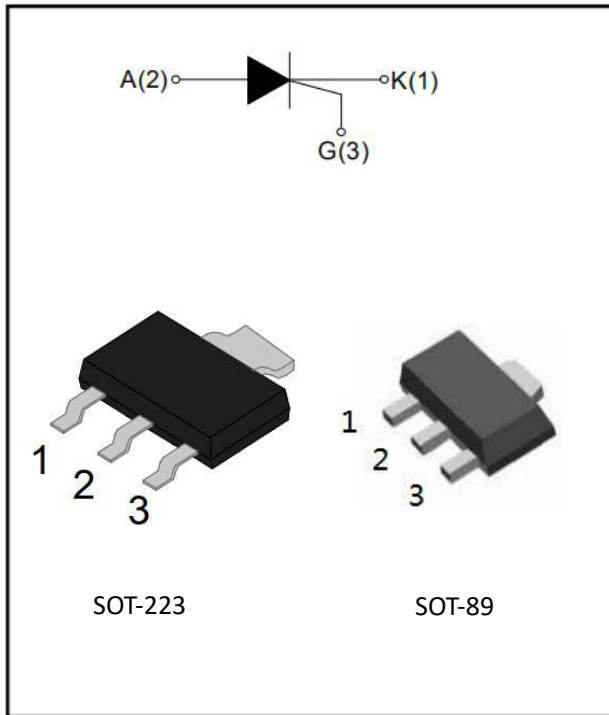


1A Sensitive SCRs



Features

- On-state rms current, $I_{T(RMS)}$ 1 A
- Repetitive peak off-state voltage, V_{DRM}/V_{RRM} 900 V
- Triggering gate current, I_{GT} 200 μ A

Applications

- Ground Fault Circuit Interrupters (GFCI)
- General purpose switching and phase control
- Ignition circuits, CDI
- Motor control - e.g. small kitchen appliances

Mechanical Data

- Case Material: "Green" Molding Compound
- Package:

| DEVICE | PACAKGE |
|----------|---------|
| YC0910S2 | SOT-223 |
| YC0910S3 | SOT-89 |

Main Characteristics

| SYMBOL | LIMITS | UNIT |
|-------------------|--------|---------|
| $I_{T(RMS)}$ | 1 | A |
| V_{DRM}/V_{RRM} | 900 | V |
| I_{GT} | 200 | μ A |

Maximum Ratings

| PARAMETER | SYMBOL | LIMITS | UNIT |
|---------------------------------------------------------------------|--------------|---------|------------------|
| Storage junction temperature range | T_{stg} | -40~150 | $^{\circ}$ C |
| Operating junction temperature range | T_j | -40~125 | $^{\circ}$ C |
| Repetitive surge peak Off-state voltage ($T_j=25^{\circ}$ C) | V_{DRM} | 900 | V |
| Repetitive peak reverse voltage ($T_j=25^{\circ}$ C) | V_{RRM} | 900 | V |
| RMS on-state current ($T_C=80^{\circ}$ C) | $I_{T(RMS)}$ | 1 | A |
| Non-repetitive surge peak on-state current (full cycle, F=50Hz) | I_{TSM} | 12 | A |
| I^2t value for fusing ($t_p=10ms$) | I^2t | 1.12 | A ² s |
| Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$) | di/dt | 50 | A/ μ s |
| Peak gate current | I_{GM} | 0.2 | A |
| Average gate power dissipation | $P_{G(AV)}$ | 0.1 | W |
| Peak gate power | P_{GM} | 0.5 | W |



YC0910 Series

■Electrical Characteristics (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | MIN | TYP | MAX |
|-----------------------------------|-----------------|------|-----------------------------------------------------------------------------------------------|-----|-----|-----|
| Gate trigger current | I _{GT} | μA | V _D =12V, R _L =33Ω | 20 | 50 | 200 |
| Gate trigger voltage | V _{GT} | V | V _D =12V, R _L =33 | | 0.6 | 1.0 |
| Non-triggering gate voltage | V _{GD} | V | V _D =V _{DRM} T _j =110°C R _L =3.3kΩ | 0.2 | | |
| Holding current | I _H | mA | I _T =50mA | | | 3 |
| Latching current | I _L | mA | I _G =1.2 I _{GT} | | | 4 |
| Rate of rise of off-state voltage | dV/dt | V/μs | V _D =0.66×V _{DRM} T _j =110°C Gate open R _{GK} =1KΩ | 100 | | |

■Thermal Characteristics (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | MAX |
|------------------------------------------------|--------------------------------------|------|----------------------------------------------------------------------------------|-----|
| Peak on-state voltage | V _{TM} | V | I _{TM} =2A t _p =380μS | 1.4 |
| Peak off-state current Peak reverse current | I _{DRM} I _{RRM} | μA | V _{DRM} =V _{RRM} , T _j =25°C, R _{GK} =1KΩ | 5 |
| | | mA | V _{DRM} =V _{RRM} , T _j =125°C, R _{GK} =1KΩ | 0.2 |

■Thermal Resistance (T_a=25°C Unless otherwise specified)

| PARAMETER | | SYMBOL | UNIT | Pacakge | Value |
|------------------------------|------------------|-------------------|------|---------|-------|
| Thermal Resistance (Typical) | Junction to case | R _{θJ-C} | °C/W | SOT-223 | 25 |
| | | | °C/W | SOT-89 | 38 |

■ Characteristics (Typical)

FIG.1: Maximum power dissipation versus RMS on-state current

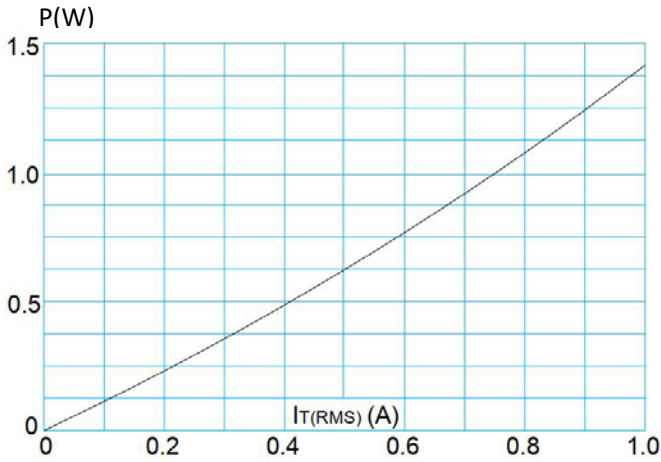


FIG.2: RMS on-state current versus case temperature

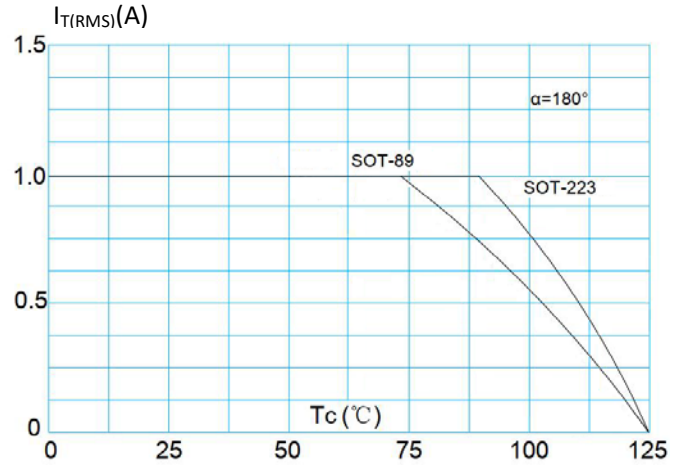


FIG.3: Surge peak on-state current versus number of cycles

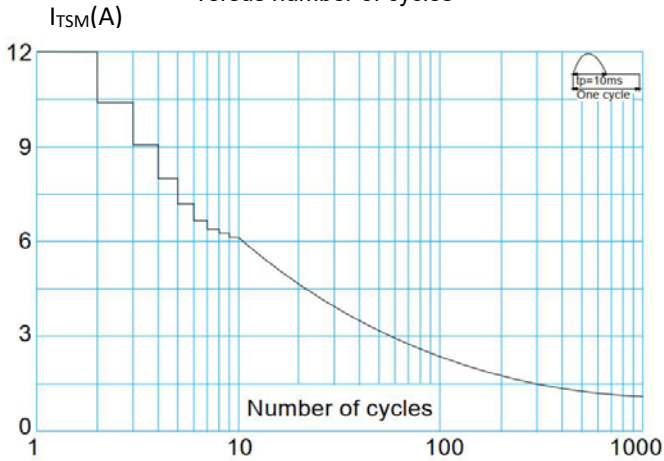


FIG.4: On-state characteristics (maximum values)

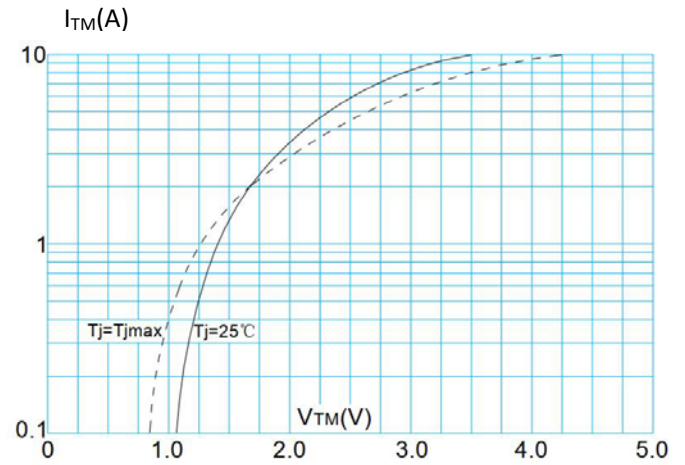


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of $I_2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

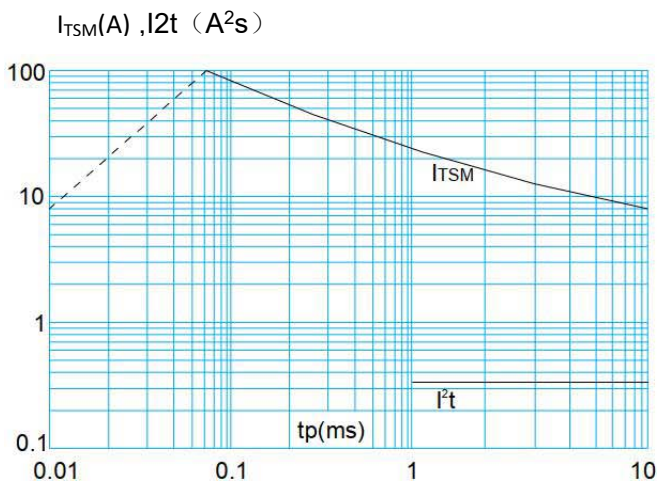
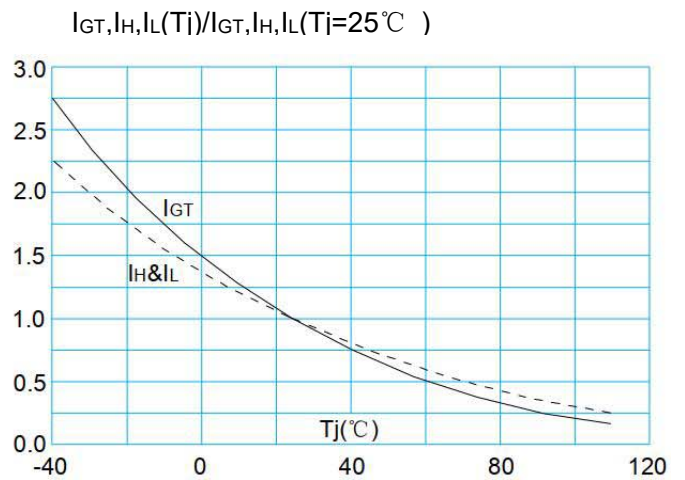


FIG.6: Relative variations of gate trigger current, holding current and latching

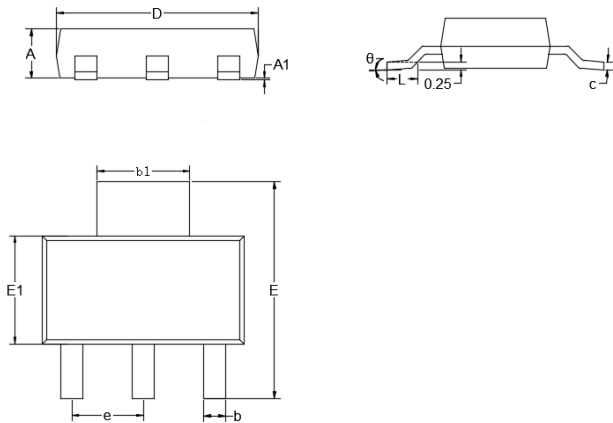




YC0910 Series

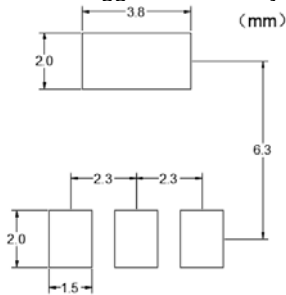
■ Outline Dimensions

➤ SOT-223 Package Outline Dimensions

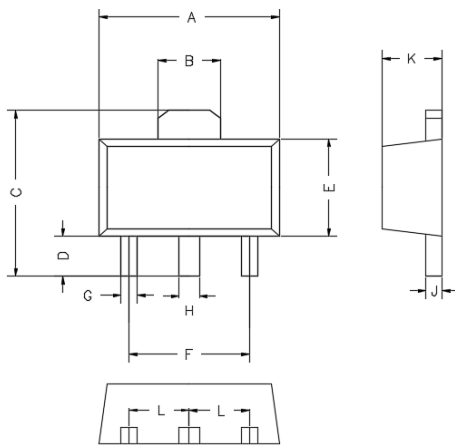


| DIM | DIMENSIONS | | | |
|----------|------------|--------|--------|--------|
| | INCHES | | MM | |
| | MIN | MAX | MIN | MAX |
| A | 0.0591 | 0.0670 | 1.5000 | 1.7000 |
| A1 | 0.0008 | 0.0039 | 0.0200 | 0.1000 |
| b | 0.0259 | 0.0330 | 0.6600 | 0.8400 |
| b1 | 0.1140 | 0.1220 | 2.9000 | 3.1000 |
| c | 0.0090 | 0.0138 | 0.2300 | 0.3500 |
| D | 0.2480 | 0.2640 | 6.3000 | 6.7000 |
| E | 0.2637 | 0.2874 | 6.7000 | 7.3000 |
| E1 | 0.1290 | 0.1460 | 3.3000 | 3.7000 |
| e | 0.0866 | 0.0945 | 2.2000 | 2.4000 |
| L | 0.0295 | 0.0492 | 0.7500 | 1.2500 |
| θ | 0° | 10° | 0° | 10° |

SOT-223 Suggested Pad Layout

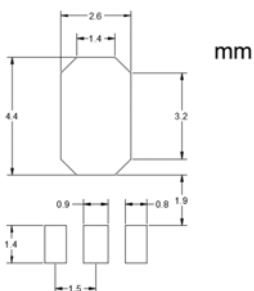


➤ SOT-89 Package Outline Dimensions



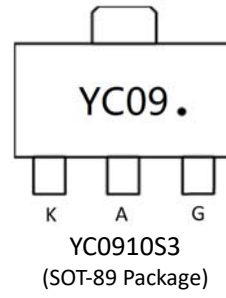
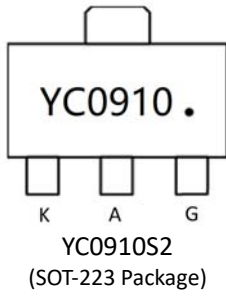
| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|------|------|------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.169 | 0.185 | 4.30 | 4.70 | |
| B | 0.061 | | 1.55 | | TYP |
| C | 0.154 | 0.171 | 3.91 | 4.35 | |
| D | 0.031 | 0.047 | 0.80 | 1.20 | |
| E | 0.089 | 0.104 | 2.25 | 2.65 | |
| F | 0.118 | | 3.00 | | TYP |
| G | 0.013 | 0.020 | 0.33 | 0.52 | |
| H | 0.016 | 0.023 | 0.40 | 0.58 | |
| J | 0.014 | 0.017 | 0.35 | 0.44 | |
| K | 0.055 | 0.063 | 1.40 | 1.60 | |
| L | 0.059 | | 1.50 | | TYP |

SOT-89 Suggested Pad Layout





■ Marking Information





YC0910 Series

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