

### ● General Description

The AGM6080D combines advanced trenchMOSFET 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

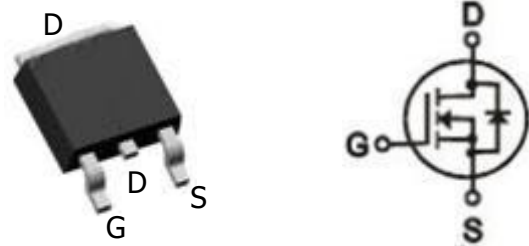
### ● Application

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

### Product Summary

BVDSS	RDSON	ID
60V	6.8mΩ	82A

### TO-252 Pin Configuration



### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM6080D	AGM6080D	TO-252	----	----	2500

**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(Tc=25°C) <b>(Note 1)</b>	82	A
	Drain Current-Continuous(Tc=100°C)	--	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed <b>(Note 2)</b>	322	A
PD	Maximum Power Dissipation(Tc=25°C)	89	w
	Maximum Power Dissipation(Tc=100°C)	36	w
EAS	Avalanche energy <b>(Note 3)</b>	280	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>	---	--	°C/W
RθJC	Thermal Resistance Junction-Case <sup>1</sup>	---	1.4	°C/W

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

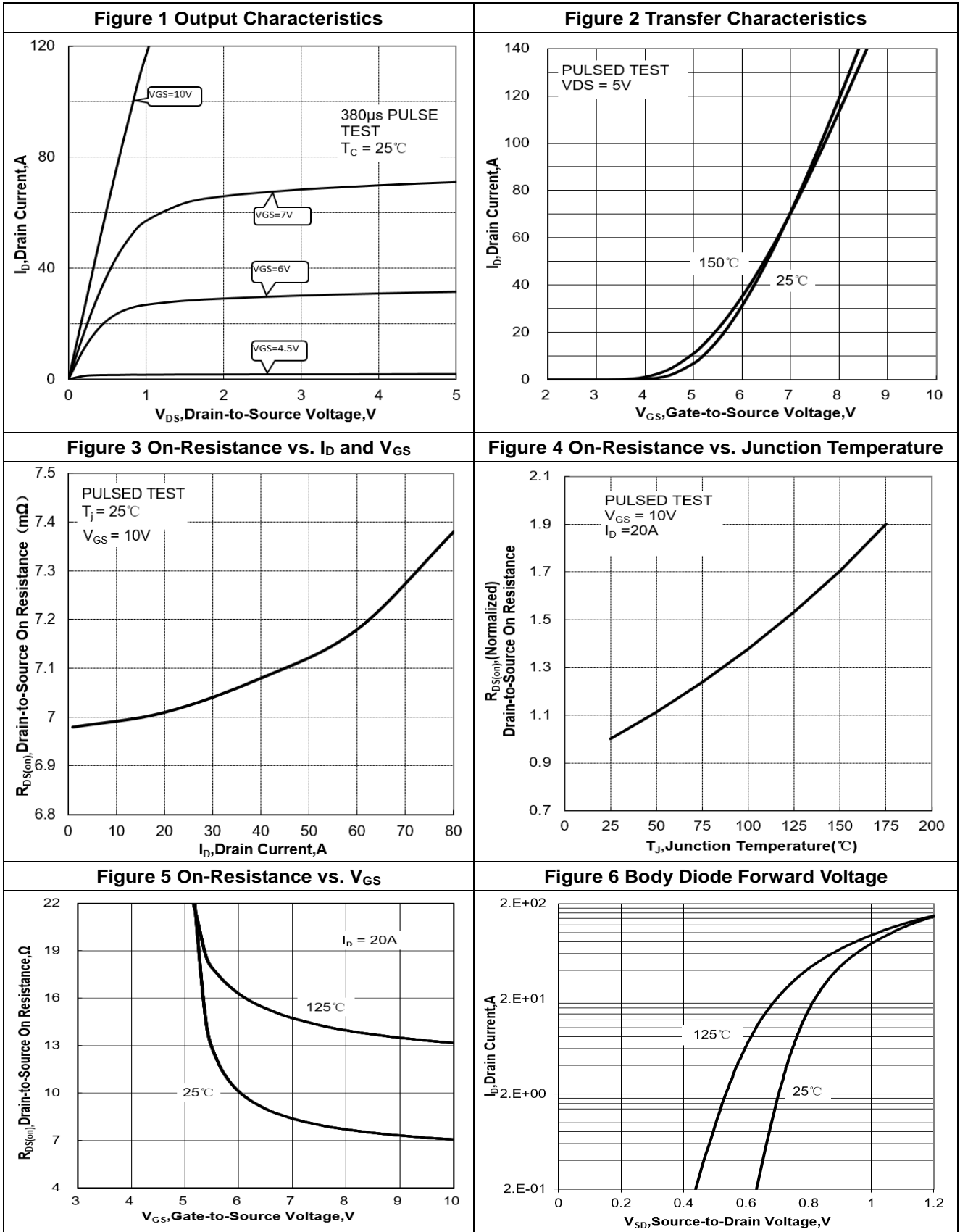
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	60	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	2.0	3.0	4.0	V
gFS	Forward Transconductance	VDS=5V, ID=20A	--	25	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=20A	--	6.8	8.0	mΩ
		VGS=4.5V, ID=15A	--	--	--	mΩ
<b>Dynamic Characteristics</b>						
Ciss	Input Capacitance	VDS=30V, VGS=0V, F=1MHZ	--	3000	--	pF
Coss	Output Capacitance		--	270	--	pF
Crss	Reverse Transfer Capacitance		--	240	--	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, ID=30A, RGEN=3Ω	--	85	--	nS
tr	Turn-on Rise Time		--	7.0	--	nS
td(off)	Turn-Off Delay Time		--	40	--	nS
tf	Turn-Off Fall Time		--	15	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=48V, ID=40A	--	72	--	nC
Qgs	Gate-Source Charge		--	21.5	--	nC
Qgd	Gate-Drain Charge		--	28	--	nC
<b>Source-Drain Diode Characteristics</b>						
ISD	Source-Drain Current(Body Diode)		--	--	82	A
VSD	Forward on Voltage	VGS=0V, IS=20A	--	--	1.2	V
trr	Reverse Recovery Time	IF=15A , dI/dt=100A/μs , TJ=25°C	--	--	--	ns
Qrr	Reverse Recovery Charge		--	--	--	nc

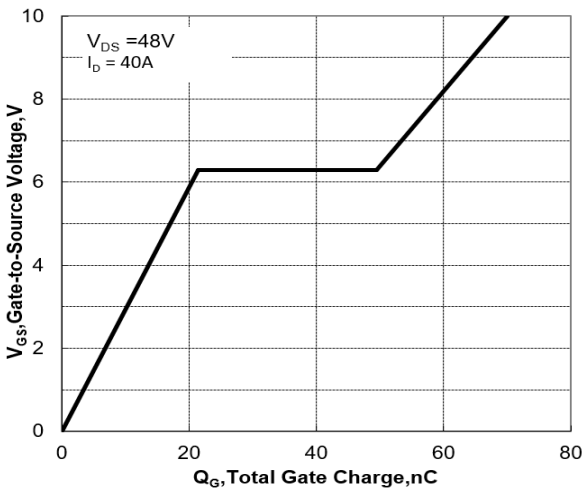
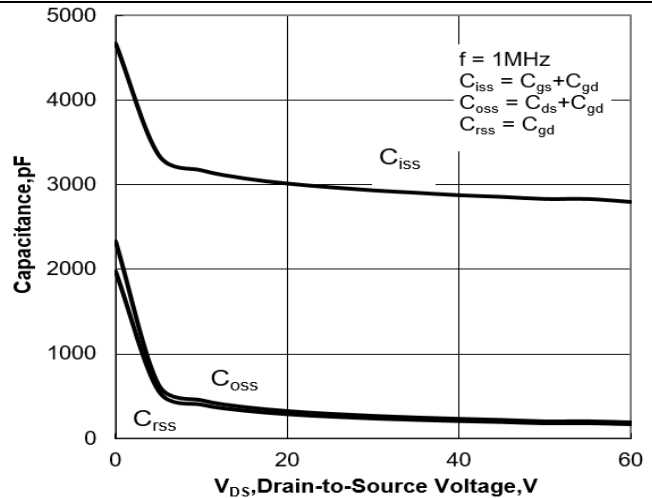
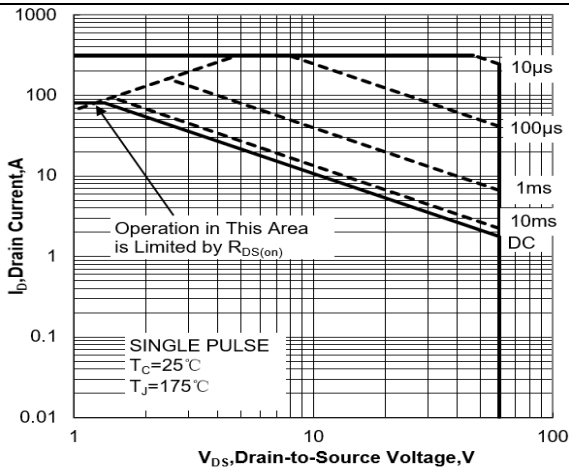
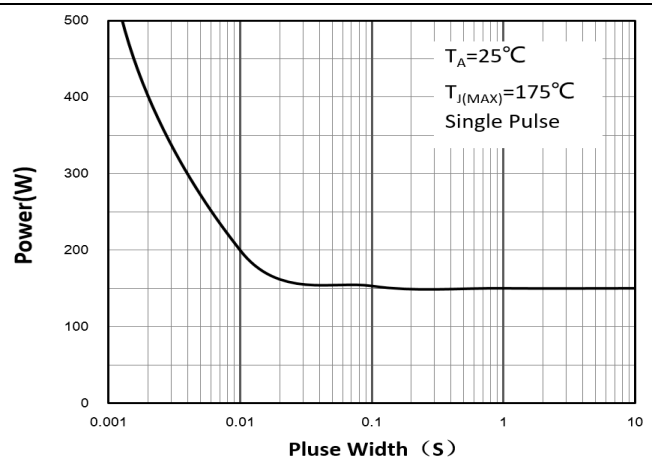
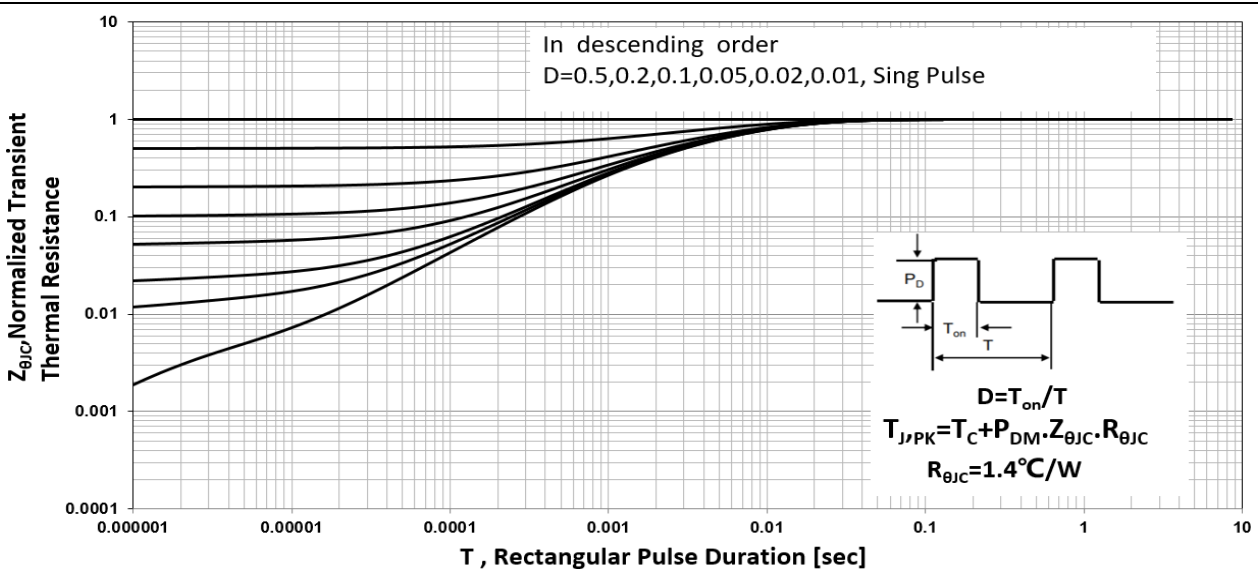
Notes 1.The maximum current rating is package limited.

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

Notes 3.EAS condition: TJ=25°C

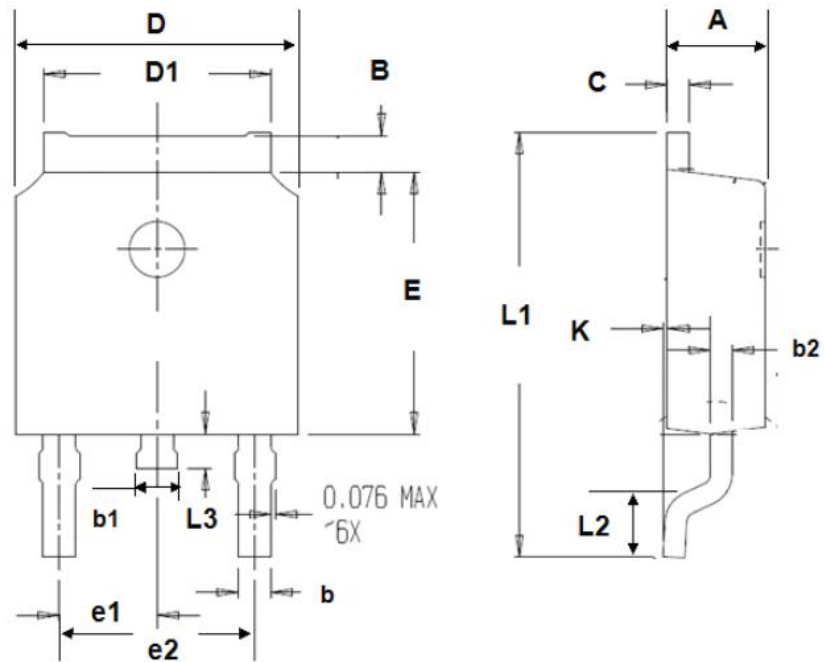
## Characteristics Curves



**Figure 7 Gate-Charge Characteristics**

**Figure 8 Capacitance Characteristics**

**Figure 9 Maximum Forward Biased Safe Operation Area**

**Figure 10 Single Pulse Power Rating Junction-to-Ambient**

**Figure 11 Normalized Maximum Transient Thermal Impedance**


**•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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