

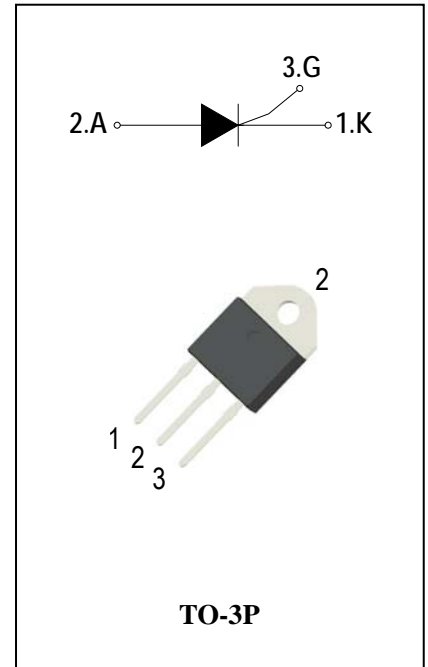
SCRs

General Description

The 40A SCR series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.

Features

- ◆ Repetitive Peak Off-State Voltage : 600V and 800V
- ◆ R.M.S On-State Current ($I_{T(RMS)}=40\text{ A}$)
- ◆ These are Pb-Free Devices



Absolute Maximum Ratings

| Symbol | Items | Conditions | | Ratings | Unit |
|--------------|--|--|-----------|------------|----------------------|
| V_{DRM} | Repetitive Peak Off-State Voltage | $T_j=25^\circ\text{C}$ | ADS40A60H | 600 | V |
| V_{RRM} | Repetitive peak reverse voltage | | ADS40A80H | 800 | V |
| $I_{T(AV)}$ | Average On-State Current | Half Sine Wave , $T_c = 95^\circ\text{C}$ | | 25 | A |
| $I_{T(RMS)}$ | R.M.S On-State Current | Half Sine Wave , $T_c = 95^\circ\text{C}$ | | 40 | A |
| I_{TSM} | Surge On-State Current | 1/2 Cycle, Sine Wave Non-Repetitive, $t_p=10\text{ms}(50\text{Hz})T_j = 25^\circ\text{C}$ | | 460 | A |
| I^2t | I^2t for Fusing | $T_j = 25^\circ\text{C}, t_p = 10\text{ms}$ | | 1060 | A^2S |
| P_{GM} | Forward Peak Gate Power Dissipation | $T_j = 125^\circ\text{C}, \text{Pulse Width} \leq 20\mu\text{s}$ | | 5 | W |
| $P_{G(AV)}$ | Forward Average Gate Power Dissipation | $T_j = 25^\circ\text{C}, t_p = 10\text{ms}$ | | 1 | W |
| I_{GM} | Peak Gate Current | $T_j = 125^\circ\text{C}, \text{Pulse Width} \leq 20\mu\text{s}$ | | 4 | A |
| 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 | | ADS40A60H/80H | | Unit |
|------------------------|---|--|------|---------------|-------|--------------------|
| | | | | S | Blank | |
| I_{DRM} I_{RRM} | Peak Forward Reverse Blocking Current | $V_{DRM} = V_{RRM}$ $T_j = 25^\circ\text{C}$ | Max. | 10 | | uA |
| | | $V_{DRM} = V_{RRM}$ $T_j = 125^\circ\text{C}$ | | 4 | | mA |
| V_{TM} | Peak On-State Voltage | $I_{TM} = 80\text{A}$, $t_p = 380 \mu\text{s}$ | Max. | 1.6 | | V |
| V_{GD} | Non-Trigger Gate Voltage | $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$ $T_j = 125^\circ\text{C}$ | Min. | 0.2 | | V |
| V_{GT} | Gate Trigger Voltage | $V_D = 12\text{V}$, $R_L = 33\Omega$ | Max. | 1.3 | | V |
| I_{GT} | Gate Trigger Current | | Max. | 15 | 30 | mA |
| I_H | Holding Current | $I_T = 0.5\text{A}$ | Max. | 30 | 40 | mA |
| I_L | Latching Current | $I_G = 1.2 I_{GT}$ | Max. | 50 | 50 | mA |
| dV/dt | Critical Rate of Rise of Off-State Voltage | $V_D = 2/3 V_{DRM}$ gate open $T_j = 125^\circ\text{C}$ | Min. | 1000 | 1500 | V/ μs |
| $R_{th(j-c)}$ | Junction to case (AC) | | Max. | 0.98 | | $^\circ\text{C/W}$ |
| $R_{th(j-a)}$ | Junction to ambient | | Max. | 50 | | $^\circ\text{C/W}$ |

FIG.1: Maximum average power dissipation (Single phase half wave)

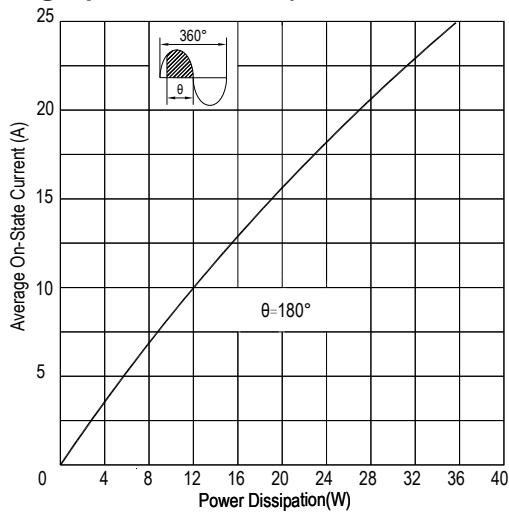


FIG.2: Average on-state current VS Allowable case Temperature(Single phase half wave)

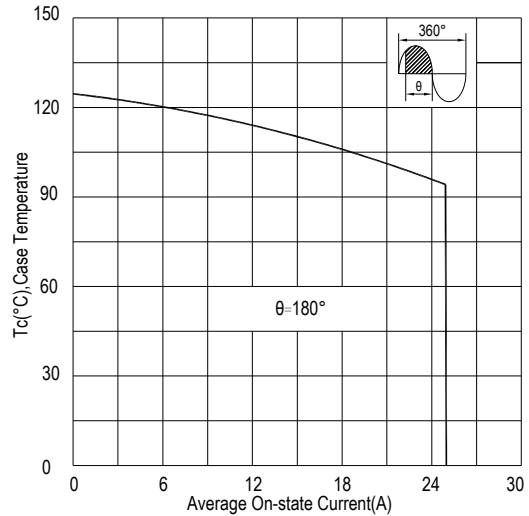


FIG.3: Gate trigger current VS Junction temperature

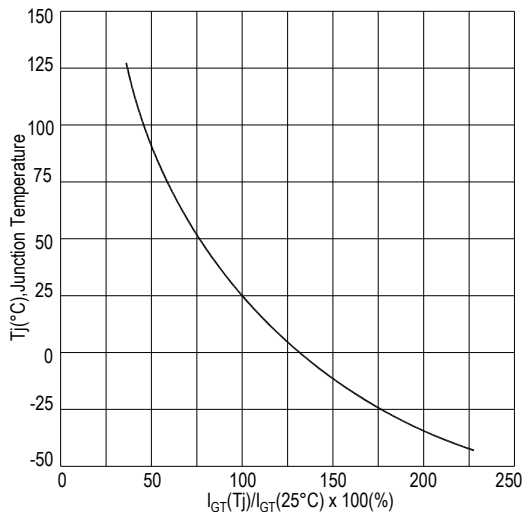


FIG.4: Rated surge on-state current (Non-Repetitive)

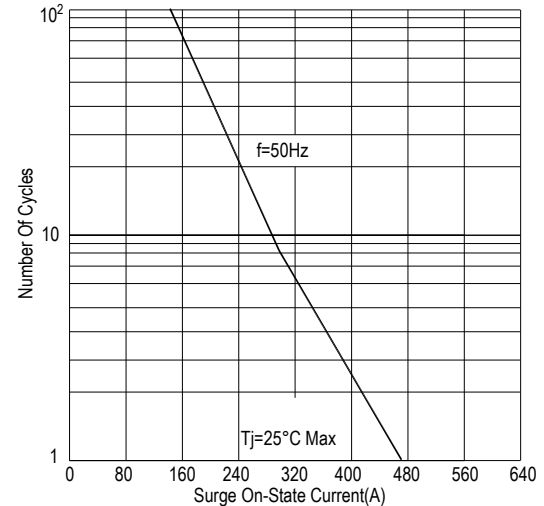


FIG.5: On-state characteristics(Max)

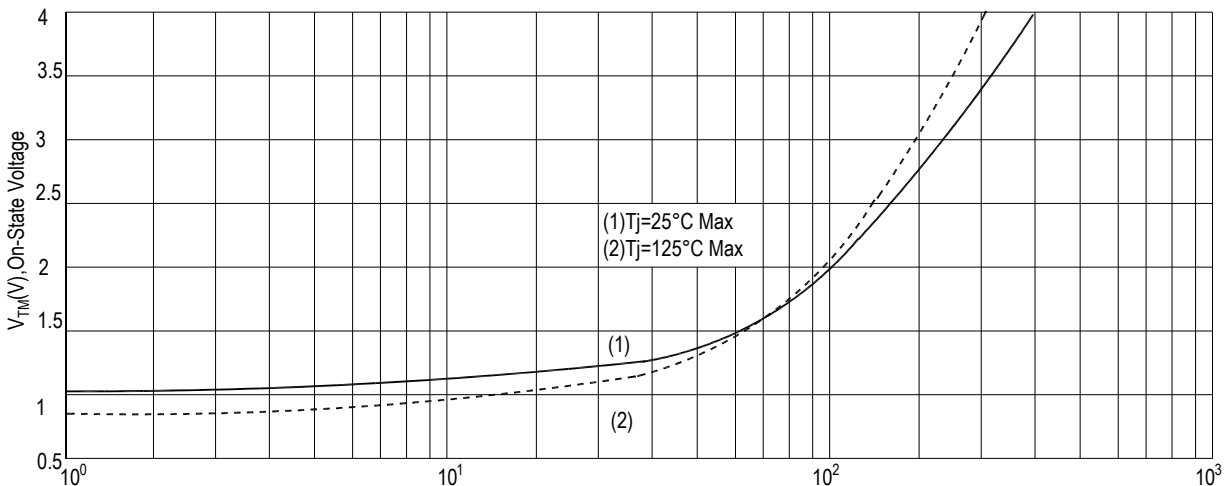


FIG.6: Holding current and Latching current VS Junction temperature

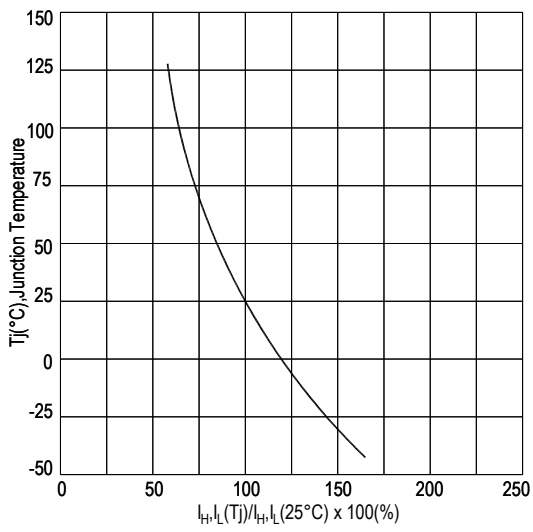
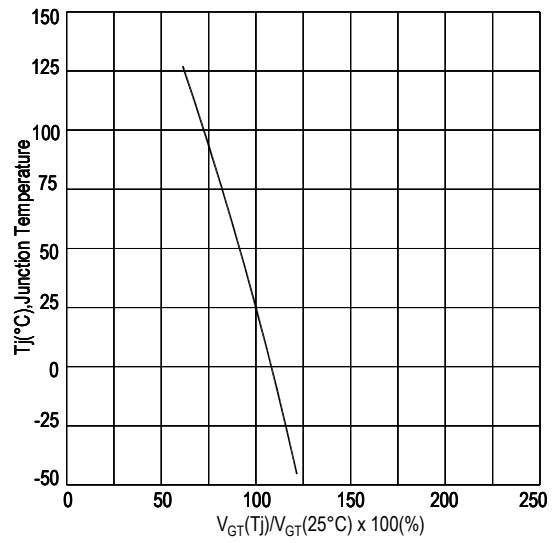
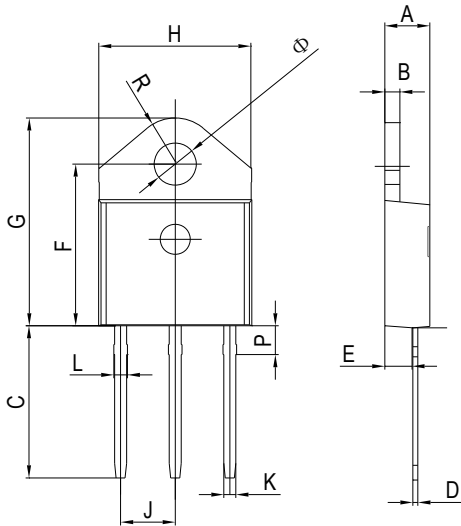


FIG.7: Gate trigger voltage VS Junction temperature



PACKAGE MECHANICAL DATA

TO-3P(isolated) 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
ADS40A80H:Part number
X:Internal control code
H:Halogen Free

AD S 40 A 80 H T(S)(W)

ADVANCED
Internal control code
Current:40=40A
SCR Series
Voltage:60=600V 80=800V

Sensitivity and type:
T=0.2mA
S=15mA
Blank=30mA
W=80mA

Package explain:H=TO-3P

Ordering information

| Part number | Package | Marking | Packing | Quantity |
|-------------|---------|------------|---------|----------|
| ADS40A60H# | TO-3P | ADS40A60H# | Tube | 30pcs |
| ADS40A80H# | TO-3P | ADS40A80H# | Tube | 30pcs |

Note:# = Gate Trigger Current Sensitivity and type

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