

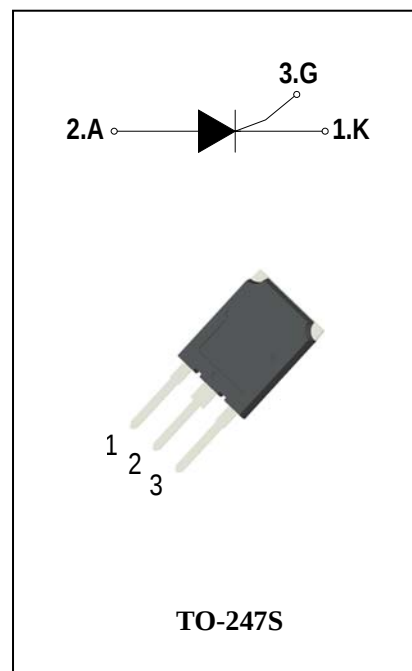
## SCRs

### General Description

The 105A 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 : 1600V
- ◆ R.M.S On-State Current (  $I_{T(RMS)}$  ) = 105 A )
- ◆ These are Pb-Free Devices



### Absolute Maximum Ratings

| Symbol              | Items                                     | Conditions                                                    |             | Ratings    | Unit             |
|---------------------|-------------------------------------------|---------------------------------------------------------------|-------------|------------|------------------|
| V <sub>DRM</sub>    | Repetitive Peak Off-State Voltage         | Tj=25°C                                                       | ADS105A160S | 1600       | V                |
| V <sub>RRM</sub>    | Repetitive peak reverse voltage           |                                                               |             |            | V                |
| I <sub>T(AV)</sub>  | Average On-State Current                  | Half Sine Wave , Tc = 80°C                                    |             | 70         | A                |
| I <sub>T(RMS)</sub> | R.M.S On-State Current                    | Half Sine Wave , Tc = 80°C                                    |             | 105        | A                |
| I <sub>TSM</sub>    | Surge On-State Current                    | 1/2 Cycle, Sine Wave Non-Repetitive,<br>tp=10ms(50Hz)Tj =25°C |             | 1500       | A                |
| I <sup>2</sup> t    | I <sup>2</sup> t for Fusing               | Tj =25°C,tp =10ms                                             |             | 7800       | A <sup>2</sup> S |
| P <sub>GM</sub>     | Forward Peak Gate Power Dissipation       | Tj =125°C, Pulse Width ≤ 20μs                                 |             | 20         | W                |
| P <sub>G(AV)</sub>  | Forward Average Gate Power<br>Dissipation | Tj =25°C, tp =10ms                                            |             | 2          | W                |
| I <sub>GM</sub>     | Peak Gate Current                         | Tj =125°C, Pulse Width ≤ 20μs                                 |             | 10         | A                |
| Tj                  | Operating Junction Temperature            |                                                               |             | - 40 ~ 125 | °C               |
| T <sub>STG</sub>    | Storage Temperature                       |                                                               |             | - 40 ~ 150 | °C               |

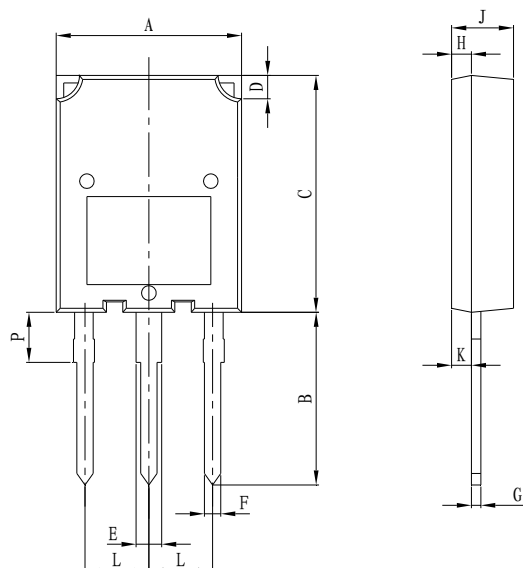


**Electrical Characteristics** (  $T_j = 25^\circ\text{C}$  unless otherwise specified )

| Symbol                               | Items                                         | Conditions                                                                      |      | ADS105A160S |       |      | Unit               |
|--------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------|------|-------------|-------|------|--------------------|
|                                      |                                               |                                                                                 |      | S           | Blank | W    |                    |
| $I_{\text{DRM}}$<br>$I_{\text{RRM}}$ | Peak Forward Reverse<br>Blocking Current      | $V_{\text{DRM}} = V_{\text{RRM}}$<br>$T_j = 25^\circ\text{C}$                   | Max. | 50          |       |      | $\mu\text{A}$      |
|                                      |                                               | $V_{\text{DRM}} = V_{\text{RRM}}$<br>$T_j = 125^\circ\text{C}$                  |      | 10          |       |      | mA                 |
| $V_{\text{TM}}$                      | Peak On-State Voltage                         | $I_{\text{TM}} = 110\text{A}$ , $t_p = 380\ \mu\text{s}$                        | Max. | 1.8         |       |      | V                  |
| $V_{\text{GD}}$                      | Non-Trigger Gate Voltage                      | $V_D = V_{\text{DRM}}$ $R_L = 3.3\ \text{k}\Omega$<br>$T_j = 125^\circ\text{C}$ | Min. | 0.25        |       |      | V                  |
| $V_{\text{GT}}$                      | Gate Trigger Voltage                          | $V_D = 12\text{V}$ , $R_L = 33\Omega$                                           | Max. | 1.5         |       |      | V                  |
| $I_{\text{GT}}$                      | Gate Trigger Current                          |                                                                                 | Max. | 15          | 30    | 80   | mA                 |
| $I_{\text{H}}$                       | Holding Current                               | $I_T = 1\text{A}$                                                               | Max. | 30          | 40    | 150  | mA                 |
| $I_{\text{L}}$                       | Latching Current                              | $I_G = 1.2\ I_{\text{GT}}$                                                      | Max. | 50          | 60    | 200  | mA                 |
| $dV/dt$                              | Critical Rate of Rise of<br>Off-State Voltage | $V_D = 2/3V_{\text{DRM}}$ gate open<br>$T_j = 125^\circ\text{C}$                | Min. | 1000        | 1200  | 1500 | V/ $\mu\text{s}$   |
| $R_{\text{th(j-c)}}$                 | Junction to case (AC)                         |                                                                                 | Max. | 0.27        |       |      | $^\circ\text{C/W}$ |
| $R_{\text{th(j-a)}}$                 | Junction to ambient                           |                                                                                 | Max. | 50          |       |      | $^\circ\text{C/W}$ |

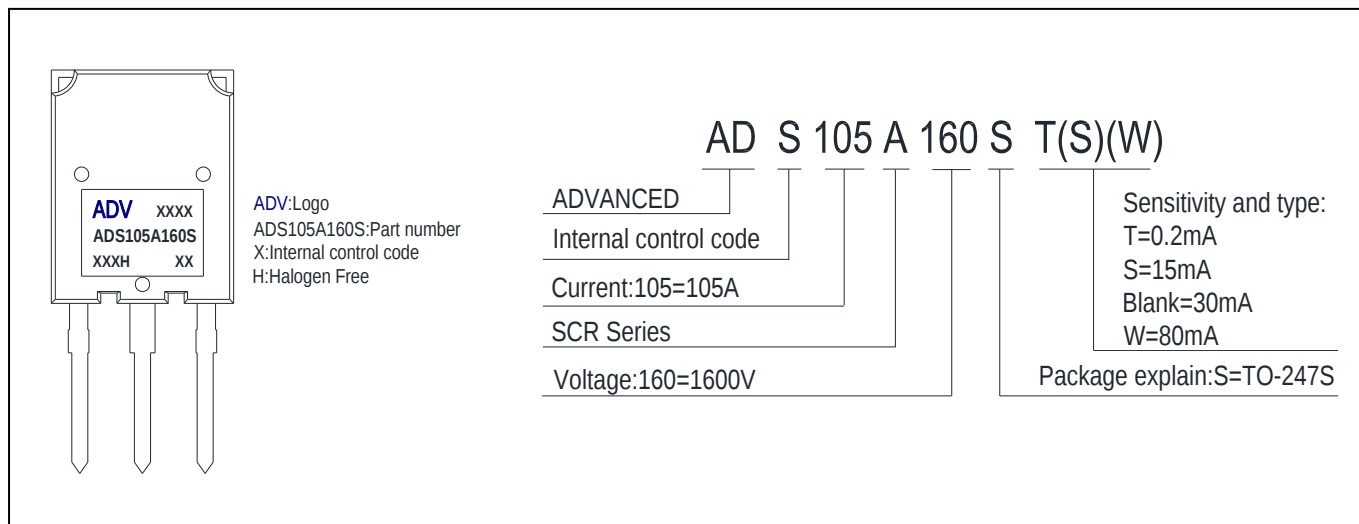
## PACKAGE MECHANICAL DATA

### TO-247S Package Dimension



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 15.10                     | 16.10 | 0.595                | 0.632 |
| B      | 13.80                     | 14.80 | 0.544                | 0.582 |
| C      | 19.80                     | 20.80 | 0.780                | 0.818 |
| D      | 2.00                      | 2.40  | 0.079                | 0.095 |
| E      | 2.75                      | 3.35  | 0.108                | 0.132 |
| F      | 1.30                      | 1.50  | 0.051                | 0.059 |
| G      | 0.55                      | 0.80  | 0.022                | 0.032 |
| H      | 1.45                      | 2.15  | 0.058                | 0.084 |
| J      | 4.50                      | 5.50  | 0.178                | 0.216 |
| K      | 1.90                      | 2.80  | 0.075                | 0.110 |
| L      | 5.10                      | 5.80  | 0.201                | 0.228 |
| P      | 3.00                      | 4.00  | 0.108                | 0.157 |

### Making Diagram



### Ordering information

| Part number  | Package | Marking      | Packing | Quantity |
|--------------|---------|--------------|---------|----------|
| ADS105A160S# | TO-247S | ADS105A160S# | Tube    | 25pcs    |

Note: # = Gate Trigger Current Sensitivity and type

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