



# P0130AA

SENSITIVE

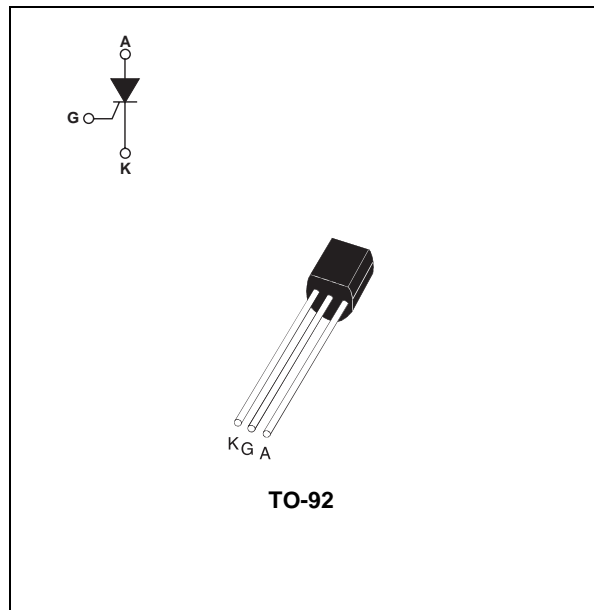
0.8A SCRs

## MAIN FEATURES:

| Symbol            | Value | Unit    |
|-------------------|-------|---------|
| $I_{T(RMS)}$      | 0.8   | A       |
| $V_{DRM}/V_{RRM}$ | 100   | V       |
| $I_{GT}$          | 1     | $\mu A$ |

## DESCRIPTION

The P0130AA is a gate sensitive SCR, packaged in TO-92, used in conjunction of a TN22 A.S.D™ and of a resistor in electronic starter for fluorescent tubelamps.



## ABSOLUTE RATINGS (limiting values)

| Symbol             | Parameter  |                        | Value                     | Unit                           |            |
|--------------------|--|------------------------|---------------------------|--------------------------------|------------|
| $I_{T(RMS)}$       | RMS on-state current (180° conduction angle)   |                        | $T_I = 55^\circ C$<br>0.8 | A                              |            |
| $I_{T(AV)}$        | Average on-state current (180° conduction angle)   |                        | $T_I = 55^\circ C$<br>0.5 | A                              |            |
| $I_{TSM}$          | Non repetitive surge peak on-state current   | $t_p = 8.3 \text{ ms}$ | $T_j = 25^\circ C$        | 8                              | A          |
|                    |  | $t_p = 10 \text{ ms}$  |                           | 7                              |            |
| $I^2t$             | $I^2t$ Value for fusing  | $t_p = 10 \text{ ms}$  | $T_j = 25^\circ C$        | 0.24                           | $A^2s$     |
| $di/dt$            | Critical rate of rise of on-state current<br>$I_G = 2 \times I_{GT}$ , $t_r \leq 100 \text{ ns}$ | $F = 60 \text{ Hz}$    | $T_j = 125^\circ C$       | 50                             | $A/\mu s$  |
| $I_{GM}$           | Peak gate current  | $t_p = 20 \mu s$       | $T_j = 125^\circ C$       | 1                              | A          |
| $P_{G(AV)}$        | Average gate power dissipation   |                        | $T_j = 125^\circ C$       | 0.1                            | W          |
| $T_{stg}$<br>$T_j$ | Storage junction temperature range<br>Operating junction temperature range                       |                        |                           | - 40 to + 150<br>- 40 to + 125 | $^\circ C$ |

## P0130AA

### ELECTRICAL CHARACTERISTICS (T<sub>j</sub> = 25°C, unless otherwise specified)

| Symbol                               | Test Conditions   |                        | P0130AA | Unit |      |
|--------------------------------------|---|------------------------|---------|------|------|
| I <sub>GT</sub>                      | V <sub>D</sub> = 12 V    R <sub>L</sub> = 140 Ω                                     | MIN.                   | 0.1     | μA   |      |
|                                      |   | MAX.                   | 1       |      |      |
| V <sub>GT</sub>                      |   | MAX.                   | 0.8     | V    |      |
| V <sub>GD</sub>                      | V <sub>D</sub> = V <sub>DRM</sub> R <sub>L</sub> = 3.3 kΩ    R <sub>GK</sub> = 1 kΩ | T <sub>j</sub> = 125°C | MIN.    | 0.1  | V    |
| V <sub>RG</sub>                      | I <sub>RG</sub> = 10 μA   |                        | MIN.    | 8    | V    |
| I <sub>H</sub>                       | I <sub>T</sub> = 50 mA    R <sub>GK</sub> = 1 kΩ                                    |                        | MAX.    | 5    | mA   |
| I <sub>L</sub>                       | I <sub>G</sub> = 1 mA    R <sub>GK</sub> = 1 kΩ                                     |                        | MAX.    | 6    | mA   |
| dV/dt                                | V <sub>D</sub> = 67 % V <sub>DRM</sub> R <sub>GK</sub> = 1 kΩ                       | T <sub>j</sub> = 125°C | MIN.    | 25   | V/μs |
| V <sub>TM</sub>                      | I <sub>TM</sub> = 1.6 A    t <sub>p</sub> = 380 μs                                  | T <sub>j</sub> = 25°C  | MAX.    | 1.95 | V    |
| V <sub>t0</sub>                      | Threshold voltage   | T <sub>j</sub> = 125°C | MAX.    | 0.95 | V    |
| R <sub>d</sub>                       | Dynamic resistance  | T <sub>j</sub> = 125°C | MAX.    | 600  | mΩ   |
| I <sub>DRM</sub><br>I <sub>RRM</sub> | V <sub>DRM</sub> = V <sub>RDM</sub> R <sub>GK</sub> = 1 kΩ                          | T <sub>j</sub> = 25°C  | MAX.    | 1    | μA   |
|                                      |   | T <sub>j</sub> = 125°C | MAX.    | 100  |      |

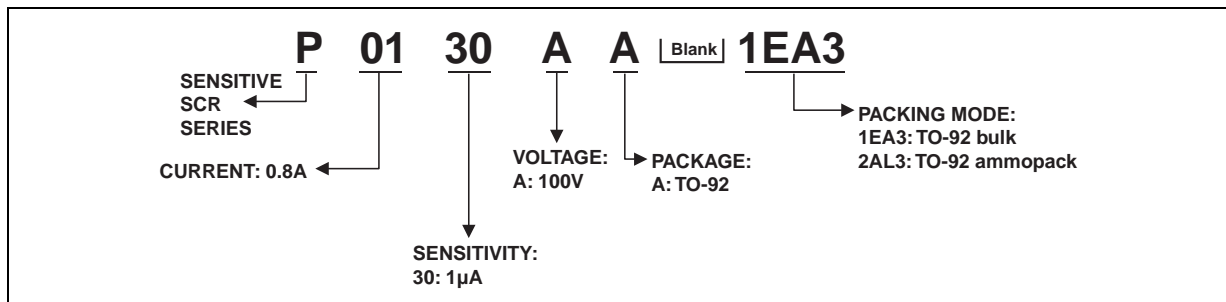
### THERMAL RESISTANCES

| Symbol               | Parameter                | Value | Unit |
|----------------------|--------------------------|-------|------|
| R <sub>th(j-i)</sub> | Junction to case (DC)    | 80    | °C/W |
| R <sub>th(j-a)</sub> | Junction to ambient (DC) | 150   | °C/W |

### PRODUCT SELECTOR

| Part Number | Voltage | Sensitivity | Package |
|-------------|---------|-------------|---------|
| P0130AA     | 100V    | 1 μA        | TO-92   |

ORDERING INFORMATION



OTHER INFORMATION

| Part Number  | Marking | Weight | Base Quantity | Packing mode |
|--------------|---------|--------|---------------|--------------|
| P0130AA 1EA3 | P0130AA | 0.2 g  | 2500          | Bulk         |
| P0130AA 2AL3 | P0130AA | 0.2 g  | 2000          | Ampmpack     |

Note: xx = sensitivity, y = voltage

Fig. 1: Maximum average power dissipation versus average on-state current.

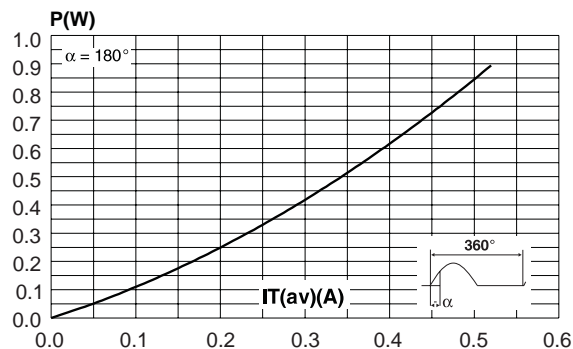


Fig. 2-2: Average and D.C. on-state current versus ambient temperature.

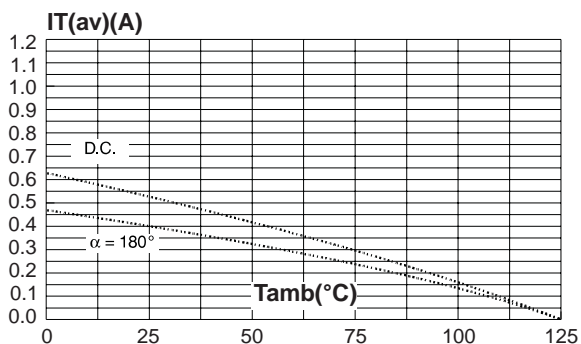


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

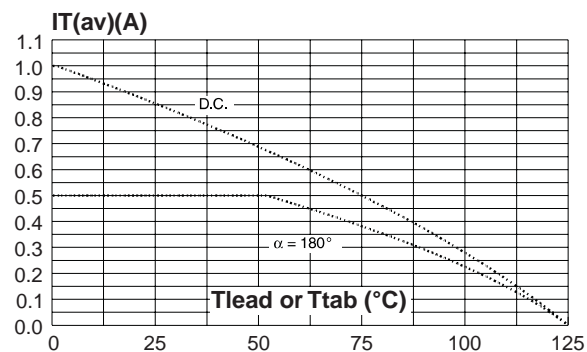
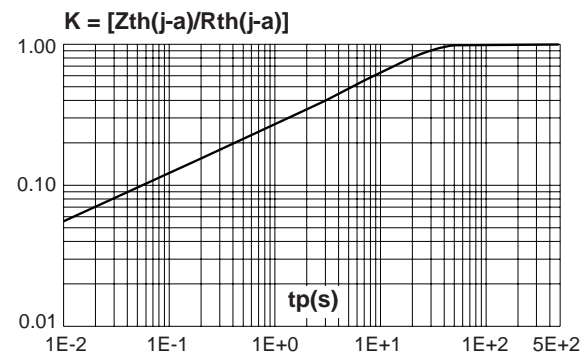
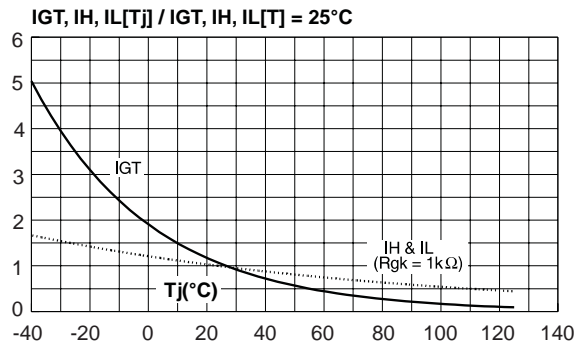


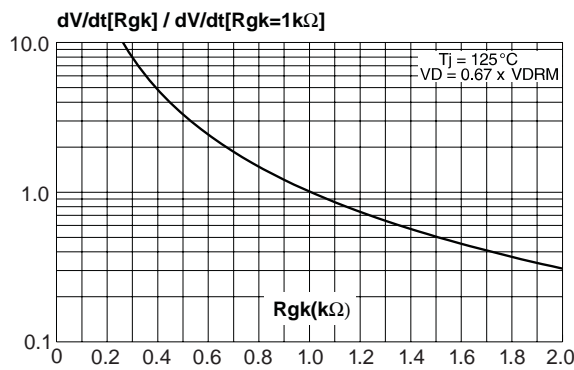
Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.



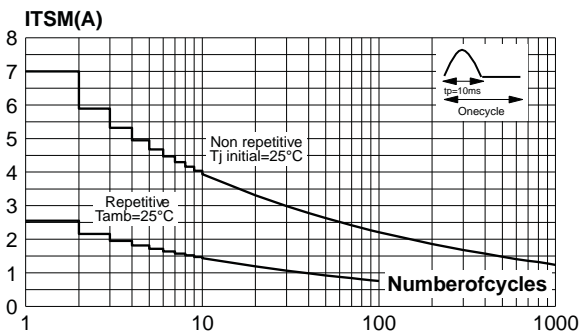
**Fig. 4:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).



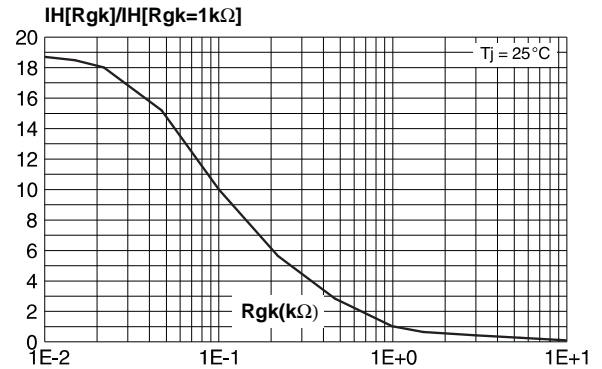
**Fig. 6:** Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).



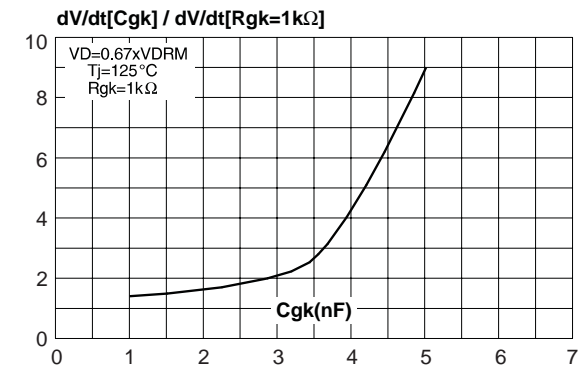
**Fig. 8:** Surge peak on-state current versus number of cycles.



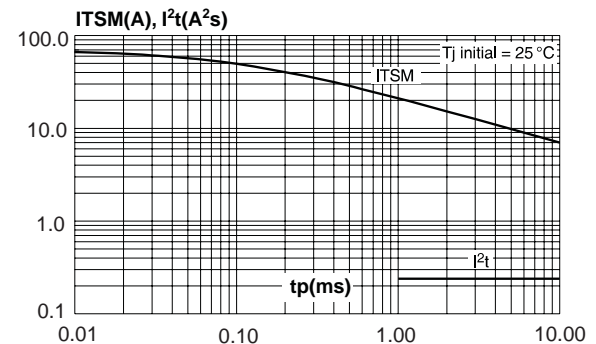
**Fig. 5:** Relative variation of holding current versus gate-cathode resistance (typical values).



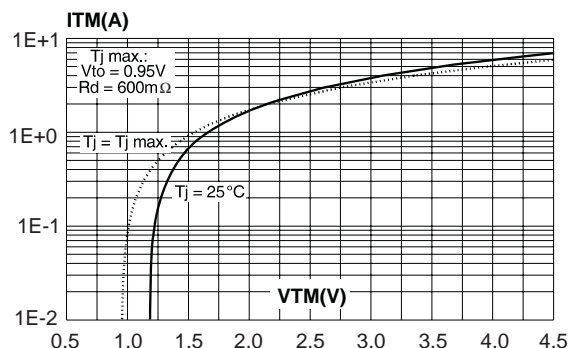
**Fig. 7:** Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).



**Fig. 9:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10$  ms, and corresponding value of  $I^2t$ .

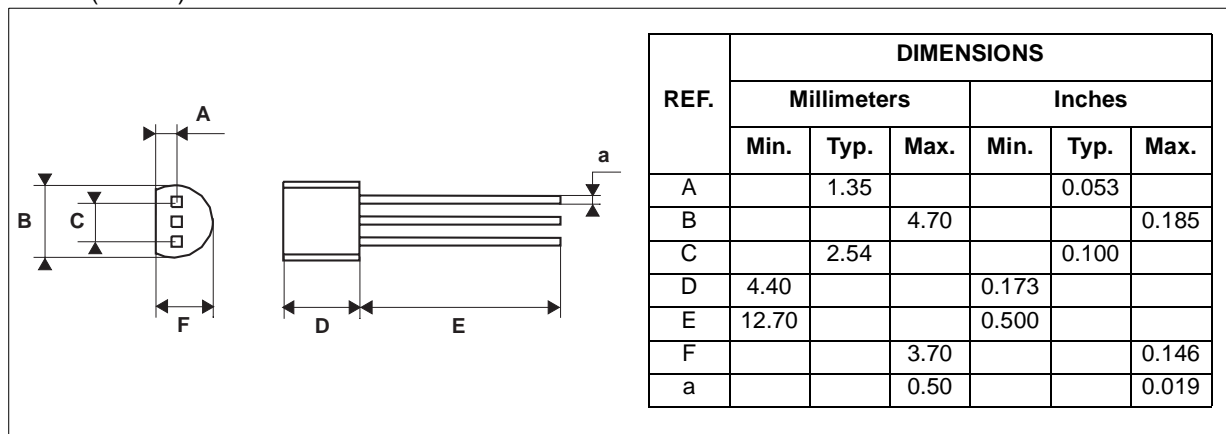


**Fig. 10:** On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**

TO-92 (Plastic)



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