

● General Description

The AGM40P100H 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

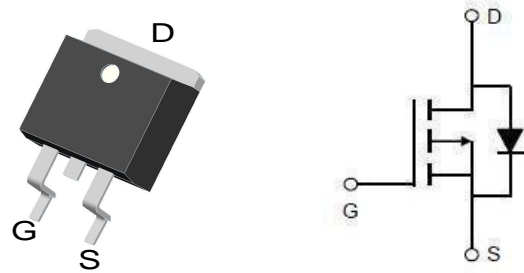
● Application

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

Product Summary

BVDSS	RDSON	ID
-40V	4.6mΩ	-114A

T0-263 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM40P100H	AGM40P100H	TO-263	----	----	800

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) (Note 1)	-114	A
	Drain Current-Continuous(Tc=100°C)	-78	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	-350	A
PD	Maximum Power Dissipation(Tc=25°C)	135	w
	Maximum Power Dissipation(Tc=100°C)	54	w
EAS	Avalanche energy (Note 3)	320	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) ¹	---	--	°C/W
RθJC	Thermal Resistance Junction-Case ¹	---	0.92	°C/W

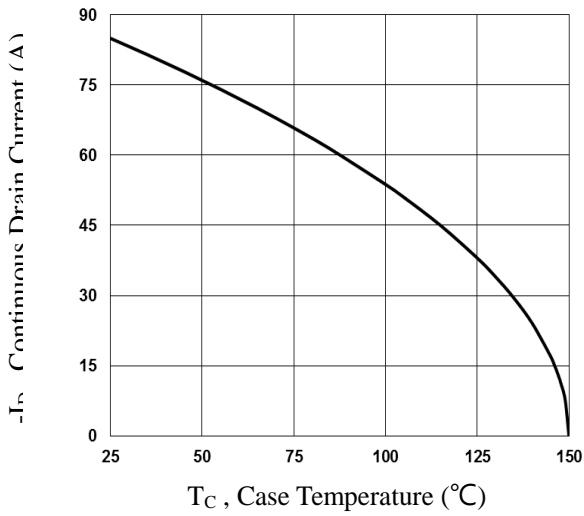
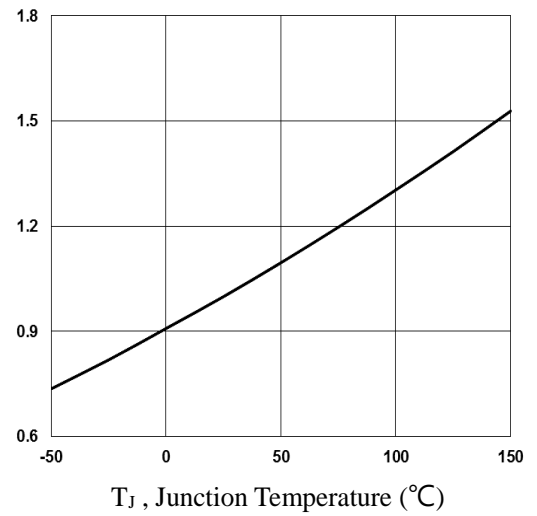
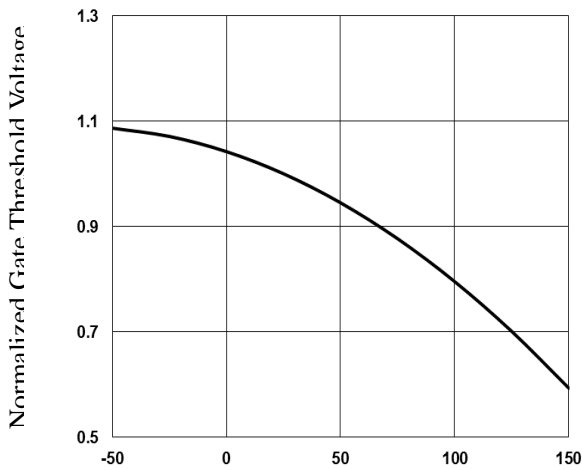
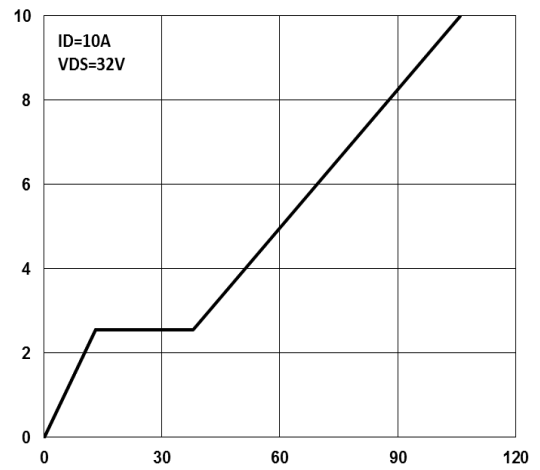
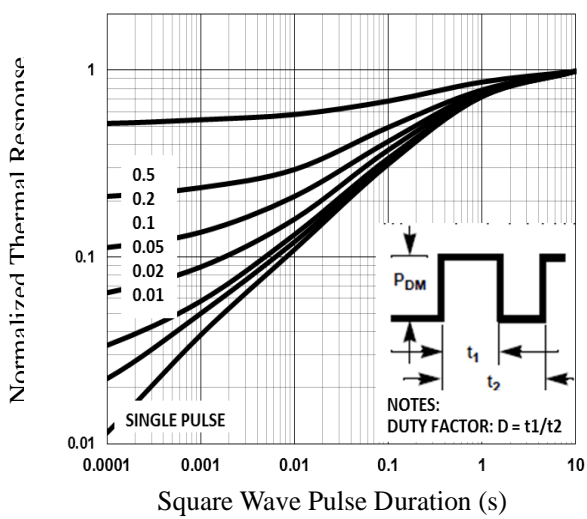
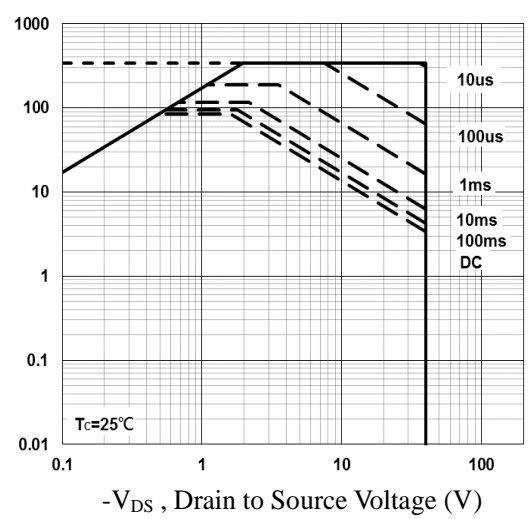
Table 3. Electrical Characteristics (TA=25°C unless otherwise noted)

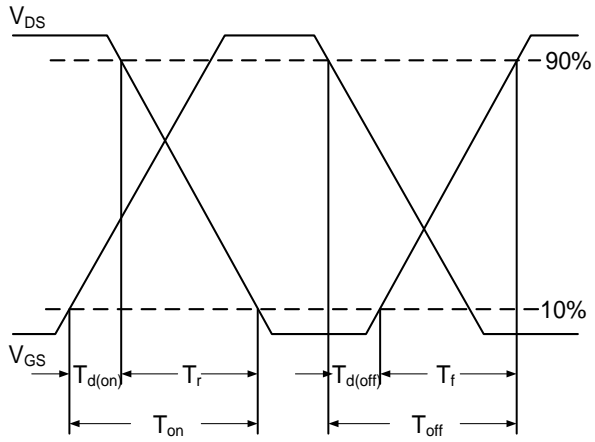
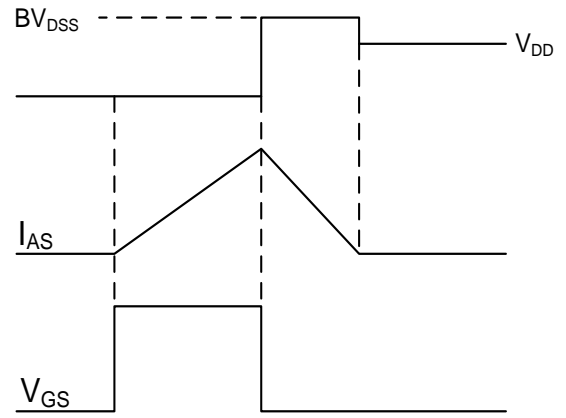
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=-250μA	-40	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-40V, VGS=0V	--	--	-1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1.2	-1.6	-2.5	V
gFS	Forward Transconductance	VDS=-15V, ID=-12A	15	--	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-20A	--	4.6	6.5	mΩ
		VGS=-4.5V, ID=-15A	--	6.0	8.6	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=-20V, VGS=0V, F=1MHZ	--	5700	--	pF
Coss	Output Capacitance		--	520	--	pF
Crss	Reverse Transfer Capacitance		--	350	--	pF
Rg	Gate resistance	f=1.0MHz	--	--	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=-10V, VDS=-20V, ID=-12A, RGEN=3Ω	--	41	--	nS
tr	Turn-on Rise Time		--	12	--	nS
td(off)	Turn-Off Delay Time		--	308	--	nS
tf	Turn-Off Fall Time		--	70	--	nS
Qg	Total Gate Charge	VGS=-10V, VDS=-20V, ID=-12A	--	106	--	nC
Qgs	Gate-Source Charge		--	13	--	nC
Qgd	Gate-Drain Charge		--	24	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	-114	A
VSD	Forward on Voltage	VGS=0V, IS=-12A	--	--	-1.1	V
trr	Reverse Recovery Time	Isd=-12A , 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

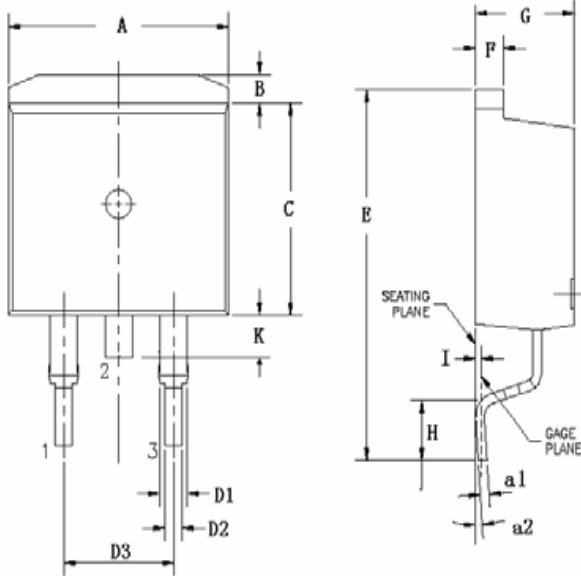
Notes 3.EAS condition: TJ=25°C


Fig.1 Continuous Drain Current vs. T_C

Fig.2 Normalized $R_{DS(on)}$ vs. T_J

Fig.3 Normalized V_{th} vs. T_J

Fig.4 Gate Charge Waveform

Fig.5 Normalized Transient Impedance

Fig.6 Maximum Safe Operation Area


Fig.7 Switching Time Waveform

Fig.8 EAS Waveform

TO-263, 2 leads

Dimintions in mm unless otherwise specified



Symbol	Min	Nom	Max
A	9.66	9.97	10.28
B	1.02	1.17	1.32
C	8.59	9.00	9.40
D1	1.14	1.27	1.40
D2	0.70	0.83	0.95
D3		5.08	
E	15.09	15.24	15.39
F	1.15	1.28	1.40
G	4.30	4.50	4.70
H	2.29	2.54	2.79
I		0.25	
K	1.30	1.45	1.60
a1	0.45	0.55	0.65
a2(degree)	0°		8°


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