

### ● General Description

The AGMH6080H 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
- 100% Avalanche tested
- 100% DVDS tested

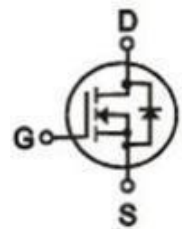
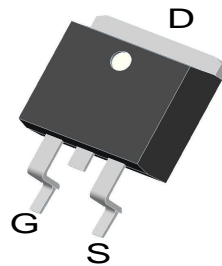
### ● Application

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

### Product Summary

| BVDSS | RDSON | ID  |
|-------|-------|-----|
| 60V   | 6.2mΩ | 66A |

### TO-263 Pin Configuration



### Package Marking and Ordering Information

| Device Marking | Device    | Device Package | Reel Size | Tape width | Quantity |
|----------------|-----------|----------------|-----------|------------|----------|
| AGMH6080H      | AGMH6080H | TO-263         | 330mm     | 25mm       | 800      |

**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>        | 66         | A    |
|             | Drain Current-Continuous(Tc=100°C)                       | 47         | A    |
| IDM (pluse) | Drain Current-Continuous@ Current-Pulsed <b>(Note 2)</b> | 264        | A    |
| PD          | Maximum Power Dissipation(Tc=25°C)                       | 78         | w    |
|             | Maximum Power Dissipation(Tc=100°C)                      | 31         | w    |
| EAS         | Avalanche energy <b>(Note 3)</b>                         | 225        | 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> | --- | 40  | °C/W |
| RθJC   | Thermal Resistance Junction-Case <sup>1</sup>                   | --- | 1.6 | °C/W |

**Table 3. Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)**

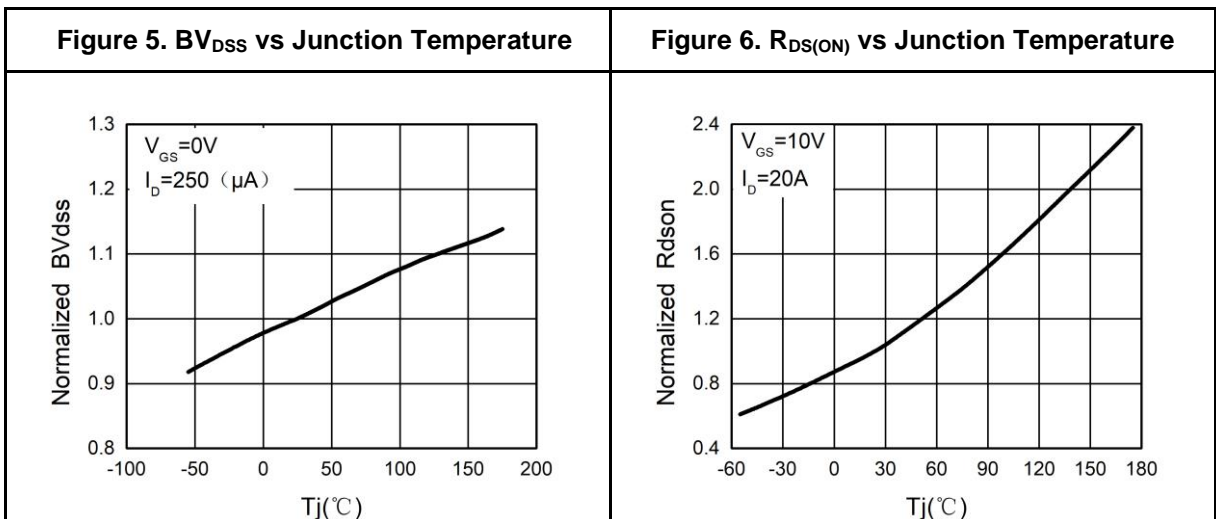
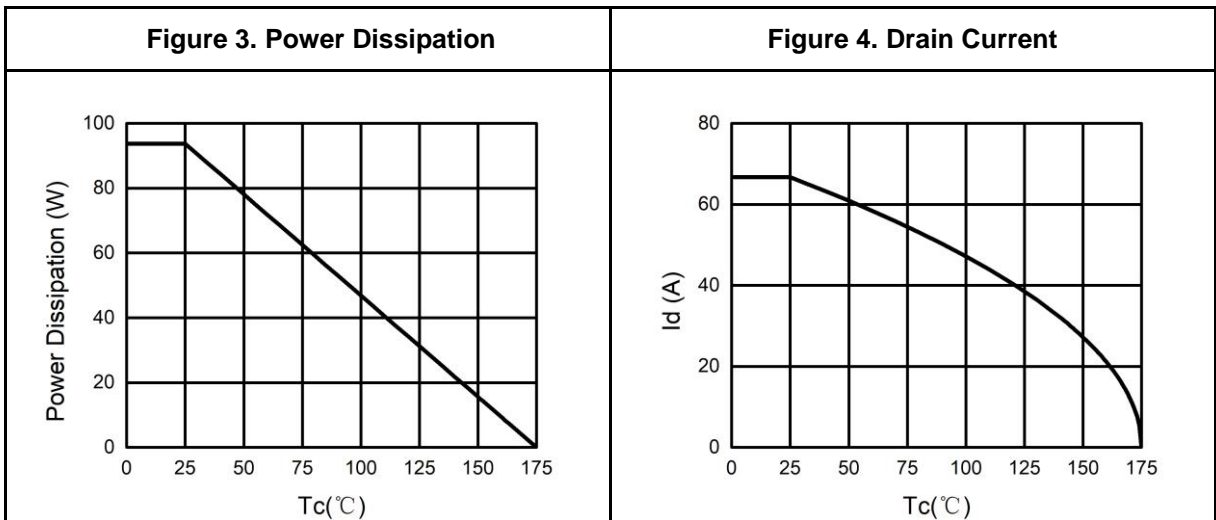
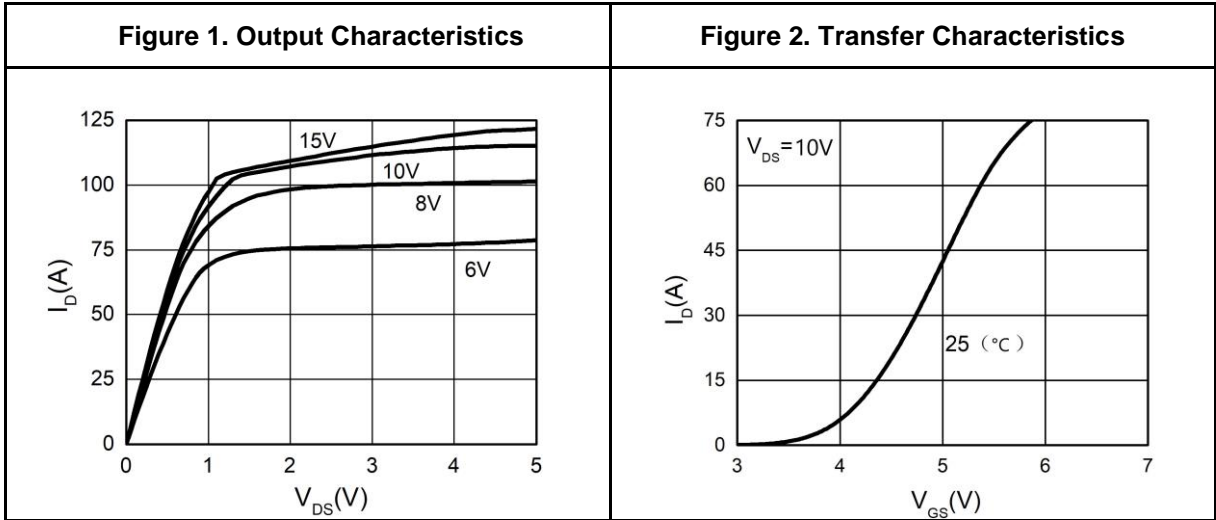
| Symbol                                    | Parameter                        | Conditions                             | Min | Typ  | Max  | Unit |
|---|----------------------------------|--|-----|------|------|------|
| <b>On/Off States</b>                      |                                  |  |     |      |      |      |
| 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 | --   | 4.0  | V    |
| gFS                                       | Forward Transconductance         | VDS=10V,ID=20A                         | --  | 25   | --   | S    |
| RDS(on)                                   | Drain-Source On-State Resistance | VGS=10V, ID=20A                        | --  | 6.2  | 8.0  | mΩ   |
| <b>Dynamic Characteristics</b>            |                                  |  |     |      |      |      |
| Ciss                                      | Input Capacitance                | VDS=30V,VGS=0V,<br>F=1MHZ              | --  | 2710 | --   | pF   |
| Coss                                      | Output Capacitance               |  | --  | 203  | --   | pF   |
| Crss                                      | Reverse Transfer Capacitance     |  | --  | 176  | --   | pF   |
| Rg  | Gate resistance                  | VGS=0V,<br>VDS=0V,f=1.0MHz             | --  | 1.7  | --   | Ω    |
| <b>Switching Times</b>                    |                                  |  |     |      |      |      |
| td(on)                                    | Turn-on Delay Time               | VGS=10V,VDS=30V,<br>RL=0.75Ω,RGEN=3.3Ω | --  | 17.9 | --   | nS   |
| tr  | Turn-on Rise Time                |  | --  | 10.8 | --   | nS   |
| td(off)                                   | Turn-Off Delay Time              |  | --  | 42.4 | --   | nS   |
| tf  | Turn-Off Fall Time               |  | --  | 10.4 | --   | nS   |
| Qg  | Total Gate Charge                | VGS=10V, VDS=30V,<br>ID=20A            | --  | 55.6 | --   | nC   |
| Qgs                                       | Gate-Source Charge               |  | --  | 11.6 | --   | nC   |
| Qgd                                       | Gate-Drain Charge                |  | --  | 6.0  | --   | nC   |
| <b>Source-Drain Diode Characteristics</b> |                                  |  |     |      |      |      |
| ISD                                       | Source-Drain Current(Body Diode) |  | --  | --   | 66   | A    |
| VSD                                       | Forward on Voltage               | VGS=0V,IS=15A                          | --  | --   | 1.2  | V    |
| trr                                       | Reverse Recovery Time            | Is=15A , dl/dt=100A/μs                 | --  | 36   | --   | ns   |
| Qrr                                       | Reverse Recovery Charge          |  | --  | 44.6 | --   | nc   |

Notes 1.The maximum current rating is package limited.

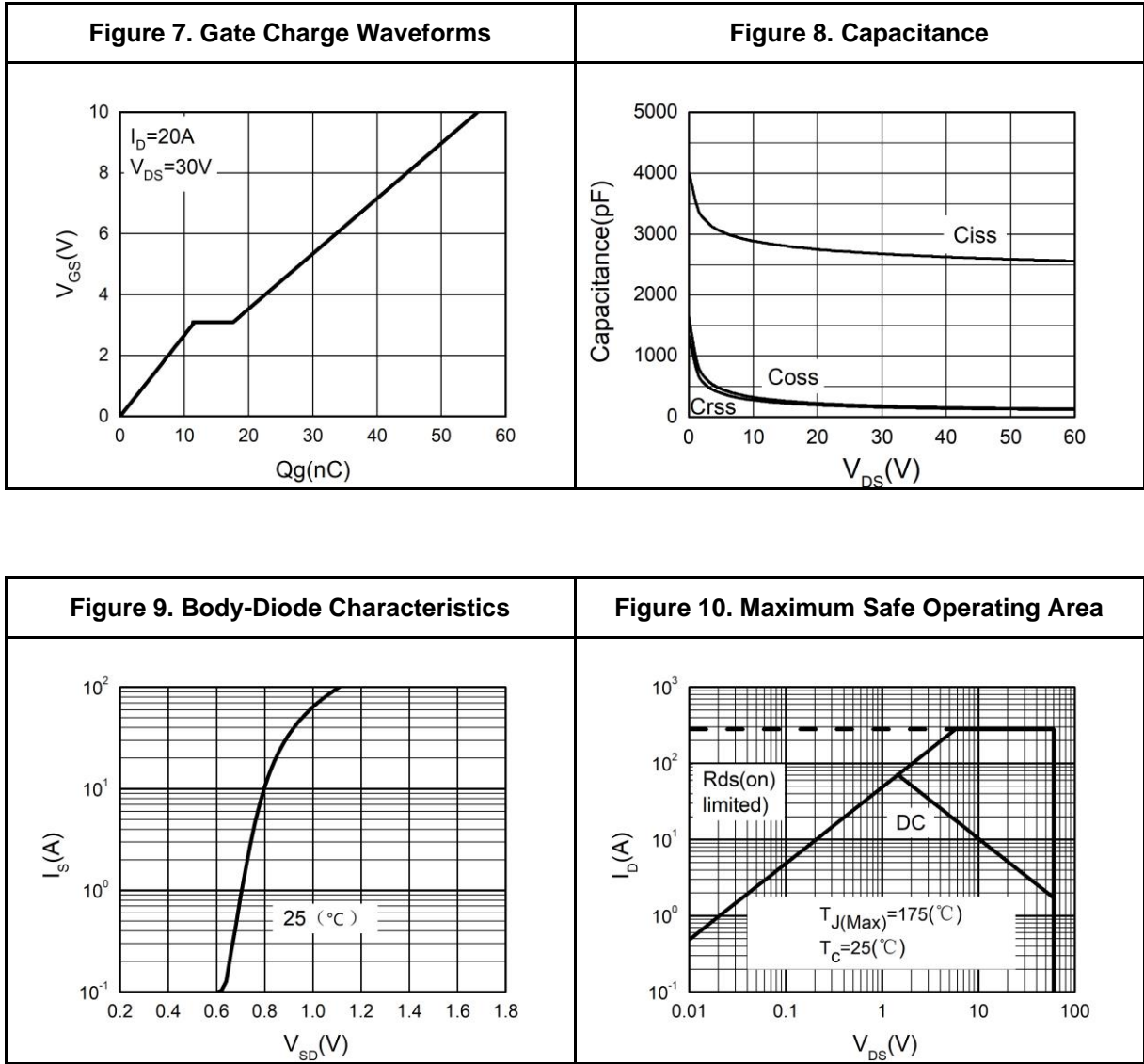
Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3.EAS condition: T<sub>J</sub>=25°C,VDD=30V,Vgs=10V,ID=30A, L=0.5mH,RG=25ohm

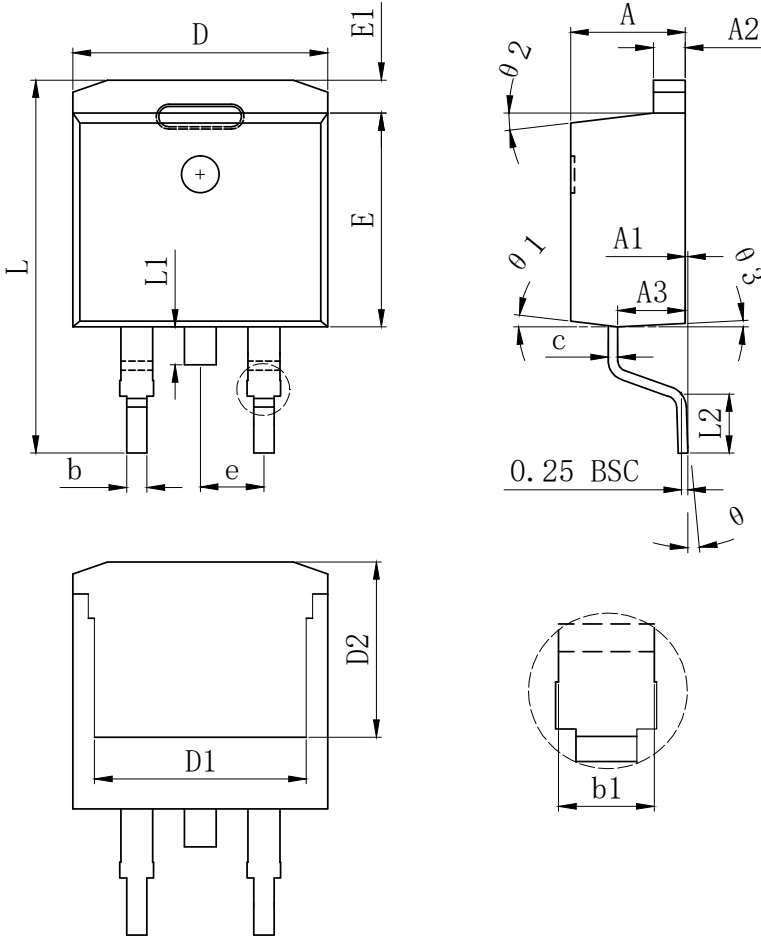
### Typical Electrical And Thermal Characteristics (Curves)



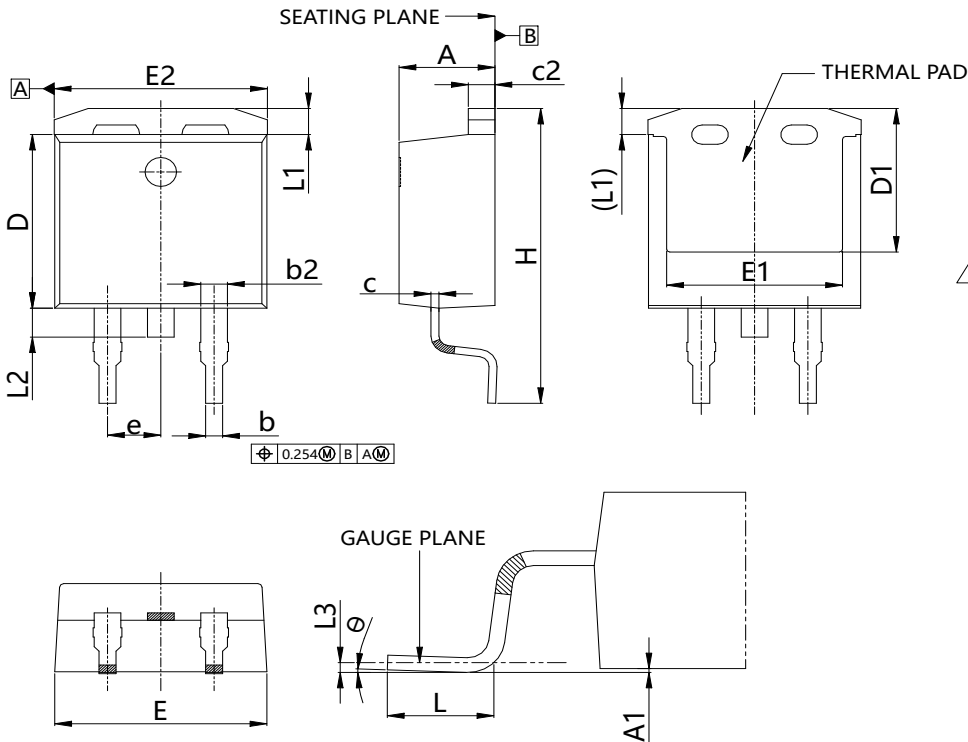
### Typical Electrical And Thermal Characteristics (Curves)



# TO-263 PACKAGE INFORMATION



| SYMBOL | MILLIMETER |        |        |
|--------|------------|--------|--------|
|        | MIN        | Typ.   | MAX    |
| A      | 4.370      | 4.570  | 4.770  |
| A1     | 0.000      |        | 0.250  |
| A2     | 1.220      | 1.270  | 1.420  |
| A3     | 2.490      | 2.690  | 2.890  |
| b      | 0.700      | 0.810  | 0.960  |
| b1     | 1.170      | 1.270  | 1.470  |
| c      | 0.300      | 0.380  | 0.530  |
| D      | 9.860      | 10.160 | 10.360 |
| D1     | 8.400 REF  |        |        |
| D2     | 7.073 REF  |        |        |
| E      | 8.500      | 8.700  | 8.900  |
| E1     | 1.070      | 1.270  | 1.470  |
| e      | 2.540 TYP  |        |        |
| L      | 14.700     | 15.100 | 15.500 |
| L1     | 1.400      | 1.550  | 1.700  |
| L2     | 2.000      | 2.300  | 2.600  |
| θ      | 0°         |        | 9°     |
| θ1     | 7° TYP     |        |        |
| θ2     | 7° TYP     |        |        |
| θ3     | 3° TYP     |        |        |



| SYMBOL | MILLIMETER |         |       |
|--------|------------|---------|-------|
|        | MIN.       | NOMINAL | MAX.  |
| A      | 4.47       | 4.57    | 4.67  |
| A1     | 0.00       | 0.10    | 0.25  |
| b      | 0.71       | 0.81    | 0.91  |
| b2     | 1.17       | 1.27    | 1.37  |
| c      | 0.360      | 0.381   | 0.500 |
| c2     | 1.17       | 1.27    | 1.37  |
| D      | 8.70       | 9.00    | 9.30  |
| D1     | 7.10       | 7.44    | 7.80  |
| E      | 9.90       | 10.11   | 10.30 |
| E1     | 8.08       | 8.38    | 8.68  |
| E2     | 10.00      | 10.16   | 10.30 |
| e      | 2.44       | 2.54    | 2.64  |
| H      | 15.00      | 15.28   | 15.60 |
| L      | 2.25       | 2.54    | 2.80  |
| L1     | 1.10       | 1.35    | 1.60  |
| L2     | ---        | ---     | 1.78  |
| L3     | 0.254 BSC  |         |       |
| θ      | 0°         | ---     | 8°    |


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