

● General Description

The AGM035N10H 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

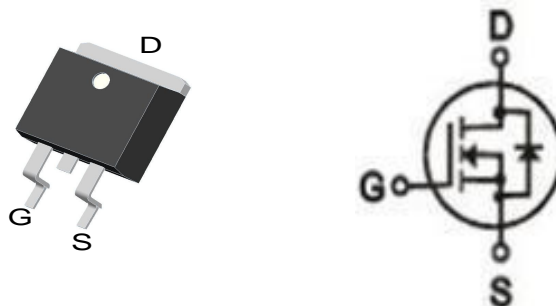
● Application

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

Product Summary

| BVDSS | RDSON | ID |
|-------|-------|------|
| 100V | 3.5mΩ | 150A |

TO-263 Pin Configuration



Package Marking and Ordering Information

| Device Marking | Device | Device Package | Reel Size | Tape width | Quantity |
|----------------|------------|----------------|-----------|------------|----------|
| AGM035N10H | AGM035N10H | TO-263 | ---- | ---- | 800 |

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) | 150 | A |
| | Drain Current-Continuous(Tc=100°C) | 105 | A |
| IDM (pluse) | Drain Current-Continuous@ Current-Pulsed (Note 2) | 600 | A |
| PD | Maximum Power Dissipation(Tc=25°C) | 208 | w |
| | Maximum Power Dissipation(Tc=100°C) | 83 | w |
| EAS | Avalanche energy (Note 3) | 540 | 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 | --- | 60 | °C/W |
| RθJC | Thermal Resistance Junction-Case ¹ | --- | 0.6 | °C/W |

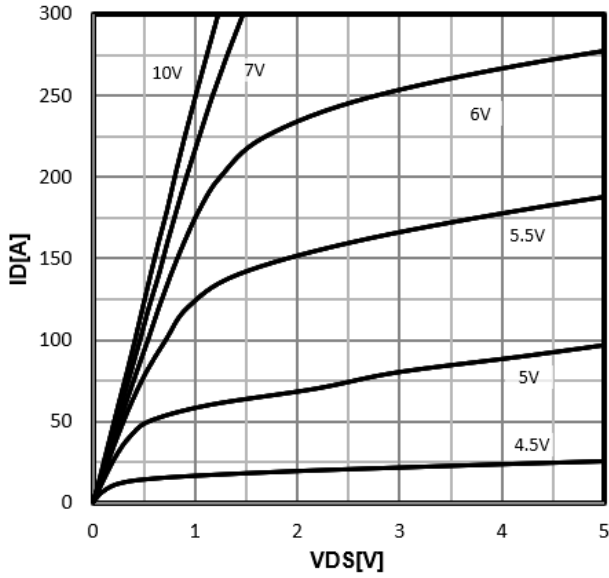
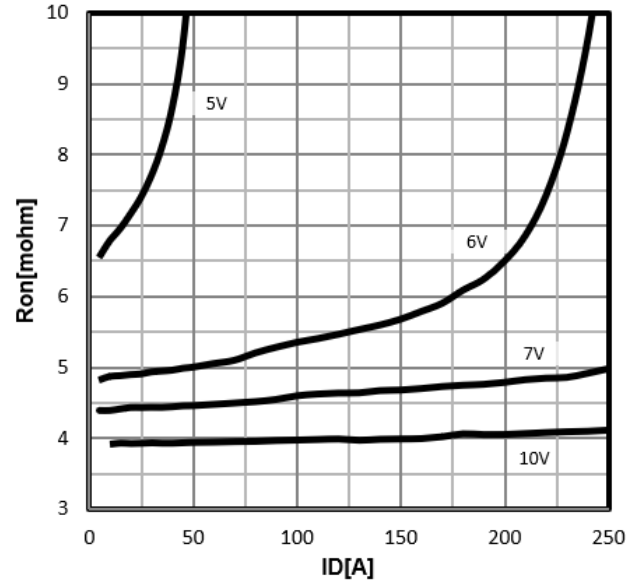
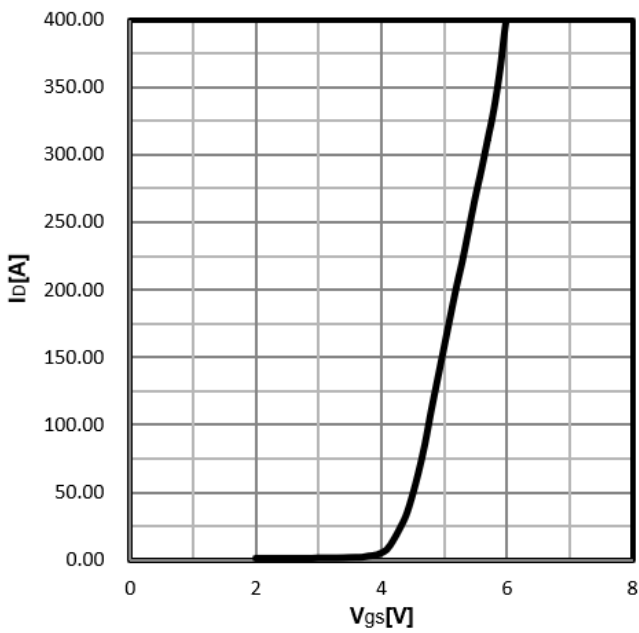
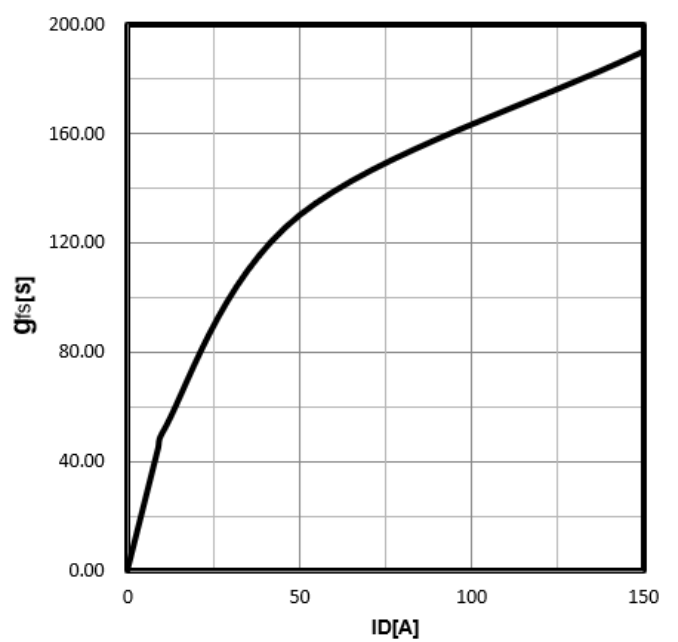
Table 3. Electrical Characteristics (TA=25°C unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|----------------------------------|--|-----|------|------|------|
| On/Off States | | | | | | |
| BVDSS | Drain-Source Breakdown Voltage | VGS=0V ID=250μA | 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 | 2.5 | 3.0 | 3.5 | V |
| gFS | Forward Transconductance | VDS=5V,ID=7A | -- | 130 | -- | S |
| RDS(on) | Drain-Source On-State Resistance | VGS=10V, ID=75A | -- | 3.5 | 4.1 | mΩ |
| | | VGS=4.5V, ID=7A | -- | -- | -- | mΩ |
| Dynamic Characteristics | | | | | | |
| Ciss | Input Capacitance | VDS=50V, VGS=0V, F=1MHZ | -- | 3500 | -- | pF |
| Coss | Output Capacitance | | -- | 1200 | -- | pF |
| Crss | Reverse Transfer Capacitance | | -- | 27 | -- | pF |
| Rg | Gate resistance | VGS=0V, VDS=0V,f=1.0MHz | -- | 0.77 | -- | Ω |
| Switching Times | | | | | | |
| td(on) | Turn-on Delay Time | VGS=10V,VDS=50V, ID=75A,RGEN=5Ω | -- | 25 | -- | nS |
| tr | Turn-on Rise Time | | -- | 33 | -- | nS |
| td(off) | Turn-Off Delay Time | | -- | 95 | -- | nS |
| tf | Turn-Off Fall Time | | -- | 75 | -- | nS |
| Qg | Total Gate Charge | VGS=0-10V, VDS=50V, ID=75A | -- | 67.2 | -- | nC |
| Qgs | Gate-Source Charge | | -- | 16.9 | -- | nC |
| Qgd | Gate-Drain Charge | | -- | 16.9 | -- | nC |
| Source-Drain Diode Characteristics | | | | | | |
| ISD | Source-Drain Current(Body Diode) | | -- | -- | 150 | A |
| VSD | Forward on Voltage | VGS=0V,IS=75A | -- | -- | 1.2 | V |
| trr | Reverse Recovery Time | Is=20A ,VDD=50V dI/dt=500A/μs , TJ=25°C | -- | 82 | -- | ns |
| Qrr | Reverse Recovery Charge | | -- | 180 | -- | nc |

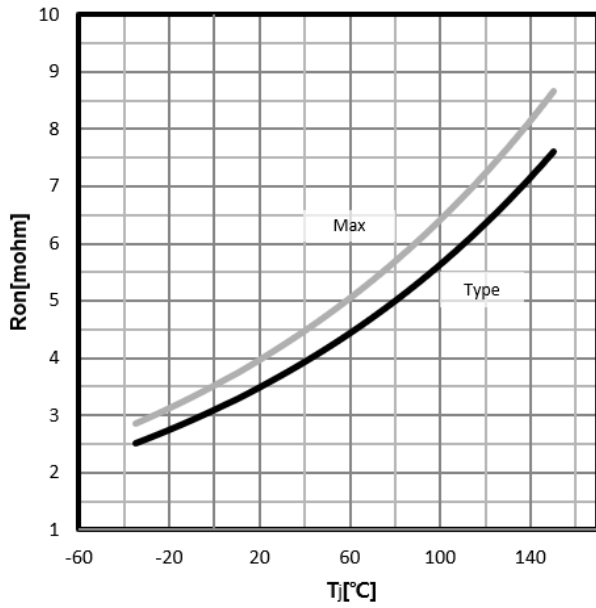
Notes 1.The maximum current rating is package limited.

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

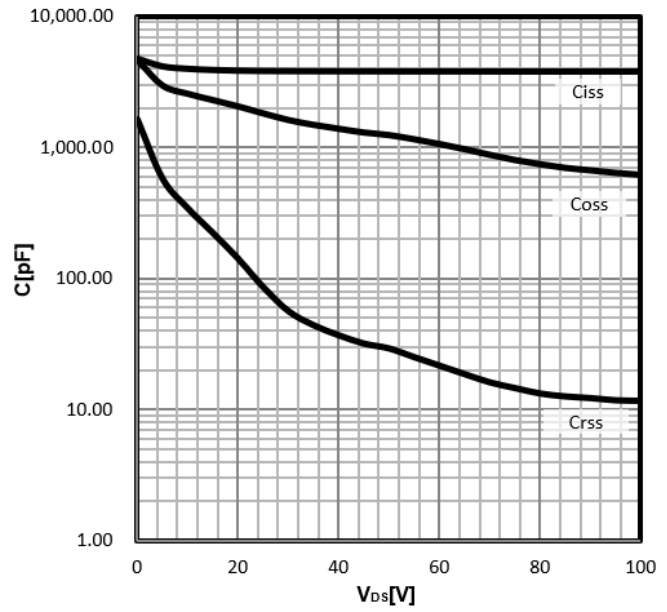
Notes 3.EAS condition: TJ=25°C

Characteristics Curve:
Typ. output characteristics
 $I_D = f(V_{DS})$

Typ. drain-source on resistance
 $R_{DS(on)} = f(I_D)$

Typ. transfer characteristics
 $I_D = f(V_{GS})$

Typ. forward transconductance
 $g_{fs} = f(I_D)$


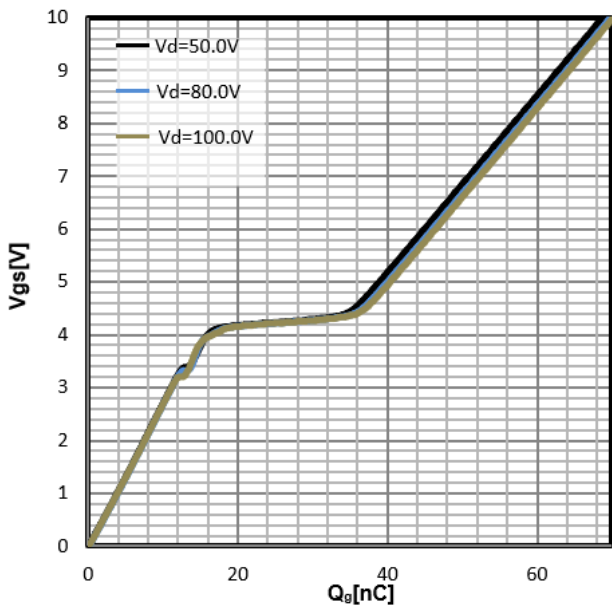
Drain-source on-state resistance
 $R_{DS(on)}=f(T_j)$; $I_D=75A$; $V_{GS}=10V$



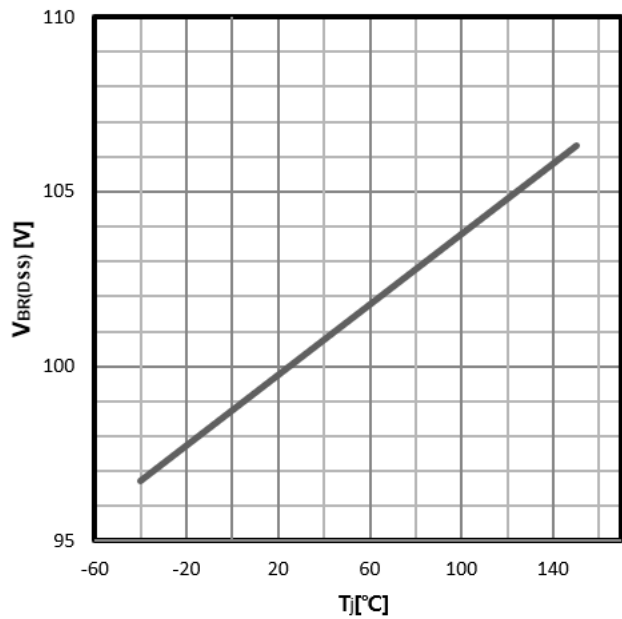
Typ. capacitances
 $C=f(V_{DS})$; $V_{GS}=0V$; $f=1MHz$



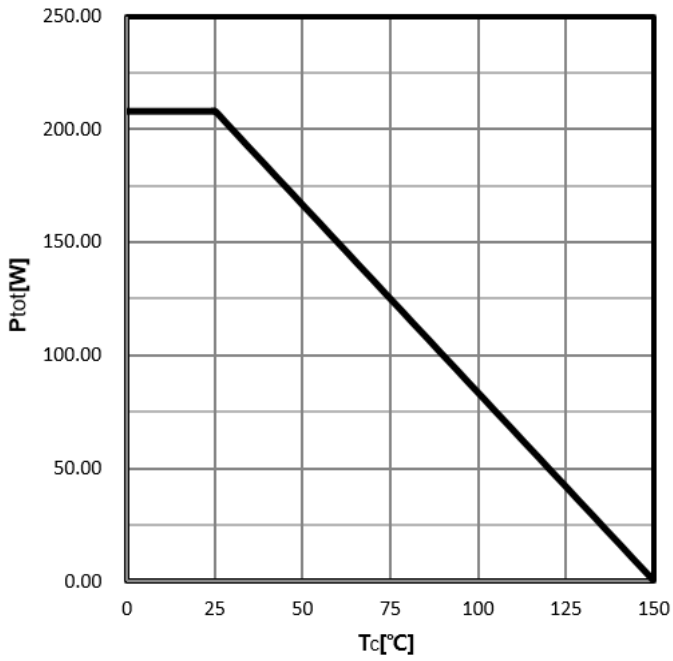
Typ. gate charge
 $V_{GS}=f(Q_{gate})$



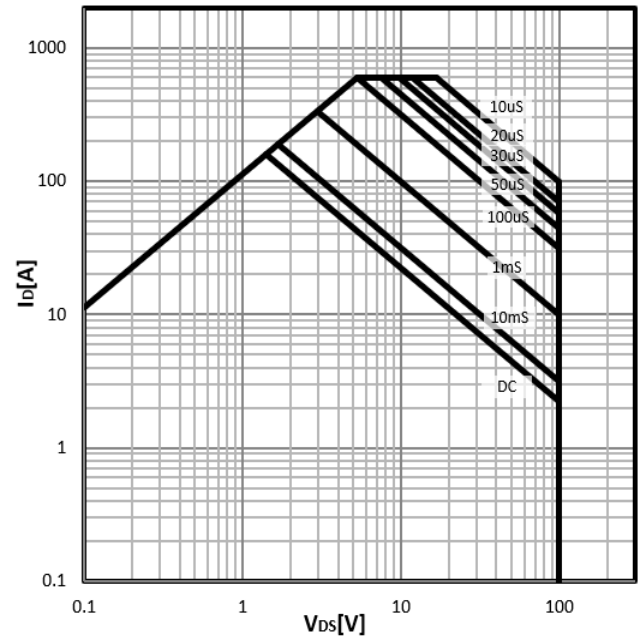
Drain-source breakdown voltage
 $V_{BR(DSS)}=f(T_j)$; $I_D=250uA$



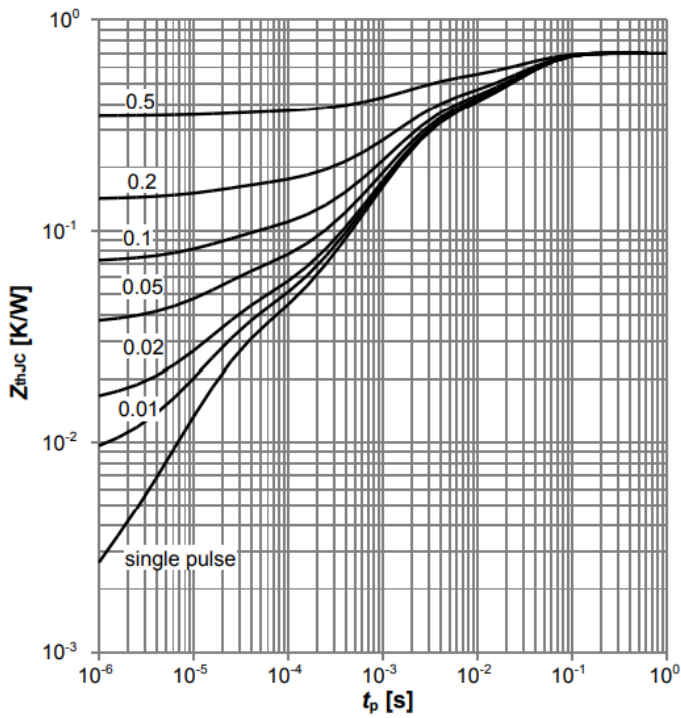
Power Dissipation
 $P_{tot}=f(T_j)$

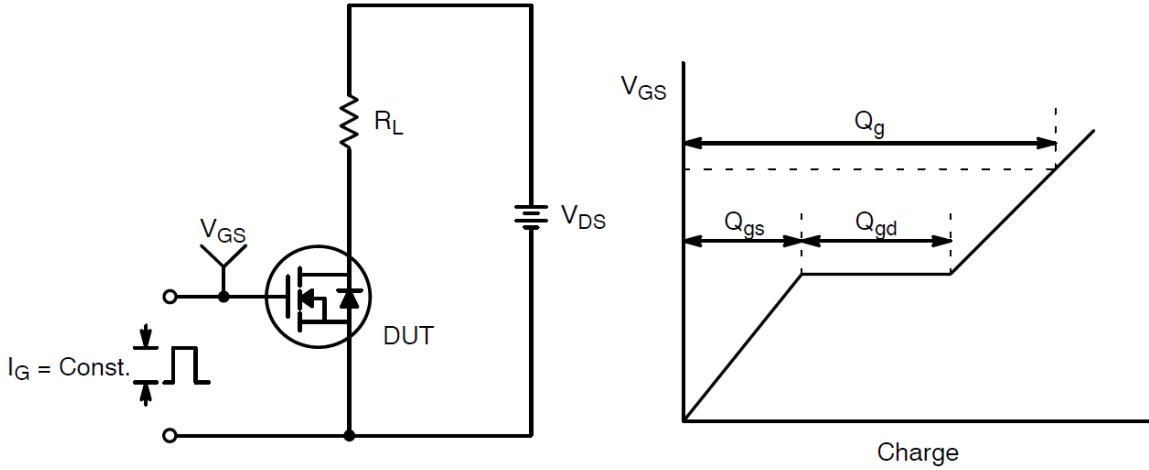
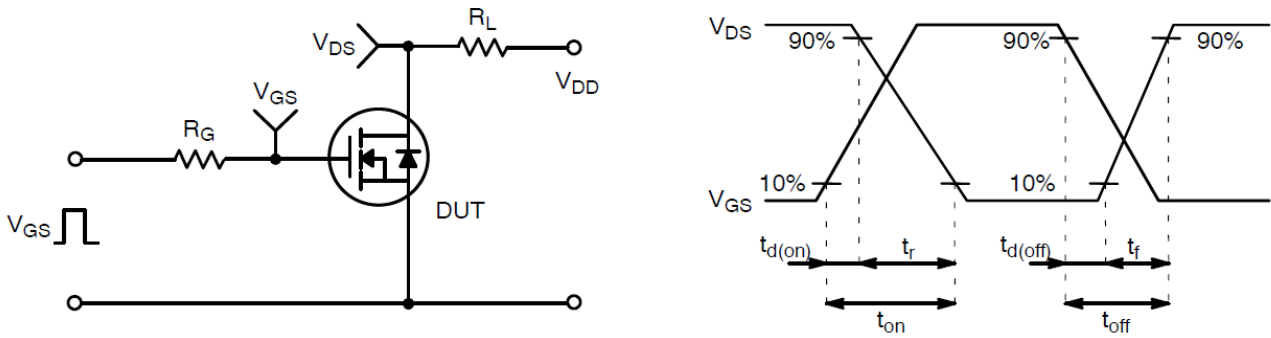
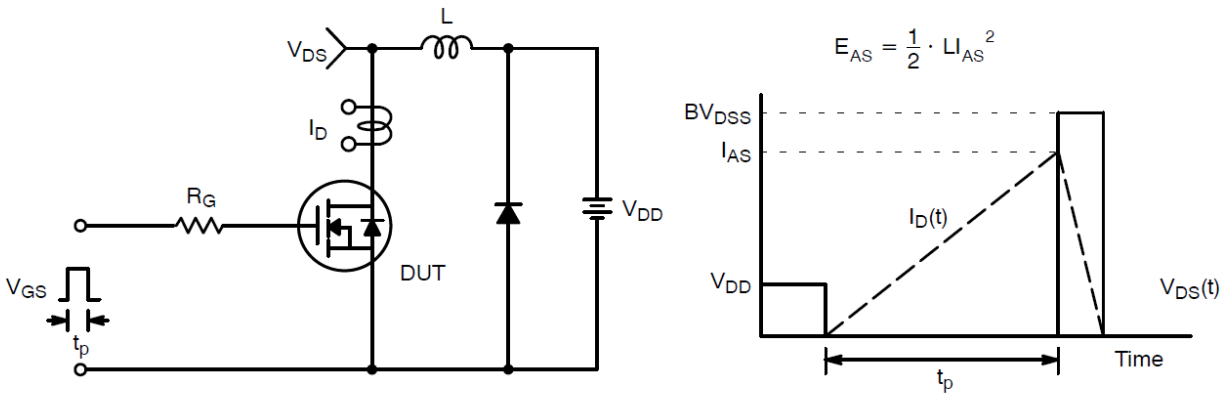


Safe operating area
 $I_D=f(V_{DS})$



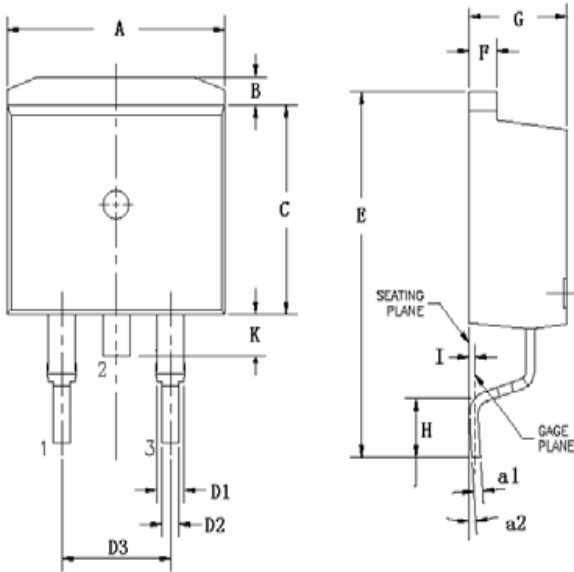
Max. transient thermal impedance
 $Z_{thJC}=f(t_p)$



Test Circuit and Waveform:

Gate Charge Test Circuit & Waveform

Resistive Switching Test Circuit & Waveforms

Unclamped Inductive Switching Test Circuit & Waveforms

TO-263 PACKAGE INFORMATION

Dimensions 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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