

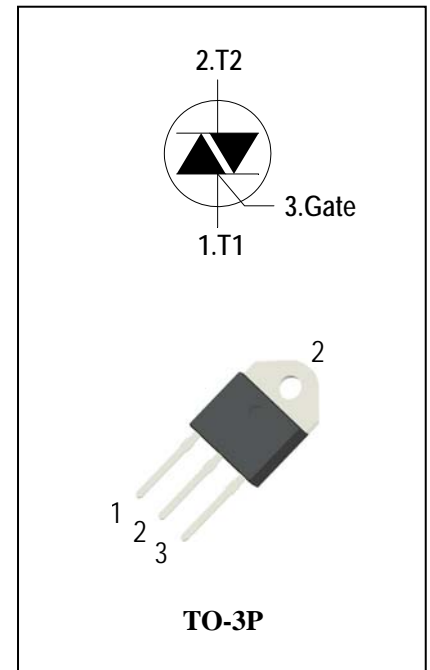
3 Quadrants Triacs

General Description

High current density due to mesa technology .the ADS25C 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 ($I_{T(RMS)} = 25A$)
- ◆ 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 | $T_j = 25^\circ C$ | ADS25C60H 600 ADS25C80H 800 | V V |
| $I_{T(RMS)}$ | R.M.S On-State Current | $T_C = 100^\circ C$ | 25 | A |
| I_{TSM} | Surge On-State Current | $t_p = 20ms(50Hz) / t_p = 16.7ms(60Hz)$ | 250/260 | A |
| I^2t | I^2t for fusing | $t_p = 10ms$ | 335 | A^2s |
| di/dt | Critical rate of rise of on-state current | $F = 120 Hz$ $T_j = 125^\circ C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100 ns$ | 50 | $A/\mu s$ |
| I_{GM} | Peak Gate Current | $t_p = 20 \mu s$ $T_j = 125^\circ C$ | 4 | A |
| $P_{G(AV)}$ | Average Gate Power Dissipation($T_j = 125^\circ C$) | | 1 | W |
| P_{GM} | Peak Gate Power Dissipation($t_p = 20\mu s, T_j = 125^\circ C$) | | 10 | W |
| T_j | Operating Junction Temperature | | - 40 ~ 125 | $^\circ C$ |
| T_{STG} | Storage Temperature | | - 40 ~ 150 | $^\circ C$ |



Electrical Characteristics (T_j = 25°C unless otherwise specified)

| Symbol | Items | | Conditions | | ADS25C60H/80H | | | Unit |
|--------------------------------------|--|--------------------------|---|------|---------------|-------|------|----------|
| | | | | | S | Blank | B | |
| I _{DRM} I _{RRM} | Peak Forward Reverse Blocking Current | | V _{DRM} = V _{RRM} , T _j = 25°C V _{DRM} = V _{RRM} , T _j = 125°C | Max. | 5 3 | | | uA mA |
| V _{TM} | Peak On-State Voltage | | I _{TM} = 35A, t _p = 380 μs | Max. | 1.5 | | | V |
| V _{GD} | Q1-Q2-Q3 | 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 | Gate Trigger Voltage | V _D = 12V, R _L = 33Ω | Max. | 1.3 | | | V |
| I _{GT} | Q1-Q2-Q3 | Gate Trigger Current | | Max. | 10 | 35 | 50 | mA |
| I _H | Q1-Q2-Q3 | Holding Current | I _T = 0.1A | Max. | 20 | 50 | 75 | mA |
| I _L | Q1-Q3 | Latching Current | I _G = 1.2 I _{GT} | Max. | 20 | 80 | 90 | mA |
| | Q2 | | | | 35 | 90 | 110 | |
| dV/dt | Critical Rate of Rise of Off-State Voltage | | V _D = 2/3V _{DRM} gate open T _j = 125°C | Min. | 500 | 1000 | 1500 | V/μs |
| (dV/dt) _c | Critical Rate of Change of Commutating Voltage | | (dI/dt) _c = -12A/ms T _j = 125°C | Min. | 1 | 15 | 20 | V/μs |
| R _{th(j-c)} | Junction to case (AC) | | | Max. | 0.6 | | | °C/W |
| R _{th(j-a)} | Junction to ambient | | | Max. | 50 | | | °C/W |

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

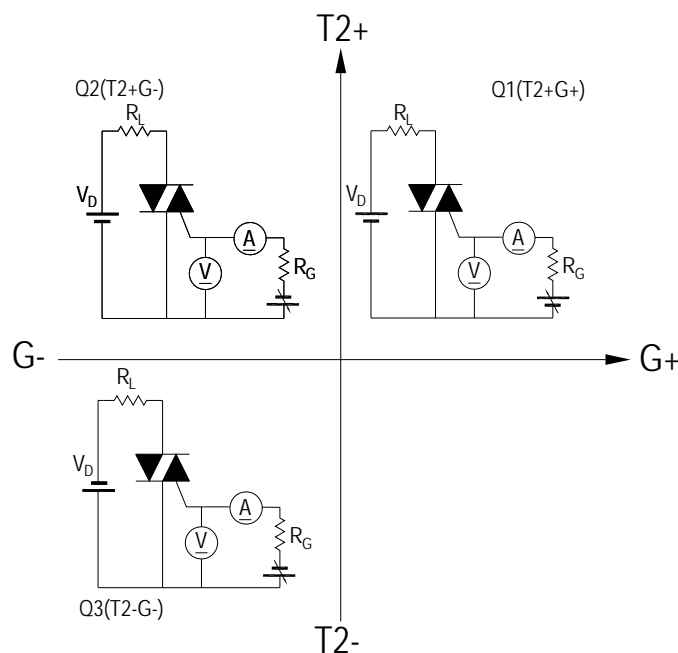


FIG.2: Maximum on-state power dissipation

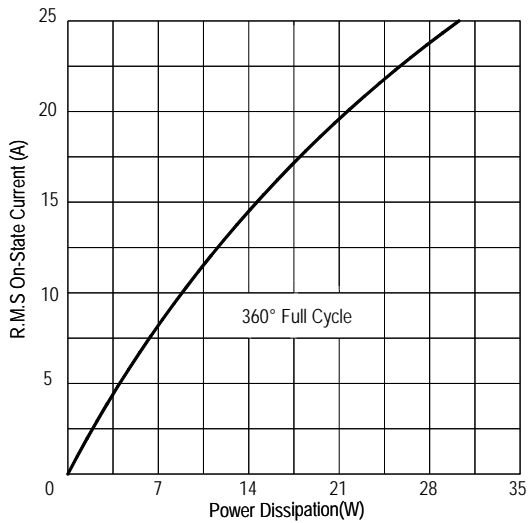


FIG.4: Maximum transient thermal impedance

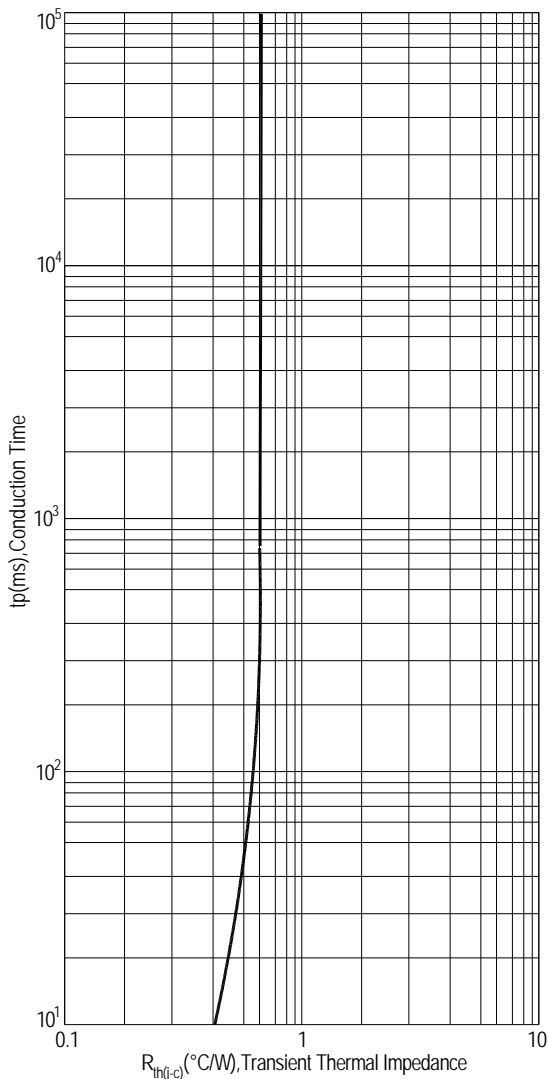


FIG.3: Typical RMS on-state current VS Allowable case Temperature

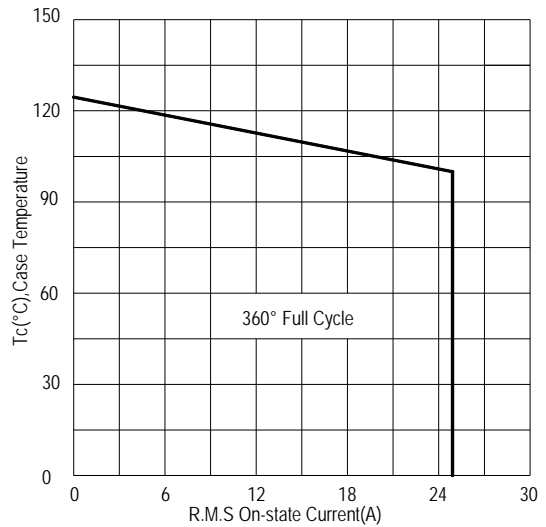


FIG.5: Rated surge on-state current (Non-Repetitive)

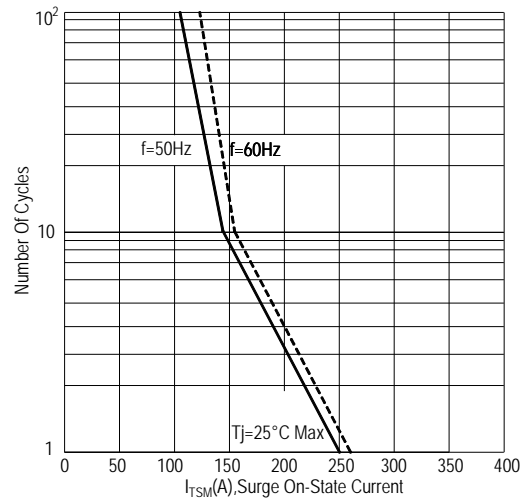


FIG.6: Gate trigger current VS Junction temperature

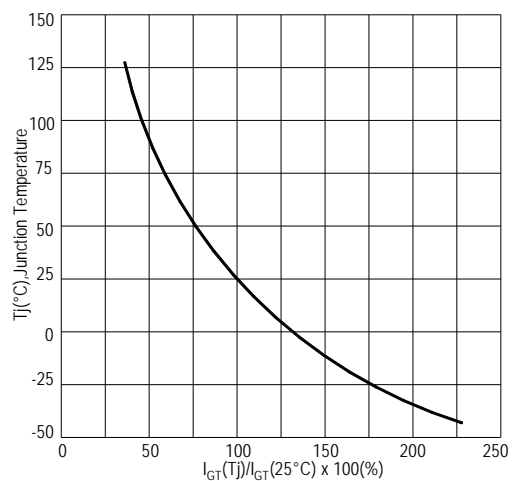


FIG.7: Holding current and Latching current VS Junction temperature

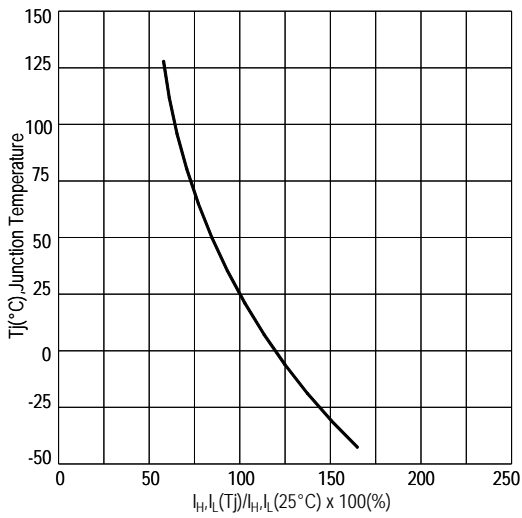


FIG.8: Gate trigger voltage VS Junction temperature

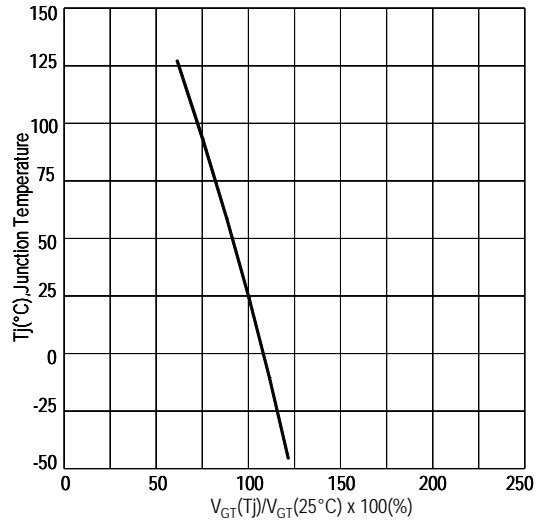
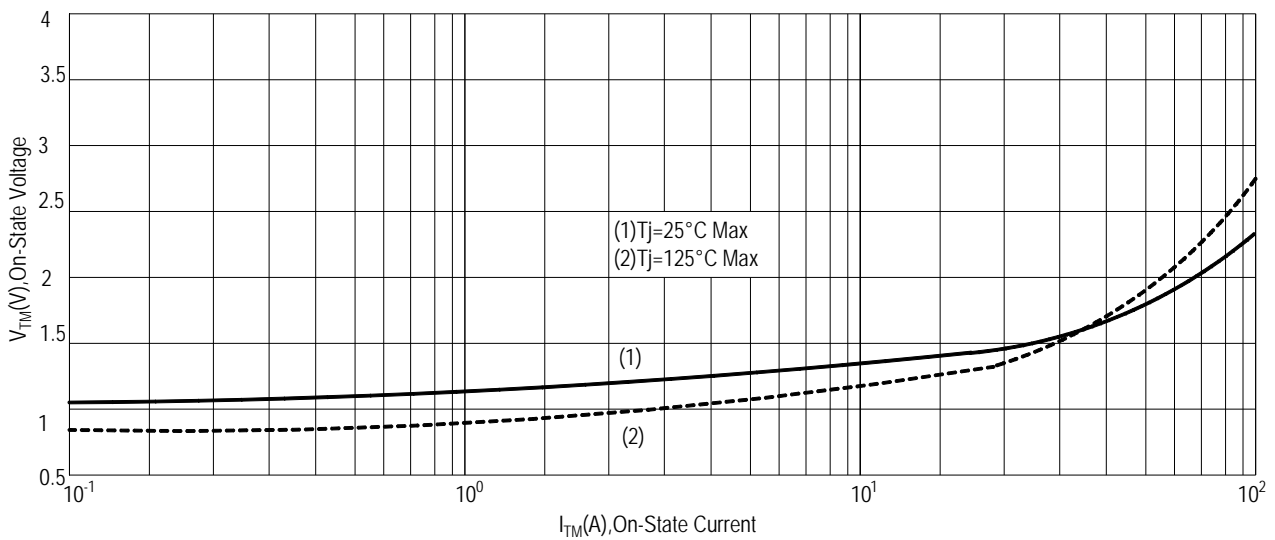
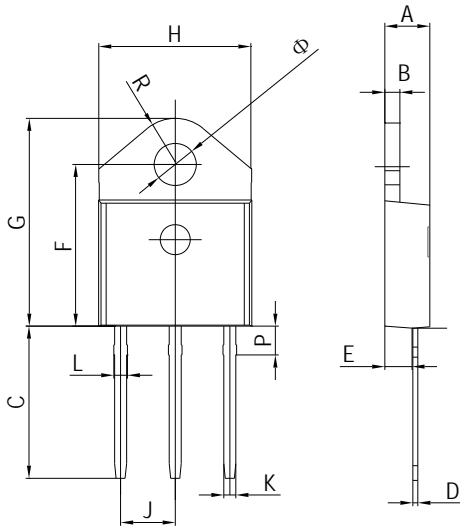


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-3P Package Dimension



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 4.4 | 4.6 | 0.173 | 0.181 |
| B | 1.45 | 1.55 | 0.057 | 0.061 |
| C | 14.35 | 15.60 | 0.565 | 0.614 |
| D | 0.5 | 0.7 | 0.020 | 0.028 |
| E | 2.7 | 2.9 | 0.106 | 0.114 |
| F | 15.8 | 16.5 | 0.622 | 0.650 |
| G | 20.4 | 21.1 | 0.815 | 0.831 |
| H | 15.1 | 15.5 | 0.594 | 0.610 |
| J | 5.4 | 5.65 | 0.213 | 0.222 |
| K | 1.2 | 1.4 | 0.047 | 0.055 |
| Ø | 4.08 | 4.20 | 0.161 | 0.165 |
| L | 1.35 | 1.50 | 0.053 | 0.059 |
| P | 2.8 | 3.0 | 0.110 | 0.118 |
| R | 4.60 typ. | | 0.181 typ. | |

Making Diagram

ADV: Logo
ADS25C60HB: Part number
X: Internal control code
H: Halogen Free

AD S 25 C 60 H S(B)

| | |
|---|---|
| <p>ADVANCED</p> <p>Internal control code</p> <p>Current: 25=25A</p> <p>Quadrant: C=3Q</p> <p>Voltage: 60=600V 80=800V</p> | <p>Sensitivity and type: S=10mA Blank=35mA B=50mA</p> <p>Package explain: H=TO-3P</p> |
|---|---|

Ordering information

| Part number | Package | Marking | Packing | Quantity |
|-------------|---------|------------|---------|----------|
| ADS25C60H# | TO-3P | ADS25C60H# | Tube | 30pcs |
| ADS25C80H# | TO-3P | ADS25C80H# | Tube | 30pcs |

Note: # = Gate Trigger Current Sensitivity and type

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