

### ● General Description

The AGM502 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

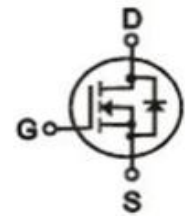
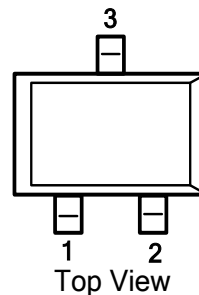
### ● Application

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

### Product Summary

BVDSS	RDSON	ID
60V	1.2mΩ	0.8A

### SOT-523 Pin Configuration



### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
50A	AGM502	SOT-523	----	----	3000

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

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°C) (Note 1)	0.8	A
	Drain Current-Continuous(TA=100°C)	--	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	1.6	A
PD	Maximum Power Dissipation(TA=25°C)	0.43	w
	Maximum Power Dissipation(TA=100°C)	0.17	w
EAS	Avalanche energy (Note 3)	--	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>	---	290	°C/W
RθJC	Thermal Resistance Junction-Case <sup>1</sup>	---	--	°C/W

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

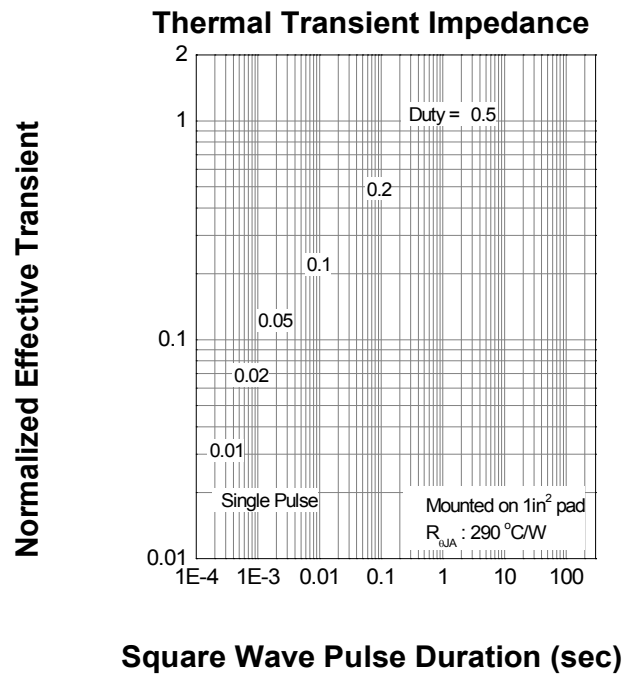
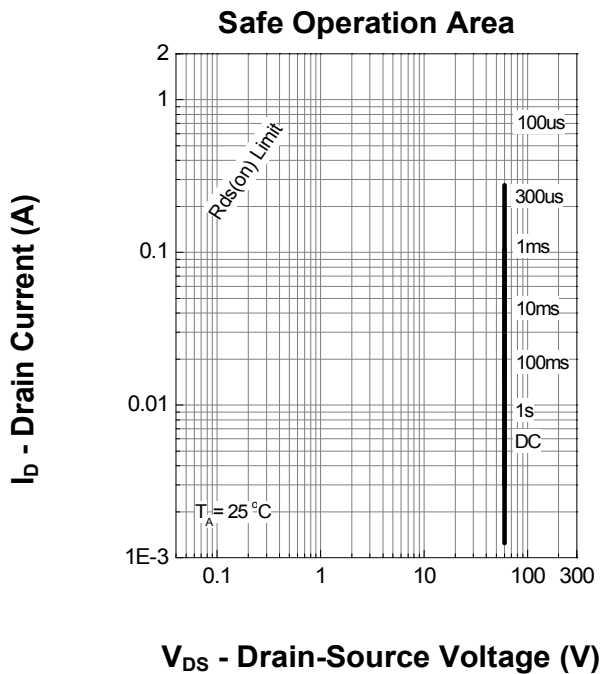
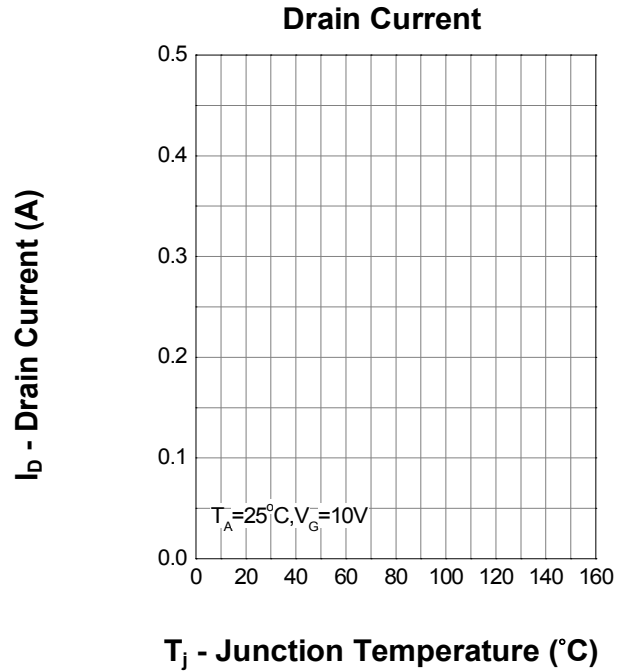
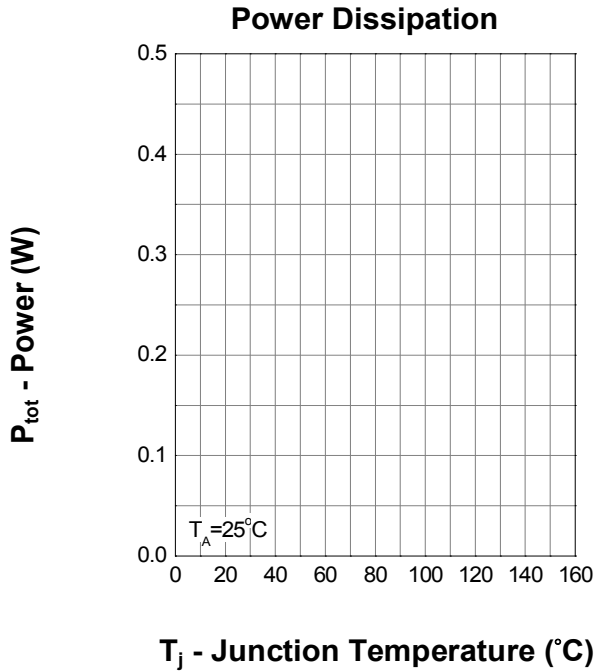
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	60	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V,VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS,ID=250μA	0.5	--	1.2	V
gFS	Forward Transconductance	VDS=5V,ID=0.2A	--	--	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=0.2A	--	1.2	1.5	mΩ
		VGS=4.5V, ID=0.1A	--	1.3	1.8	mΩ
<b>Dynamic Characteristics</b>						
Ciss	Input Capacitance	VDS=25V,VGS=0V, F=1MHZ	--	34	--	pF
Coss	Output Capacitance		--	3.6	--	pF
Crss	Reverse Transfer Capacitance		--	2.3	--	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=30V, RGEN=4.5Ω,ID=0.2A	--	2.7	--	nS
tr	Turn-on Rise Time		--	2.7	--	nS
td(off)	Turn-Off Delay Time		--	9.9	--	nS
tf	Turn-Off Fall Time		--	10.8	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=30V, ID=0.2A	--	1.4	--	nC
Qgs	Gate-Source Charge		--	0.4	--	nC
Qgd	Gate-Drain Charge		--	0.2	--	nC
<b>Source-Drain Diode Characteristics</b>						
ISD	Source-Drain Current(Body Diode)		--	--	0.8	A
VSD	Forward on Voltage	VGS=0V,IS=0.2A	--	--	1.0	V
trr	Reverse Recovery Time	IF=0.2A , dI/dt=100A/μs ,	--	--	--	ns
Qrr	Reverse Recovery Charge	TJ=25°C	--	--	--	nc

Notes 1.The maximum current rating is package limited.

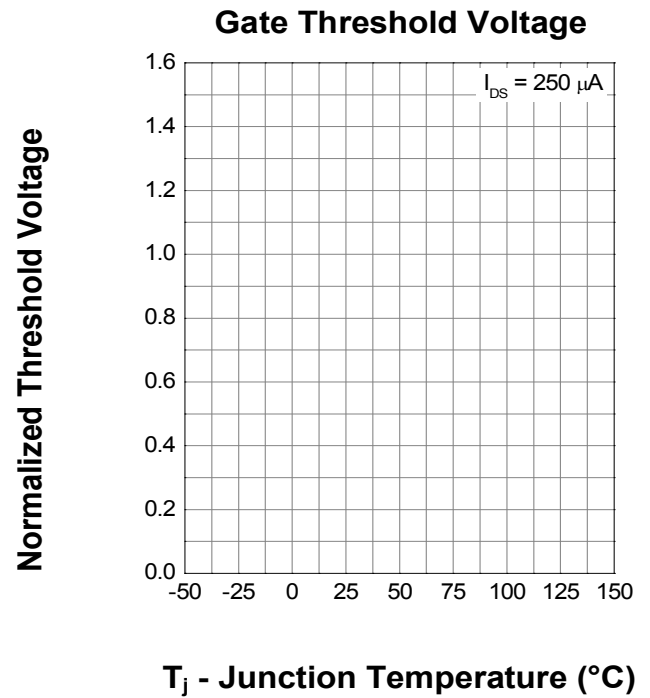
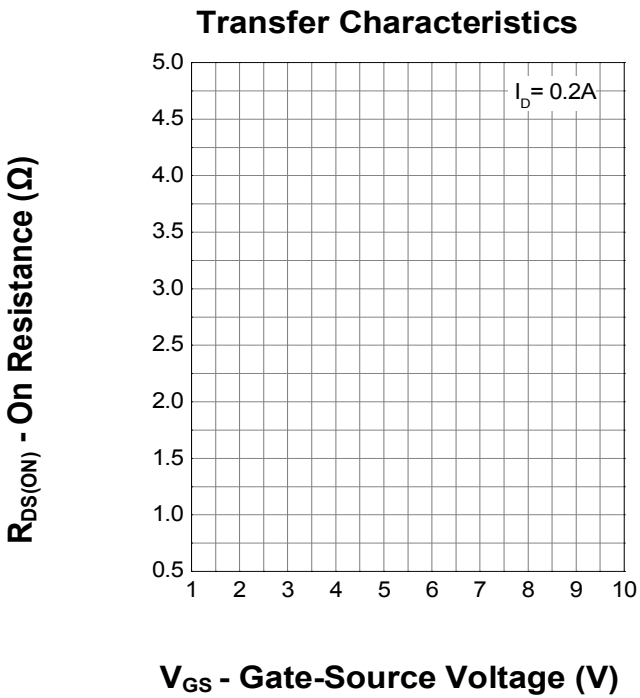
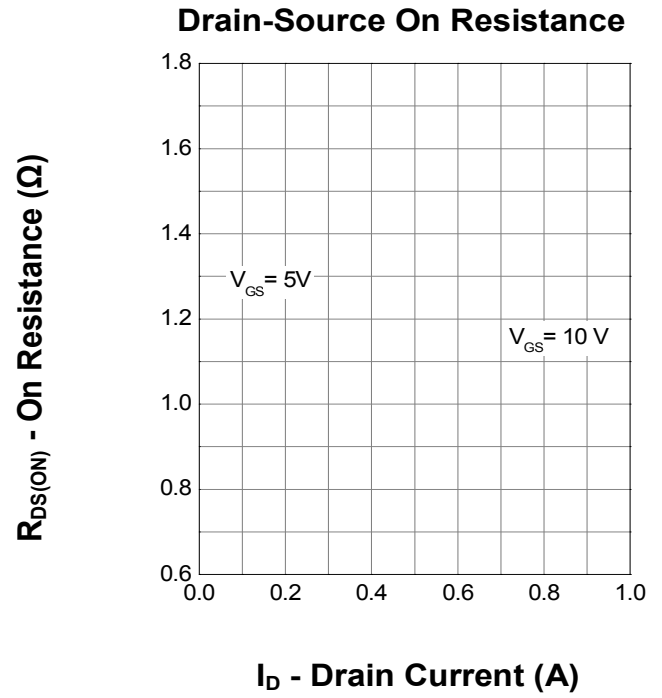
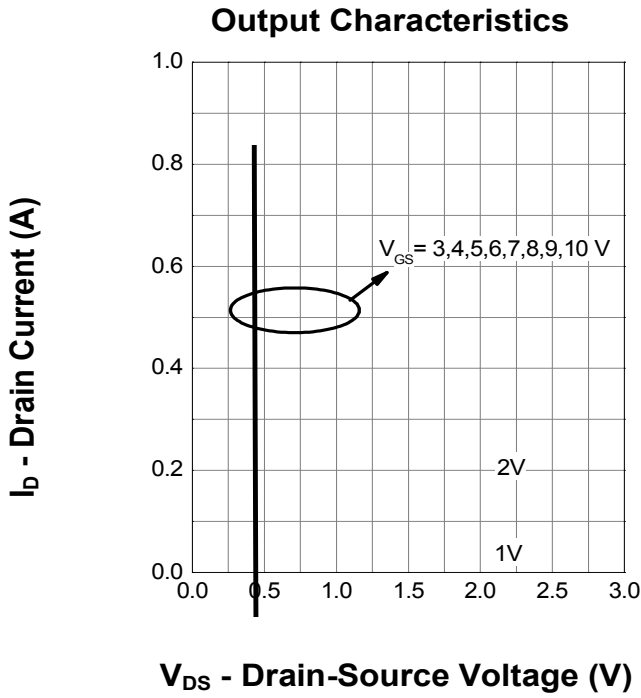
Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3.EAS condition: TJ=25°C

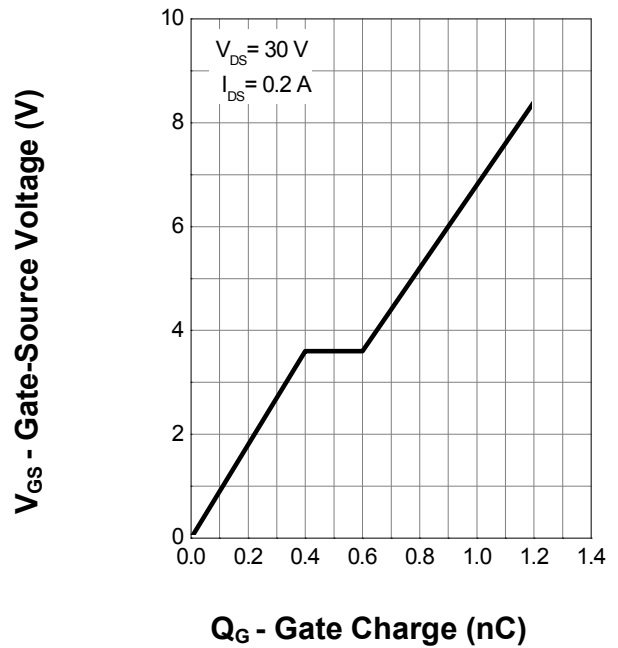
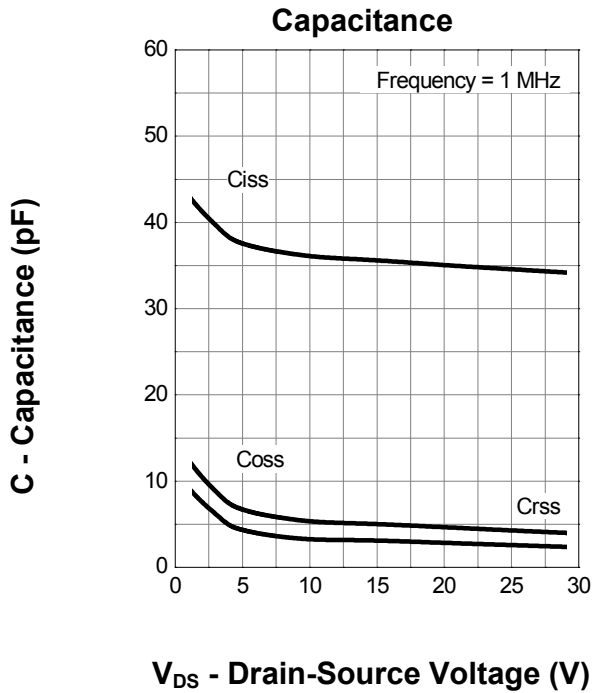
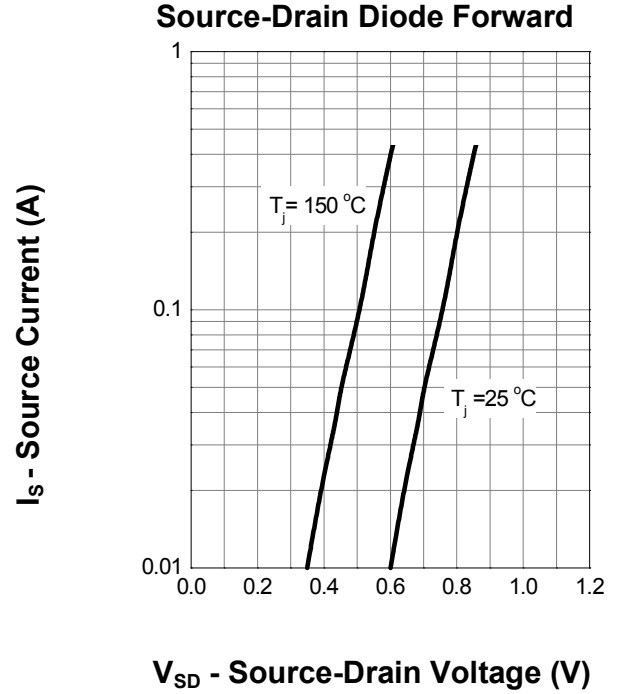
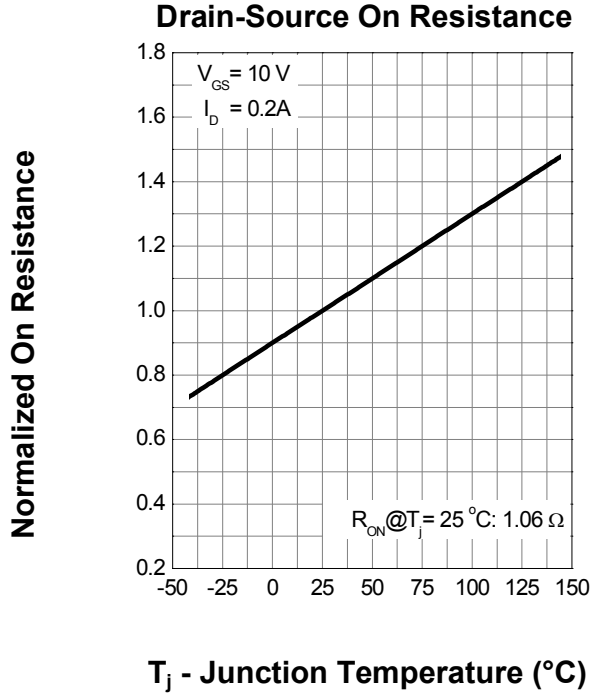
## Typical Characteristics



## Typical Characteristics (cont.)



## Typical Characteristics (cont.)



## **Package Dimensions**

### **SOT523 Package**


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