

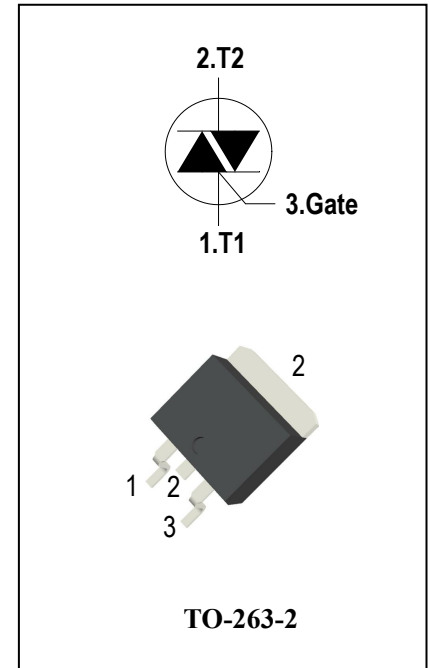
4 Quadrants Triacs

General Description

High current density due to mesa technology . the ADS8D triac series is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, High power motor controls e.g. washing machines and vacuum cleaners, Rectifier-fed DC inductive loads e.g. DC motors and solenoids , motor speed controllers.

Features

- ◆ Repetitive Peak Off-State Voltage: 600V and 800V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 8\text{ A}$)
- ◆ High Commutation dv/dt
- ◆ These Devices are Pb-Free and are RoHS Compliant



Absolute Maximum Ratings

| Symbol | Items | Conditions | | Ratings | Unit |
|--------------------------------------|---|---|----------|------------|------------------------|
| V_{DRM} V_{RRM} | Repetitive Peak Off-State Voltage | $T_j = 25^{\circ}\text{C}$ | ADS8D60G | 600 | V |
| | | | ADS8D80G | 800 | V |
| $I_{\text{T(RMS)}}$ | R.M.S On-State Current | $T_C = 110^{\circ}\text{C}$ | | 8 | A |
| I_{TSM} | Surge On-State Current | $t_p=20\text{ms}(50\text{Hz})/t_p=16.7\text{ms}(60\text{Hz})$ | | 80/84 | A |
| I^2t | I^2t for fusing | $t_p=10\text{ms}$ | | 36 | A^2s |
| di/dt | Critical rate of rise of on-state current | $F = 120\text{ Hz } T_j = 125^{\circ}\text{C}$ $I_G = 2 \times I_{GT} , tr \leq 100\text{ ns}$ | | 50 | $\text{A}/\mu\text{s}$ |
| I_{GM} | Peak Gate Current | $t_p = 20\text{ }\mu\text{s } T_j = 125^{\circ}\text{C}$ | | 4 | A |
| $P_{\text{G(AV)}}$ | Average Gate Power Dissipation($T_j=125^{\circ}\text{C}$) | | | 1 | W |
| P_{GM} | Peak Gate Power Dissipation($t_p=20\mu\text{s}, T_j=125^{\circ}\text{C}$) | | | 10 | W |
| T_j | Operating Junction Temperature | | | - 40 ~ 125 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature | | | - 40 ~ 150 | $^{\circ}\text{C}$ |



Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

| Symbol | Items | | Conditions | | ADS8D60G/80G | | | | Unit |
|----------------------|---|----------------------------|---|------|--------------|----|-------|-----|----------|
| | | | | | T | S | Blank | B | |
| I _{DRM} | Peak Forward Reverse Blocking Current | | V _{DRM} = V _{RRM} , T _J = 25°C | Max. | 5 | | | | uA |
| I _{RRM} | | | V _{DRM} = V _{RRM} , T _J = 125°C | | 1 | | | | mA |
| V _{TM} | Peak On-State Voltage | | I _{TM} = 11A, t _p = 380 μs | Max. | 1.55 | | | | V |
| V _{GD} | Q1-Q2-Q3-Q4 | Non – Trigger Gate Voltage | V _D = V _{DRM} R _L = 3.3 kΩ T _J = 125°C | Min. | 0.2 | | | | V |
| V _{GT} | Q1-Q2-Q3-Q4 | GateTrigger Voltage | V _D = 12V , R _L = 33Ω | Max. | 1.3 | | | | V |
| I _{GT} | Q1-Q2-Q3 | GateTrigger Current | | Max. | 5 | 10 | 35 | 50 | mA |
| | Q4 | | | | 10 | 25 | 70 | 100 | |
| I _H | Q1-Q2-Q3-Q4 | Holding Current | I _T = 0.1A | Max. | 10 | 25 | 35 | 60 | mA |
| I _L | Q1-Q3-Q4 | Latching Current | I _G = 1.2 I _{GT} | Max. | 15 | 30 | 40 | 60 | mA |
| | Q2 | | | | 20 | 40 | 60 | 90 | |
| dV/dt | Critical Rate of Rise of Off-State Voltage | | V _D = 2/3V _{DRM} gate open T _j = 125°C | Min. | 10 | 20 | 200 | 400 | V/μs |
| (dV/dt) _c | Rate of Change of Commutating Current, | | (dI/dt) _c = -3.5A/ms T _j = 125°C | Min. | 1 | 2 | 5 | 10 | V/μs |
| R _{th(j-c)} | Junction to case (AC) | | | Max. | 1.6 | | | | ° C/W |
| R _{th(j-a)} | Junction to ambient(Copper surface under tab:S=1cm ²) | | | Max. | 45 | | | | ° C/W |

FIG.1:Triac quadrant are defined and the gate trigger test circuit

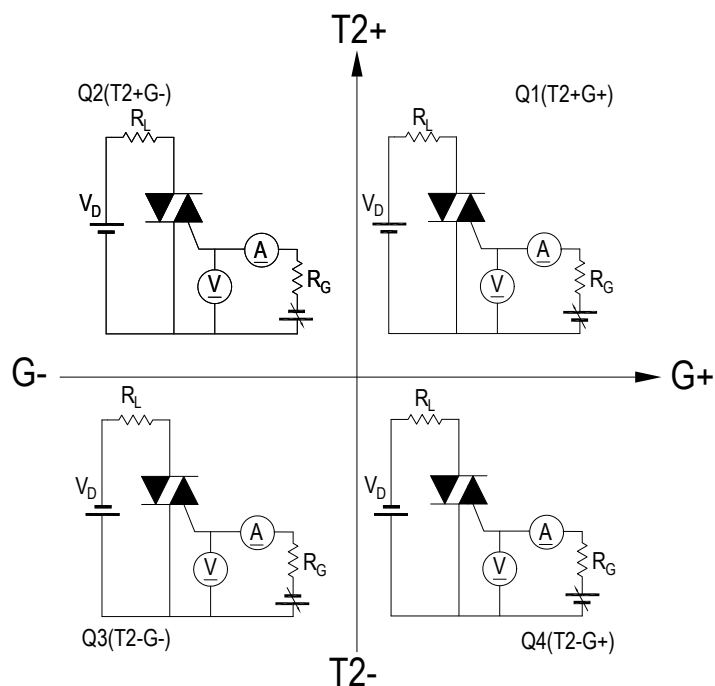


FIG.2: Maximum on-state power dissipation

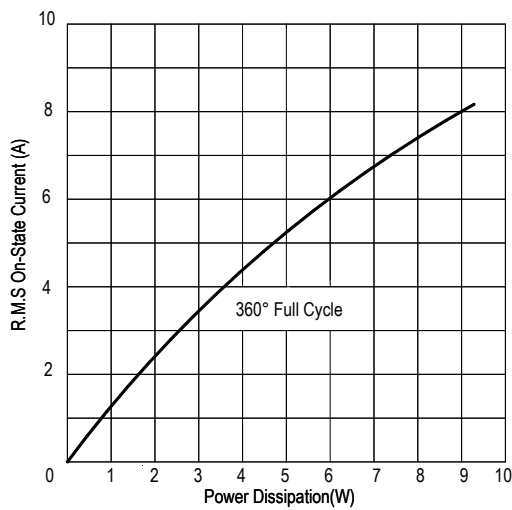


FIG.4: Maximum transient thermal impedance

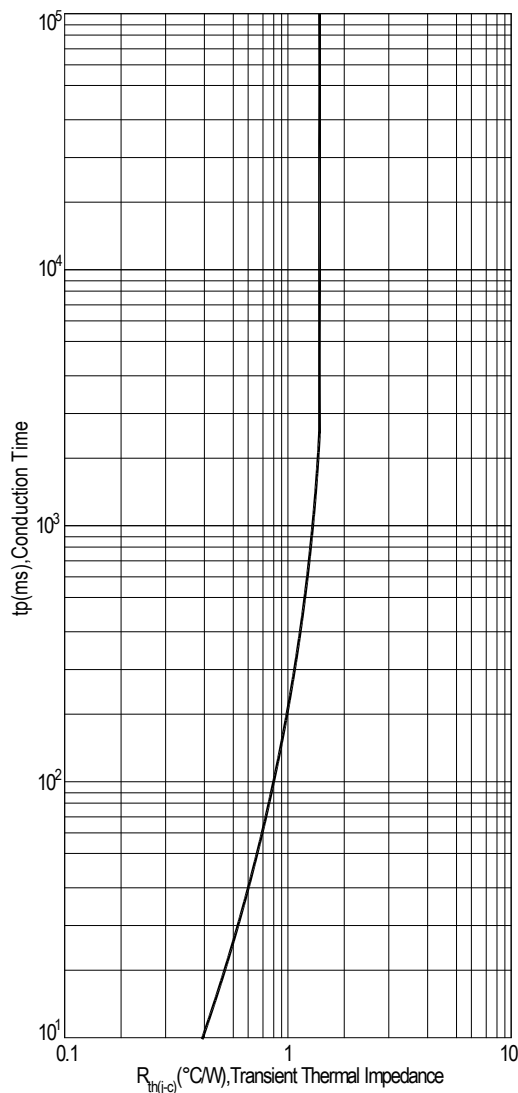


FIG.3: Typical RMS on-state current VS Allowable case Temperature

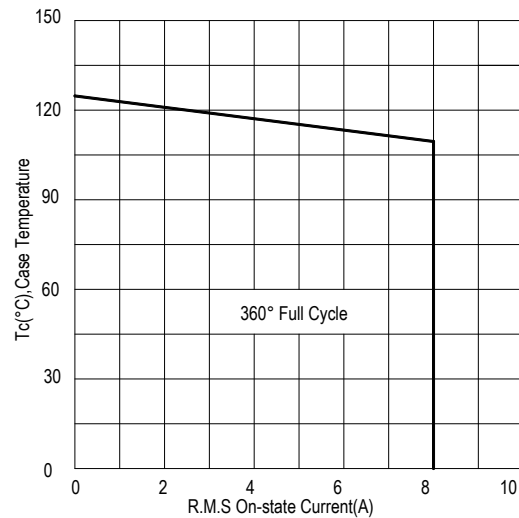


FIG.5: Rated surge on-state current (Non-Repetitive)

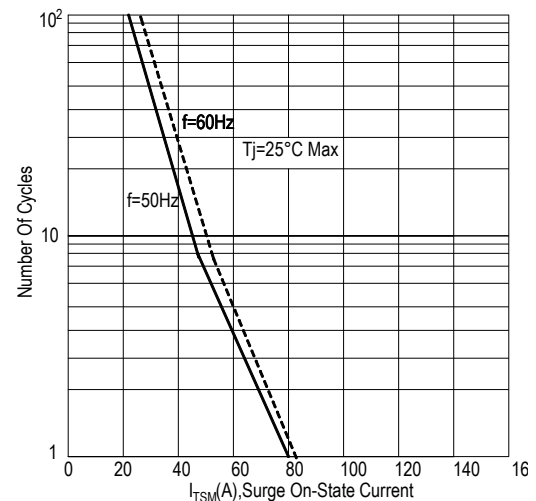


FIG.6: Gate trigger current VS Junction temperature

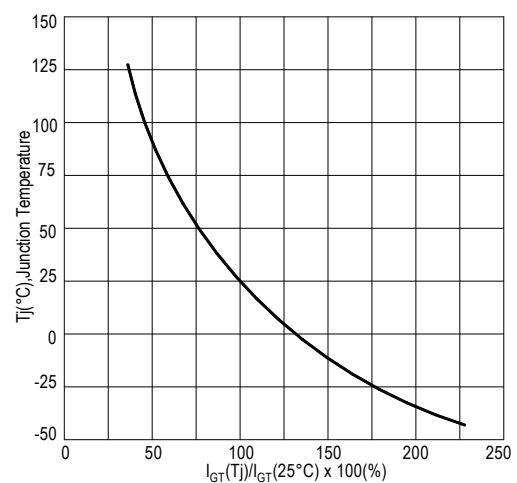


FIG.7:Holding current and Latching current VS Junction temperature

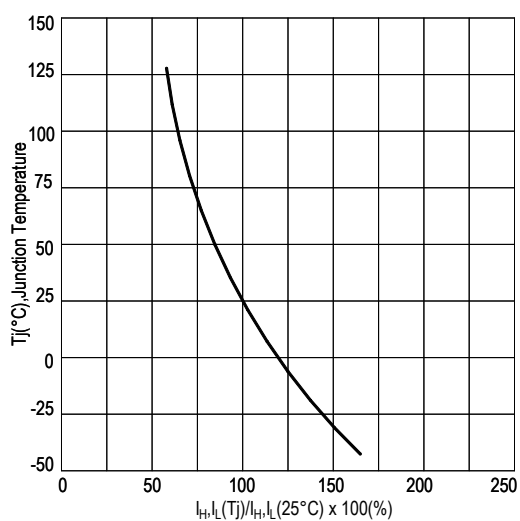


FIG.8: Gate trigger voltage VS Junction temperature

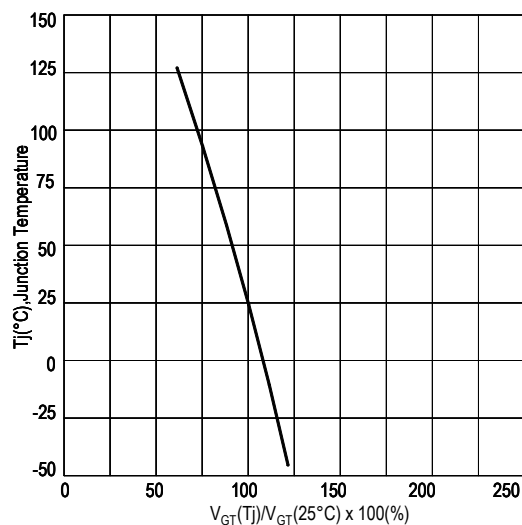
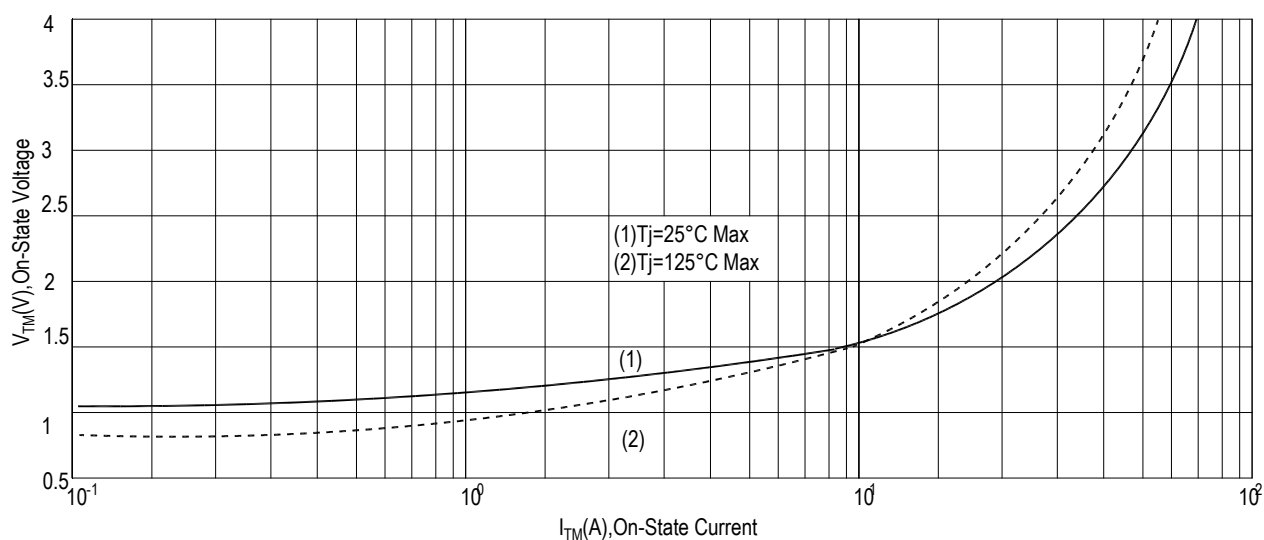
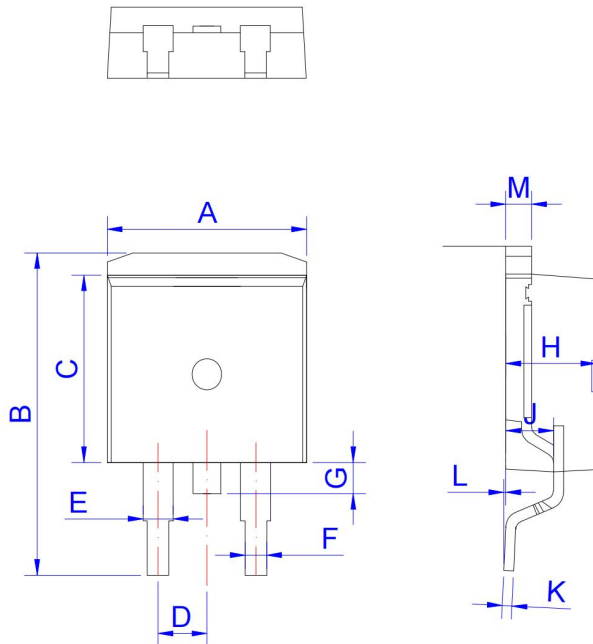


FIG.9: On-state characteristics(Max)



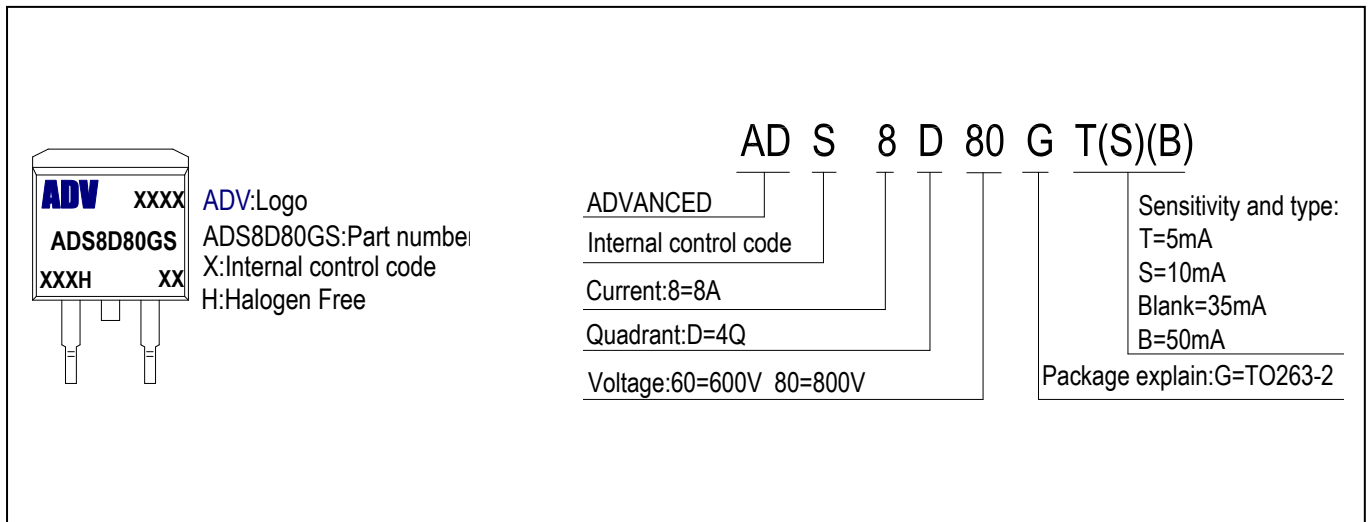
PACKAGE MECHANICAL DATA

TO-263-2 Package Dimension



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|------------------------------|-------|-------------------------|-------|
| | Min | Max | Min | Max |
| A | 9.90 | 10.2 | 0.390 | 0.402 |
| B | 14.70 | 15.80 | 0.579 | 0.622 |
| C | 9.20 | 9.60 | 0.362 | 0.378 |
| D | 2.40 | 2.70 | 0.094 | 0.106 |
| E | 1.20 | 1.50 | 0.047 | 0.059 |
| F | 0.75 | 0.85 | 0.029 | 0.033 |
| G | 1.00 | 1.75 | 0.039 | 0.069 |
| H | 4.40 | 4.80 | 0.173 | 0.189 |
| J | 2.30 | 2.80 | 0.091 | 0.110 |
| K | 0.38 | 0.55 | 0.015 | 0.022 |
| L | 0.00 | 0.25 | 0.000 | 0.010 |
| M | 1.17 | 1.37 | 0.046 | 0.054 |

Making Diagram



Ordering information

| Part number | Package | Marking | Packing | Quantity |
|-------------|----------|-----------|---------------|----------|
| ADS8D60G# | TO-263-2 | ADS8D60G# | Tube | 50pcs |
| | | | Embossed tape | 800pcs |
| ADS8D80G# | TO-263-2 | ADS8D80G# | Tube | 50pcs |
| | | | Embossed tape | 800pcs |

Note:# = Gate Trigger Current Sensitivity and type

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