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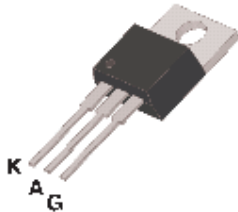
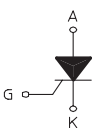
### Product: Standard Gate SCRs

Standard SCRs uses a high performance glass passivated technology.

This general purpose Family of Silicon Controlled Rectifiers is designed for power supplies.

| Product                  | Family     | $I_{T(RMS)}$ | $V_{RRM}/V_{DRM}$<br>(V) | $I_{TSM}$<br>(A) | $I_{GT\ min}$<br>( $\mu A$ ) | $I_{GT\ min}$<br>(mA) | $I_{GT\ max}$<br>( $\mu A$ ) | $I_{GT\ max}$<br>(mA) | $dv/dt_{(min)}$<br>V/ $\mu s$ | PACKAGE |
|--------------------------|------------|--------------|--------------------------|------------------|------------------------------|-----------------------|------------------------------|-----------------------|-------------------------------|---------|
| <a href="#">FS1610MH</a> | FS16H(StG) | 16           | 600                      | 190              | 2                            |                       |                              | 25                    | 500                           | TO220AB |

**STANDARD SCR**

|  |   |
|--|---|
| <p><b>TO-220-AB</b></p>   | <p style="text-align: center;"><b>On-State Current</b>      <b>Gate Trigger Current</b></p> <p style="text-align: center;">16 Amp                      2 mA to 40 mA</p> <p style="text-align: center;"><b>Off-State Voltage</b></p> <p style="text-align: center;">200 V ÷ 800 V</p> <p>These series of <b>Silicon Controlled Rectifier</b> use a high performance PNP technology.</p> <p>These parts are intended for general purpose applications where high gate sensitivity is required.</p> |
|--|---|

**Absolute Maximum Ratings, according to IEC publication No. 134**

| SYMBOL       | PARAMETER                       | CONDITIONS  | Value         | Unit             |
|--------------|---------------------------------|---|---------------|------------------|
| $I_{T(RMS)}$ | On-state Current                | 180° Conduction Angle, $T_c = 110\text{ °C}$                | 16            | A                |
| $I_{T(AV)}$  | Average On-state Current        | Half Cycle, $\Theta = 180\text{ °}$ , $T_c = 110\text{ °C}$ | 10            | A                |
| $I_{TSM}$    | Non-repetitive On-State Current | Half Cycle, 60 Hz   | 200           | A                |
| $I_{TSM}$    | Non-repetitive On-State Current | Half Cycle, 50 Hz   | 190           | A                |
| $I^2t$       | Fusing Current                  | $t_p = 10\text{ms}$ , Half Cycle                            | 180           | A <sup>2</sup> s |
| $I_{GM}$     | Peak Gate Current               | 20 $\mu\text{s}$ max.                                       | 4             | A                |
| $P_{GM}$     | Peak Gate Dissipation           | 20 $\mu\text{s}$ max.                                       | 10            | W                |
| $P_{G(AV)}$  | Gate Dissipation                | 20ms max.   | 1             | W                |
| $T_j$        | Operating Temperature           |   | (-40 to +125) | °C               |
| $T_{stg}$    | Storage Temperature             |   | (-40 to +150) | °C               |
| $T_{slid}$   | Soldering Temperature           | 10s max.  | 260           | °C               |
| $V_{RGM}$    | Reverse Gate Voltage            |   | 5             | V                |

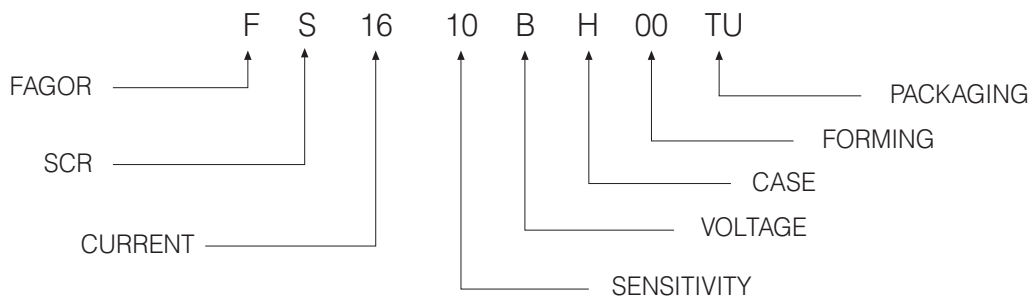
| SYMBOL                 | PARAMETER                         | CONDITIONS                  | VOLTAGE |     |     |     |     | Unit |
|------------------------|-----------------------------------|-----------------------------|---------|-----|-----|-----|-----|------|
|                        |                                   |                             | B       | D   | M   | S   | N   |      |
| $V_{DRM}$<br>$V_{RRM}$ | Repetitive Peak Off State Voltage | $R_{GK} = 1\text{ k}\Omega$ | 200     | 400 | 600 | 700 | 800 | V    |

## STANDARD SCR

### Electrical Characteristics

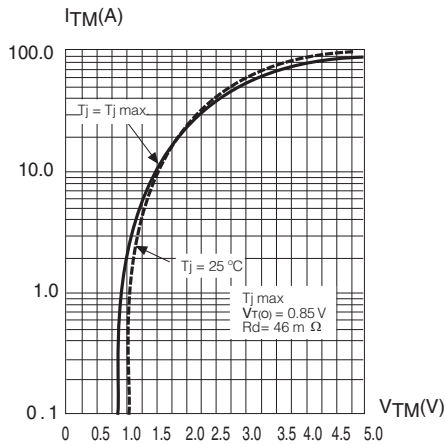
| SYMBOL              | PARAMETER                               | CONDITIONS  | SENSITIVITY |      | Uni  |            |
|---------------------|---|---|-------------|------|------|------------|
|                     |   |   | 10          | 14   |      |            |
| $I_{GT}$            | Gate Trigger Current                    | $V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$                                   | MIN         | 2    | 4    | mA         |
|                     |   |   | MAX         | 25   | 40   |            |
| $V_{GT}$            | Gate Trigger Voltage                    | $V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25^\circ C$                                   | MAX         | 1.3  |      | V          |
| $V_{GD}$            | Gate Non Trigger Voltage                | $V_D = V_{DRM}, R_L = 3.3k\Omega, R_{GK} = 220\Omega, T_j = 125^\circ C$              | MIN         | 0.2  |      | V          |
| $I_H$               | Holding Current                         | $I_T = 500 \text{ mA}$  | MAX         | 40   | 50   | mA         |
| $I_L$               | Latching Current                        | $I_G = 1.2 I_{GT}$  | MAX         | 60   | 90   | mA         |
| $dV / dt$           | Critical Rate of Voltage Rise           | $V_D = 0.67 \times V_{DRM}, \text{ Gate open}, T_j = 125^\circ C$                     | MIN         | 500  | 1000 | V/ $\mu$ s |
| $dI / dt$           | Critical Rate of Current Rise           | $I_G = 2 \times I_{GT}, Tr \leq 100 \text{ ns}, f = 60 \text{ Hz}, T_j = 125^\circ C$ | MIN         | 50   |      | A/ $\mu$ s |
| $V_{TM}$            | On-state Voltage                        | at $I_T = 32 \text{ Amp}, tp = 380 \mu\text{s}, T_j = 25^\circ C$                     | MAX         | 1.6  |      | V          |
| $V_{t0}$            | Threshold Voltage                       | $T_j = 125^\circ C$   | MAX         | 0.77 |      | V          |
| $r_d$               | Dynamic resistance                      | $T_j = 125^\circ C$   | MAX         | 23   |      | m $\Omega$ |
| $I_{DRM} / I_{RRM}$ | Off-State Leakage Current               | $V_D = V_{DRM}, R_{GK} = 1k\Omega, V_R = V_{RRM}, T_j = 125^\circ C$                  | MAX         | 2    |      | mA         |
|                     |   |   | MAX         | 5    |      | $\mu$ A    |
| $R_{th(j-c)}$       | Thermal Resistance Junction-Case for DC | for AC 360° conduction angle  |             | 1.1  |      | °C/W       |
| $R_{th(j-a)}$       | Thermal Resistance Junction-Amb for DC  | $S = 1 \text{ cm}^2$  |             | 60   |      | °C/W       |

### PART NUMBER INFORMATION



**STANDARD SCR**

Fig. 7: On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**

**TO-220AB**

| REF. | DIMENSIONS  |       |
|------|-------------|-------|
|      | Millimeters |       |
|      | Min.        | Max.  |
| A    | 3.56        | 4.83  |
| A1   | 0.50        | 1.40  |
| A2   | 2.00        | 2.92  |
| b    | 0.38        | 1.02  |
| b2   | 1.14        | 1.78  |
| c    | 0.35        | 0.61  |
| D    | 14.22       | 16.51 |
| D1   | 8.38        | 9.02  |
| E    | 9.65        | 10.67 |
| e    | 2.49        | 2.59  |
| e1   | 5.03        | 5.13  |
| H1   | 5.84        | 6.86  |
| L    | 12.70       | 14.74 |
| L1   |             | 6.35  |
| P    | 3.53        | 4.09  |
| Q    | 2.54        | 3.43  |

**Mounting Torque**

**1 N.m**

(\*). Limiting values and life support applications, see Web page.