

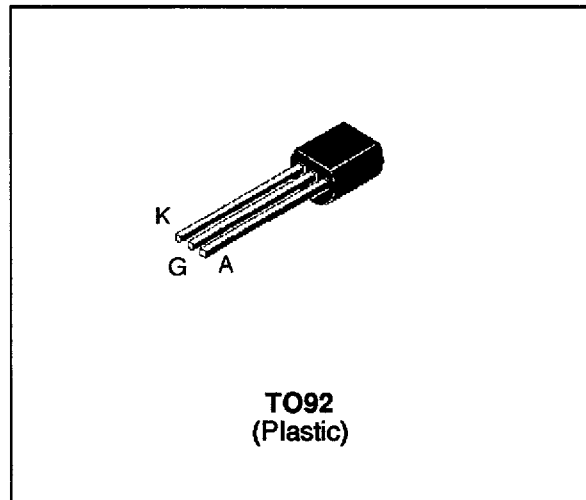
SENSITIVE GATE SCR

FEATURES

- $I_{T(RMS)} = 0.8A$
- $V_{DRM} = 500V$ to $800V$
- Low $I_{GT} \leq 20 \mu A$ max to $< 200 \mu A$

DESCRIPTION

The P020xxA series of SCRs uses a high performance planar PNP technology. These parts are intended for general purpose applications where low gate sensitivity is required.



ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|--------------------|---|--------------------|----------------------------|------------|
| $I_{T(RMS)}$ | RMS on-state current (180° conduction angle) | $T_I = 80^\circ C$ | 0.8 | A |
| $I_{T(AV)}$ | Mean on-state current (180° conduction angle) | $T_I = 80^\circ C$ | 0.5 | A |
| I_{TSM} | Non repetitive surge peak on-state current (T_j initial = $25^\circ C$) | $t_p = 8.3$ ms | 8 | A |
| | | $t_p = 10$ ms | 7 | |
| I^2t | I^2t Value for fusing | $t_p = 10$ ms | 0.24 | A^2s |
| di/dt | Critical rate of rise of on-state current $I_G = 10$ mA $di_G/dt = 0.1$ A/ μs . | | 30 | A/ μs |
| T_{stg} T_j | Storage and operating junction temperature range | | - 40, + 150 - 40, + 125 | $^\circ C$ |
| T_I | Maximum lead temperature for soldering during 10s at 2mm from case | | 260 | $^\circ C$ |

| Symbol | Parameter | Voltage | | | | Unit |
|------------------------|--|---------|-----|-----|-----|------|
| | | E | M | S | N | |
| V_{DRM} V_{RRM} | Repetitive peak off-state voltage $T_j = 125^\circ C$ $R_{GK} = 1K\Omega$ | 500 | 600 | 700 | 800 | V |

P0201xA / P0202xA

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|----------|--------------------------|-------|------|
| Rth(j-a) | Junction to ambient | 150 | °C/W |
| Rth(j-l) | Junction to leads for DC | 60 | °C/W |

GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 0.1 \text{ W}$ $P_{GM} = 2 \text{ W}$ (tp = 20 μs) $I_{GM} = 1 \text{ A}$ (tp = 20 μs)

ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | | | Sensitivity | | Unit |
|--------------|--|-----------|-----|-------------|-----|------|
| | | | | 01 | 02 | |
| IGT | VD=12V (DC) RL=140Ω | Tj= 25°C | MIN | 1 | | μA |
| | | | MAX | 20 | 200 | |
| VGT | VD=12V (DC) RL=140Ω | Tj= 25°C | MAX | 0.8 | | V |
| VGD | VD=VDRM RL=3.3kΩ RGK = 1 KΩ | Tj= 125°C | MIN | 0.1 | | V |
| V_RGM | IRG =10μA | Tj= 25°C | TYP | 24 | | V |
| tgd | VD=VDRM ITM= 3 x IT(AV) dIG/dt = 0.1A/μs IG = 10mA | Tj= 25°C | TYP | 0.5 | | μs |
| IH | IT= 50mA RGK = 1 KΩ | Tj= 25°C | MAX | 5 | | mA |
| IL | IG=1mA RGK = 1 KΩ | Tj= 25°C | MAX | 6 | | mA |
| VTM | ITM= 1.6A tp= 380μs | Tj= 25°C | MAX | 1.75 | | V |
| IDRM IRRM | VD = VDRM RGK = 1 KΩ VR = VRRM | Tj= 25°C | MAX | 10 | | μA |
| | | Tj= 125°C | MAX | 100 | | μA |
| dV/dt | VD=67%VDRM RGK = 1 KΩ | Tj= 125°C | TYP | 100 | | V/μs |
| tq | ITM= 3 x IT(AV) VR=35V dI/dt=10A/μs tp=100μs dV/dt=2V/μs VD= 67%VDRM RGK = 1 KΩ | Tj= 125°C | MAX | 200 | | μs |

ORDERING INFORMATION

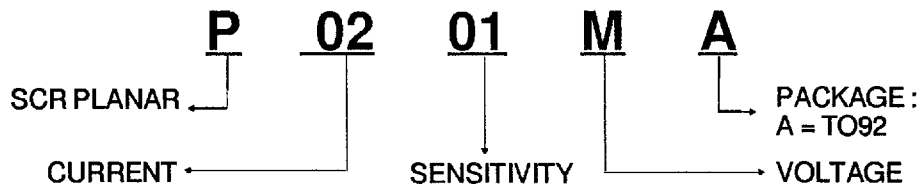


Fig.1 : Maximum average power dissipation versus average on-state current.

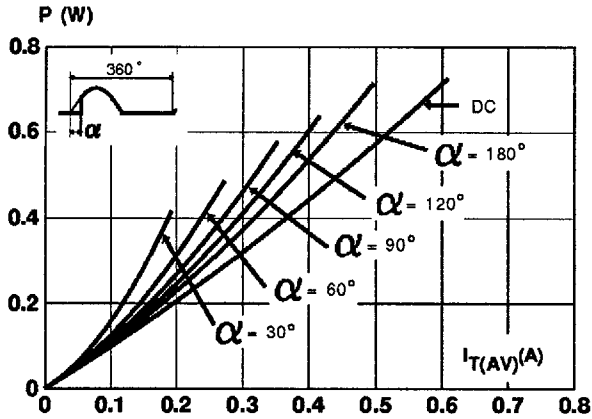


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tlead).

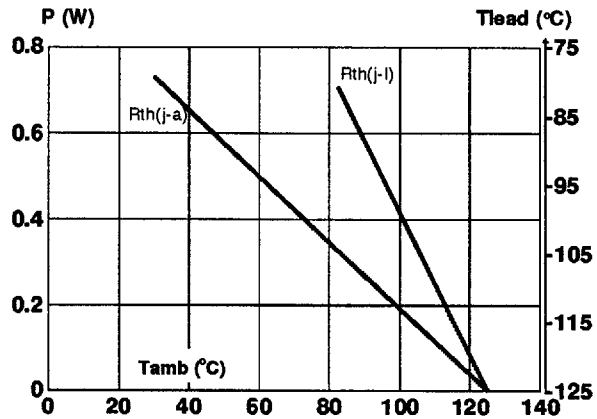


Fig.3 : Average on-state current versus lead temperature.

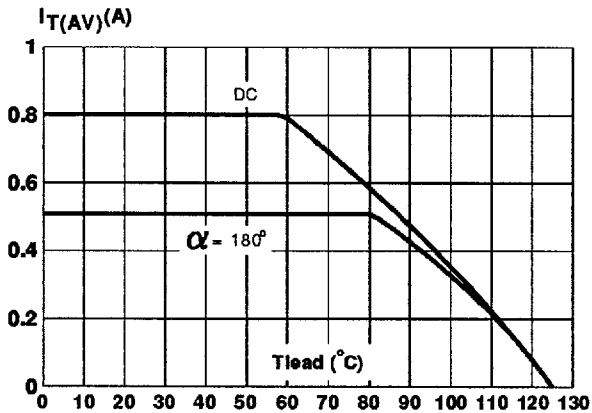


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

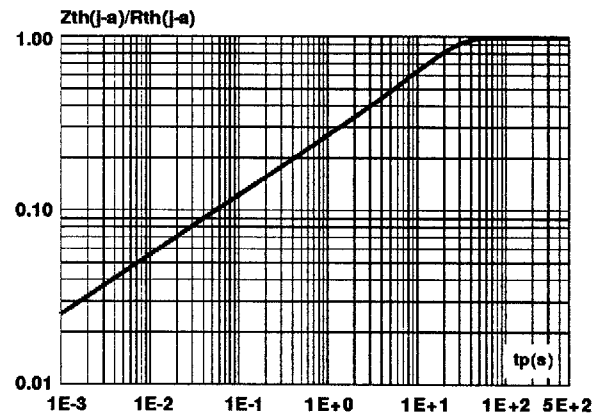


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

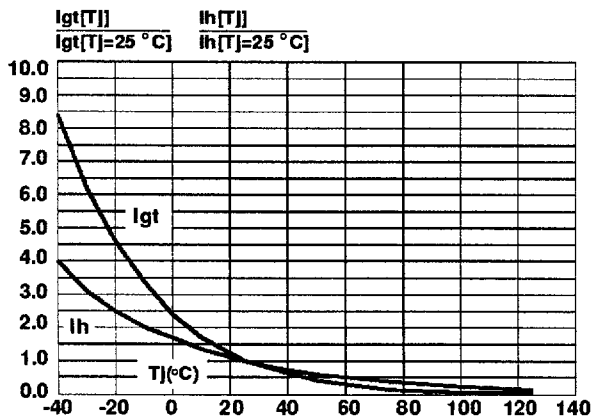


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

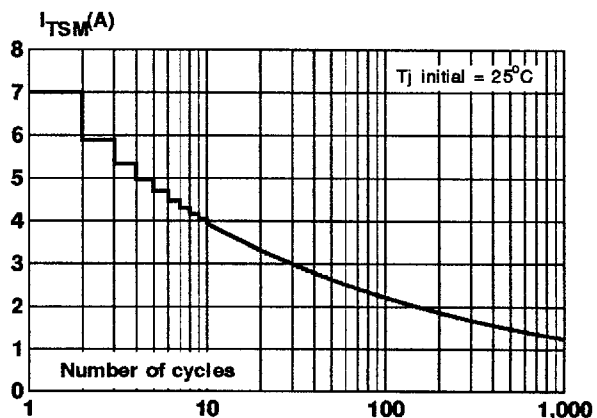


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t_p \leq 10\text{ms}$, and corresponding value of I^2t .

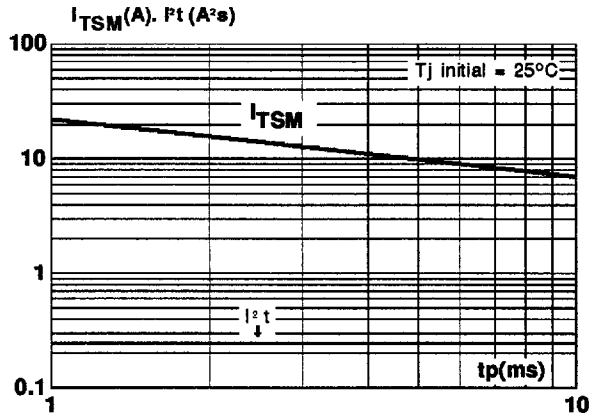


Fig.8 : On-state characteristics (maximum values).

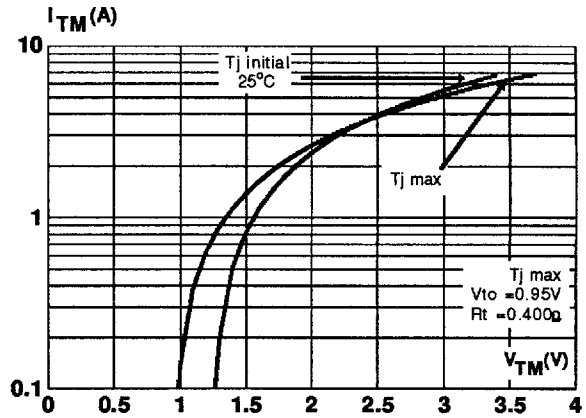
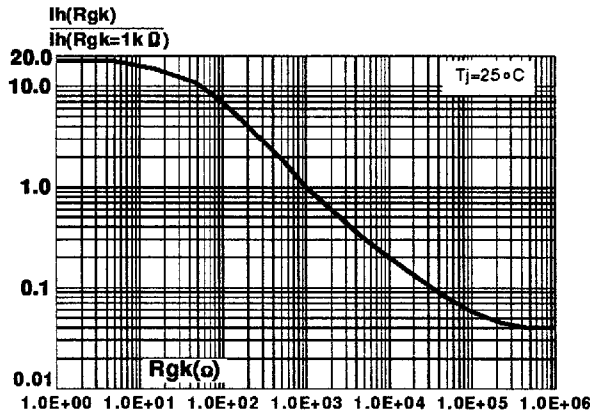
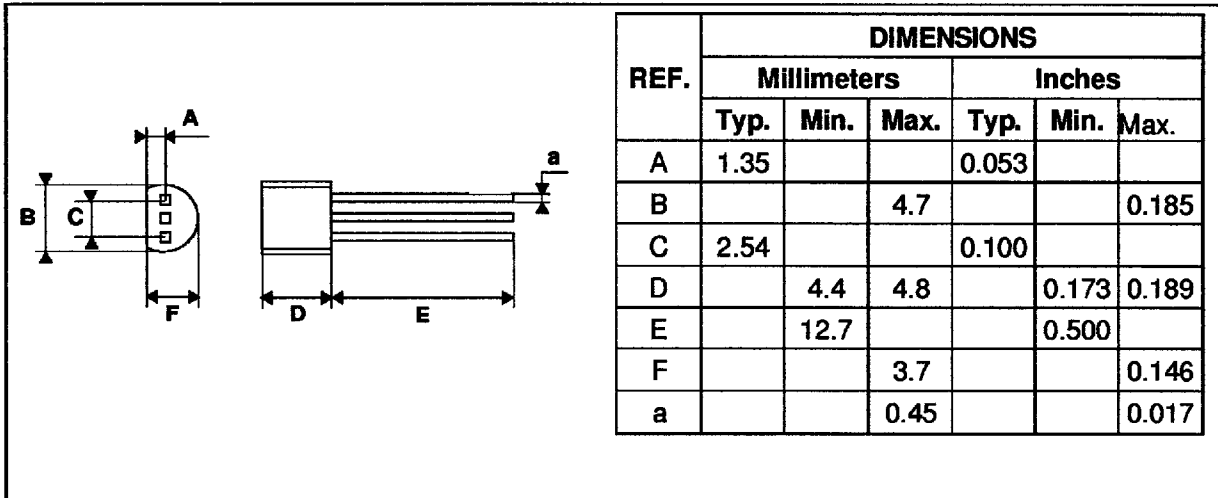


Fig.9 : Relative variation of holding current versus gate-cathode resistance (typical values).



PACKAGE MECHANICAL DATA
TO92 (Plastic)



Marking : Type number
Weight : 0.2 g

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