The AGM15N10D 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

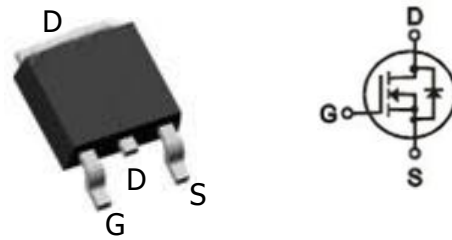
### ● Application

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

### Product Summary

BVDSS	RDSON	ID
100V	85mΩ	15A

### TO-252 Pin Configuration



### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM15N10D	AGM15N10D	TO-252	----	----	2500

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

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	100	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25°C) (Note 1)	15	A
	Drain Current-Continuous(Tc=100°C)	12	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	60	A
PD	Maximum Power Dissipation(Tc=25°C)	46	w
	Maximum Power Dissipation(Tc=100°C)	18.5	w
EAS	Avalanche energy (Note 3)	16	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>	---	50	°C/W
RθJC	Thermal Resistance Junction-Case <sup>1</sup>	---	2.7	°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	100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=100V, 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	1.8	2.5	V
gFS	Forward Transconductance	VDS=5V, ID=4A	--	2	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=15A	--	85	90	mΩ
		VGS=4.5V, ID=10A	--	95	100	mΩ
<b>Dynamic Characteristics</b>						
Ciss	Input Capacitance	VDS=50V, VGS=0V, F=1MHZ	--	635	--	pF
Coss	Output Capacitance		--	37	--	pF
Crss	Reverse Transfer Capacitance		--	21	--	pF
Rg	Gate resistance	f=1.0MHz	--	1.7	--	Ω
<b>Switching Times</b>						
td(on)	Turn-on Delay Time	VGS=10V, VDS=50V, ID=10A, RGEN=3.3Ω	--	12.9	--	nS
tr	Turn-on Rise Time		--	6.0	--	nS
td(off)	Turn-Off Delay Time		--	34	--	nS
tf	Turn-Off Fall Time		--	4.3	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=80V, ID=10A	--	19	--	nC
Qgs	Gate-Source Charge		--	3.4	--	nC
Qgd	Gate-Drain Charge		--	6.1	--	nC
<b>Source-Drain Diode Characteristics</b>						
ISD	Source-Drain Current(Body Diode)		--	--	15	A
VSD	Forward on Voltage	VGS=0V, IS=10A	--	--	1.2	V
trr	Reverse Recovery Time	Isd=10A , 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

## Typical Performance Characteristics

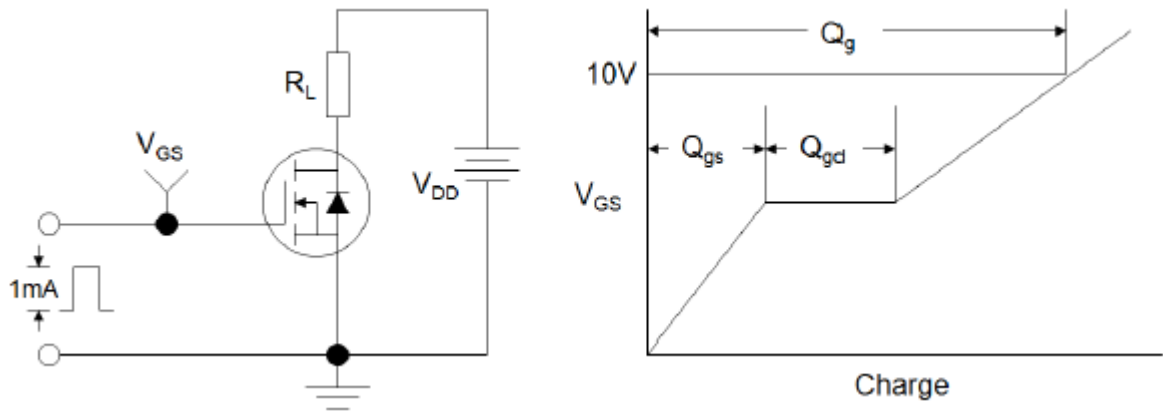


Figure1:Gate Charge Test Circuit & Waveform

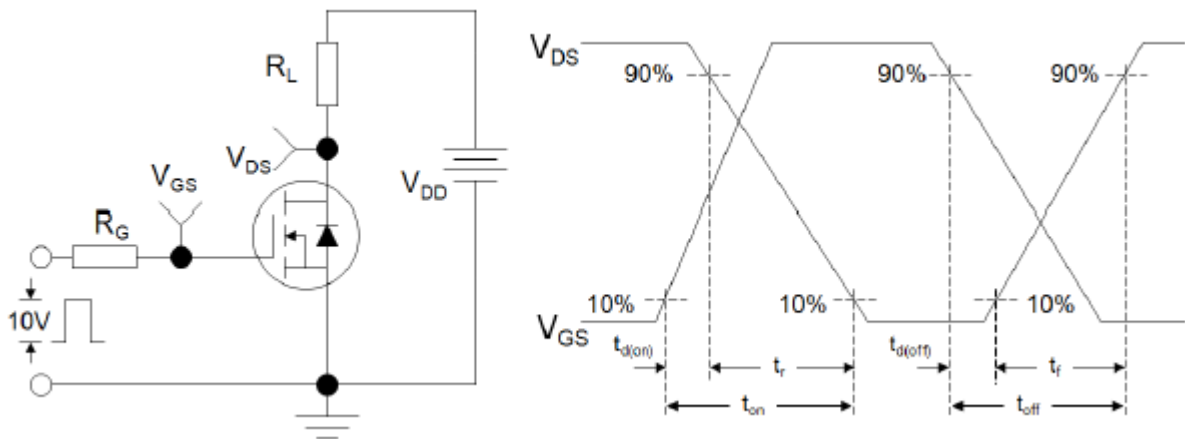


Figure 2: Resistive Switching Test Circuit & Waveforms

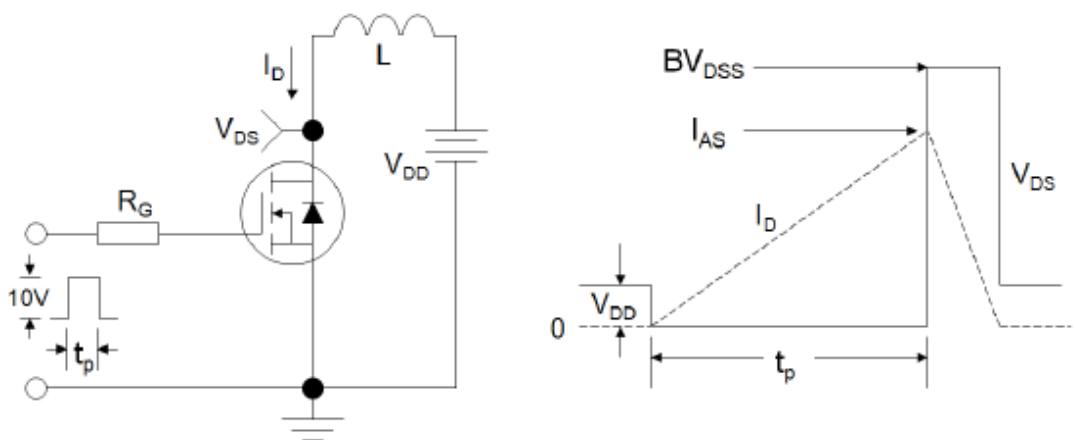
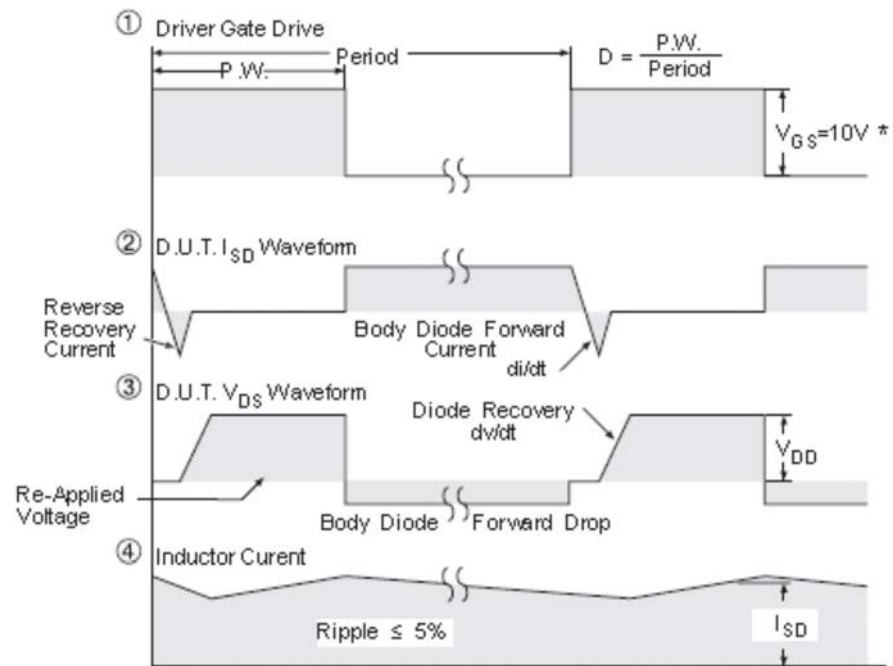
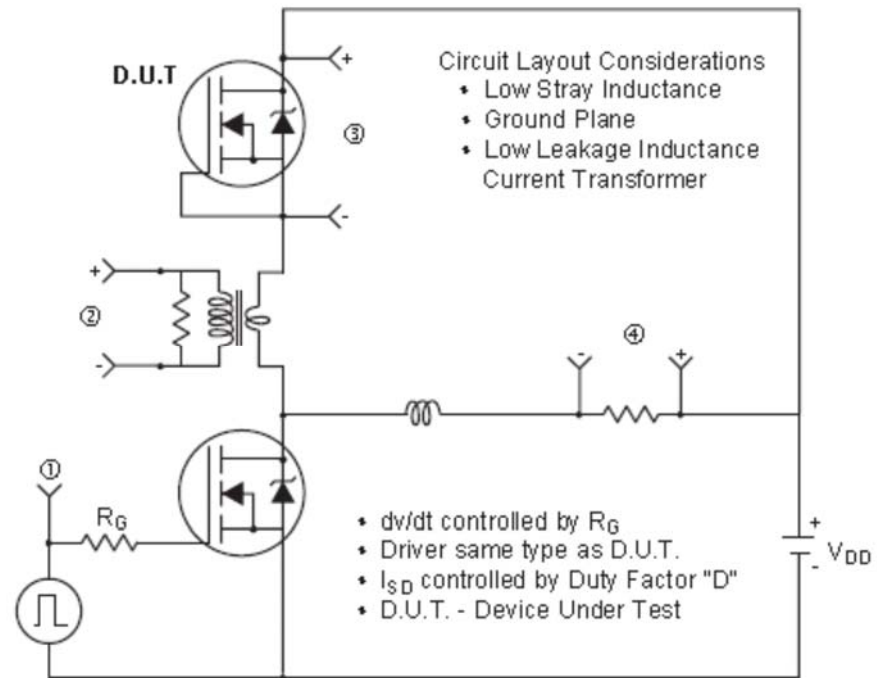


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

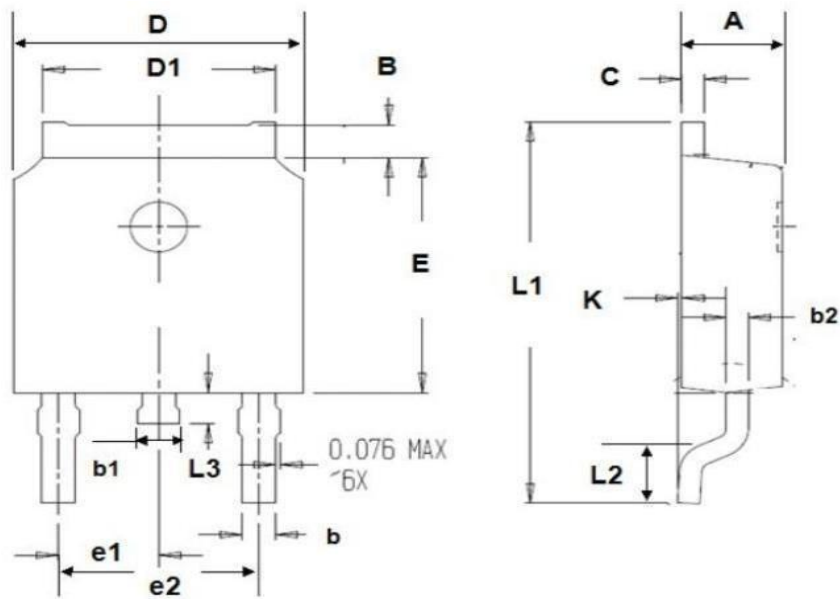


\*  $V_{GS} = 5V$  for Logic Level Devices

Figure 4: Peak Diode Recovery  $dv/dt$  Test Circuit & Waveforms (For N-channel)

**•Dimensions**

SYMBOL	min	max	SYMBOL	min	max
A	2.10	2.50	B	0.85	1.25
b	0.50	0.80	b1	0.50	0.90
b2	0.45	0.70	C	0.45	0.70
D	6.30	6.75	D1	5.10	5.50
E	5.30	6.30	e1	2.25	2.35
L1	9.20	10.60	e2	4.45	4.75
L2	0.90	1.75	L3	0.60	1.10
K	0.00	0.23			




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