

Standard SCRs, 75A

Main Features

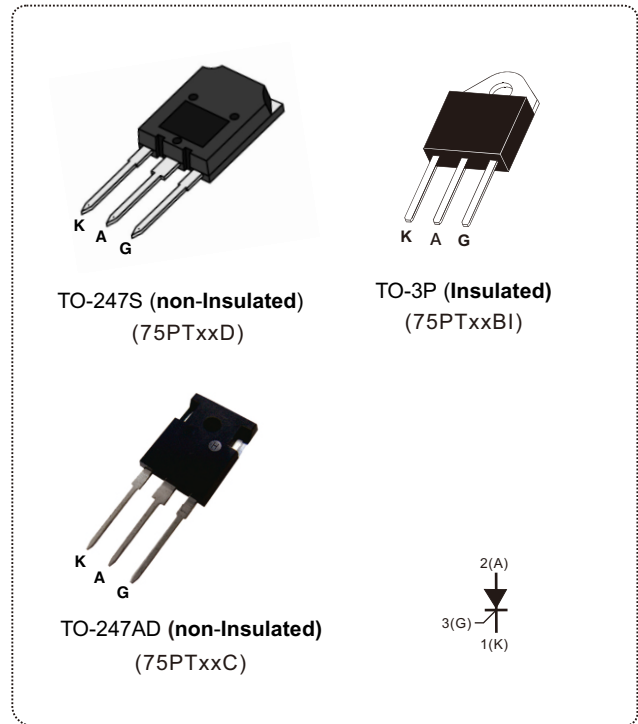
| Symbol | Value | Unit |
|-------------------|--------------|------|
| $I_{T(RMS)}$ | 75 | A |
| V_{DRM}/V_{RRM} | 1200 to 1600 | V |
| $I_{GT Max.}$ | 50 | mA |

DESCRIPTION

The 75PT series of silicon controlled rectifiers are high performance glass passivated technology, and are suitable for general purpose applications, where power handling and power dissipation are critical, such as solid state relay, welding equipment and high power motor control.

Based on a clip assembly technology, they offer a superior performance in surge current capabilities.

Thanks to their internal ceramic pad, they provide high voltage insulation (2500V_{RMS}).



| ABSOLUTE MAXIMUM RATINGS | | | | | |
|---|--------------|---------------------------|---------------------------|---------------|------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUE | UNIT |
| RMS on-state current full sine wave (180° conduction angle) | $I_{T(RMS)}$ | TO-247AD / TO-247S | $T_c = 90^\circ\text{C}$ | 75 | A |
| | | TO-3P insulated | $T_c = 80^\circ\text{C}$ | | |
| Average on-state current (180° conduction angle) | $I_{T(AV)}$ | TO-247AD / TO-247S | $T_c = 90^\circ\text{C}$ | 50 | A |
| | | TO-3P insulated | $T_c = 80^\circ\text{C}$ | | |
| Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C) | I_{TSM} | F = 50 Hz | t = 20 ms | 800 | A |
| | | F = 60 Hz | t = 16.7 ms | 860 | |
| I^2t Value for fusing | I^2t | $t_p = 10$ ms | | 3200 | A ² s |
| Critical rate of rise of on-state current $V_D = 67\% V_{DRM}$, $t_p = 200\mu\text{s}$, $I_G = 0.3\text{A}$ $dI_G/dt = 0.3\text{A}/\mu\text{s}$ | dI/dt | F = 60 Hz | $T_j = 125^\circ\text{C}$ | 150 | A/ μs |
| Peak gate current | I_{GM} | $T_p = 20\mu\text{s}$ | $T_j = 125^\circ\text{C}$ | 4 | A |
| Maximum gate power | P_{GM} | $T_p = 20\mu\text{s}$ | $T_j = 125^\circ\text{C}$ | 5 | W |
| Average gate power dissipation | $P_{G(AV)}$ | $T_j = 125^\circ\text{C}$ | | 1 | W |
| Repetitive peak off-state voltage | V_{DRM} | $T_j = 125^\circ\text{C}$ | | 1200 to 1600 | V |
| Repetitive peak reverse voltage | V_{RRM} | | | | |
| Storage temperature range | T_{stg} | | | - 40 to + 150 | °C |
| Operating junction temperature range | T_j | | | - 40 to + 125 | |
| Maximum peak reverse gate voltage | V_{RGM} | | | 5 | V |

| ELECTRICAL SPECIFICATIONS (T _J = 25 °C unless otherwise specified) | | | | | | |
|---|---|------------------------|------|-------|------|----|
| SYMBOL | TEST CONDITIONS | | | VALUE | Unit | |
| I _{GT} | V _D = 12V, R _L = 33Ω | | | Max. | 50 | mA |
| V _{GT} | | | | Max. | 1.5 | V |
| V _{GD} | V _D = V _{DRM} , R _L = 3.3KΩ, R _{GK} = 220Ω | T _j = 125°C | Min. | 0.2 | V | |
| I _H | I _T = 500mA, Gate open | | | Max. | 100 | mA |
| I _L | I _G = 1.2×I _{GT} | | | Max. | 150 | mA |
| dV/dt | V _D = 67% V _{DRM} , Gate open | T _j = 125°C | Min. | 500 | V/μs | |
| V _{TM} | I _T = 120A, t _p = 380μs | T _j = 25°C | Max. | 1.8 | V | |
| I _{DRM} I _{RPM} | V _D = V _{DRM} , V _R = V _{RRM} R _{GK} = 220Ω | T _j = 25°C | Max. | 10 | μA | |
| | | T _j = 125°C | Max. | 8 | mA | |

| THERMAL RESISTANCE | | | | |
|----------------------|-----------------------|----------------------------------|-------|------|
| SYMBOL | Parameter | | VALUE | UNIT |
| R _{th(j-c)} | Junction to case (DC) | TO-247AD/TO-247S | 0.50 | °C/W |
| | | TO-3P insulated | 0.65 | |
| R _{th(j-a)} | Junction to ambient | TO-247S/TO-247AD/TO-3P insulated | 50 | °C/W |

S=Copper surface under tab

| PRODUCT SELECTOR | | | | |
|------------------|--------------|-------|-------------|----------|
| PART NUMBER | VOLTAGE (xx) | | SENSITIVITY | PACKAGE |
| | 1200 V | 1600V | | |
| 75PTxxBI | V | V | 50mA | TO-3P |
| 75PTxxC | V | V | 50mA | TO-247AD |
| 75PTxxD | V | V | 50mA | TO-247S |

| ORDERING INFORMATION | | | | | |
|----------------------|-------------------|-----------------|--------|-----------|---------------|
| ORDERING TYPE | MARKING | PACKAGE | WEIGHT | BASE Q'TY | DELIVERY MODE |
| 75PT12BI/75PT16BI | 75PT12BI/75PT16BI | TO-3P insulated | 4.8g | 30 | Tube |
| 75PT12C/75PT16C | 75PT12C/75PT16C | TO-247AD | 5.0g | 30 | Tube |
| 75PT12D/75PT16D | 75PT12D/75PT16D | TO-247S | 6.5g | 30 | Tube |

ORDERING INFORMATION SCHEME

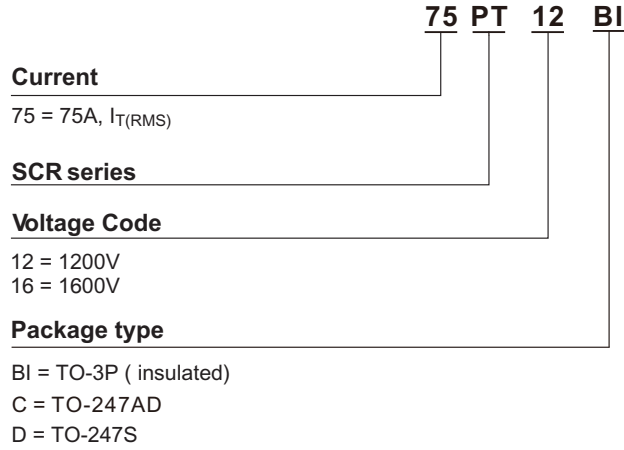


Fig.1 Maximum power dissipation versus average on-state current (half cycle)

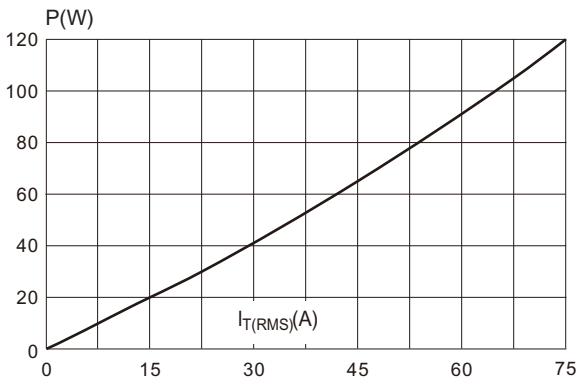


Fig.3 On-state characteristics (maximum values).

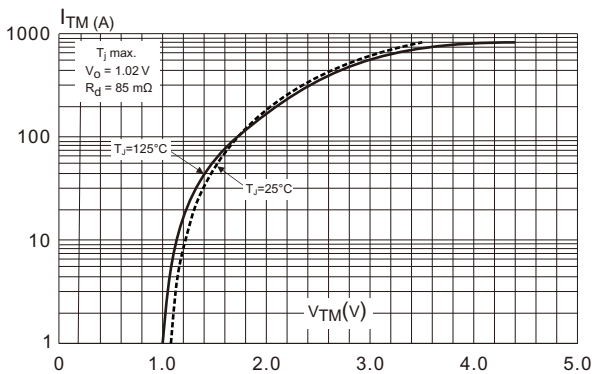


Fig.2 RMS on-state current versus case temperature (full cycle)

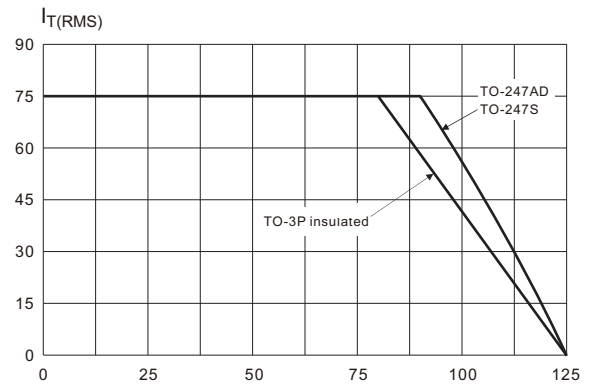


Fig.4 Surge peak on-state current versus number of cycles.

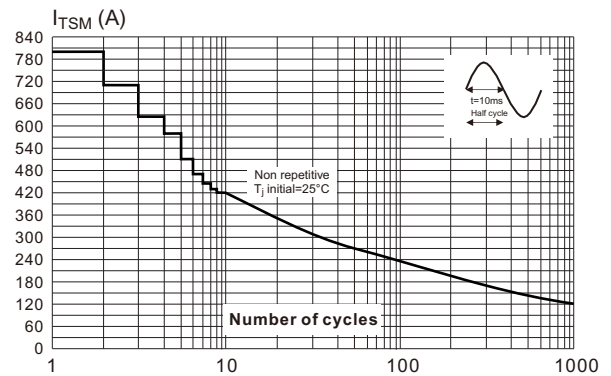


Fig.5 Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding value of I^2t .

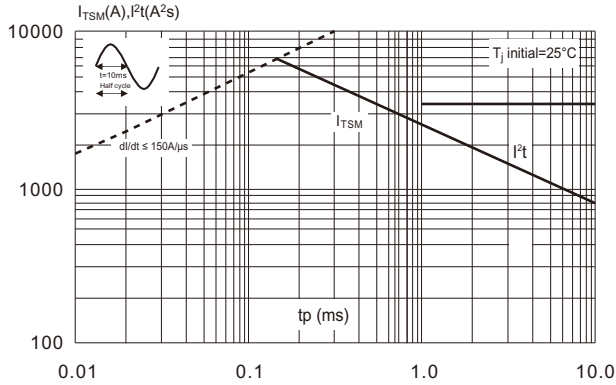
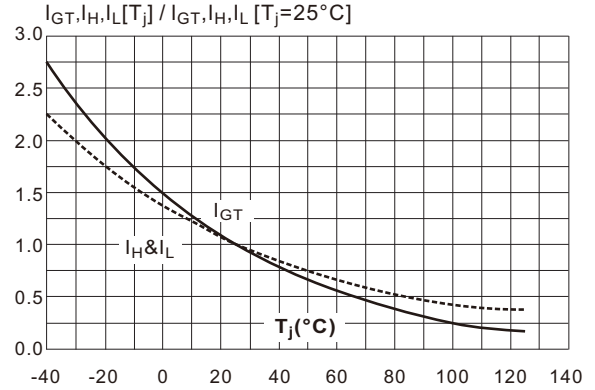
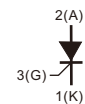
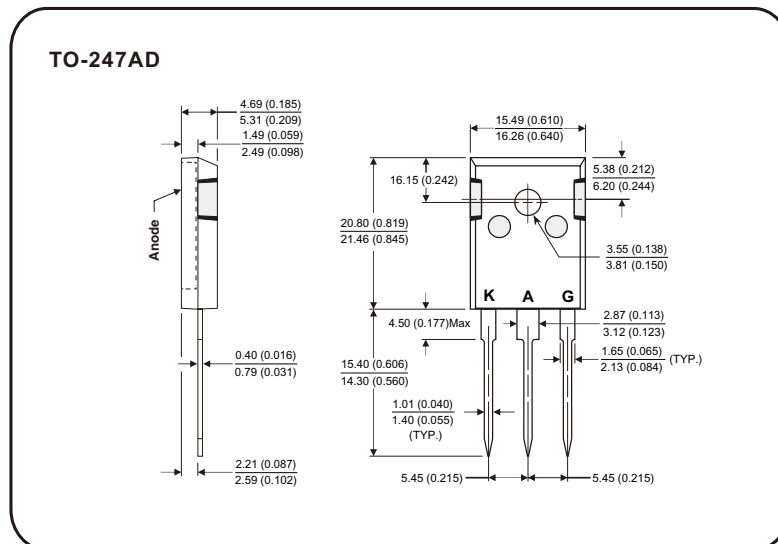
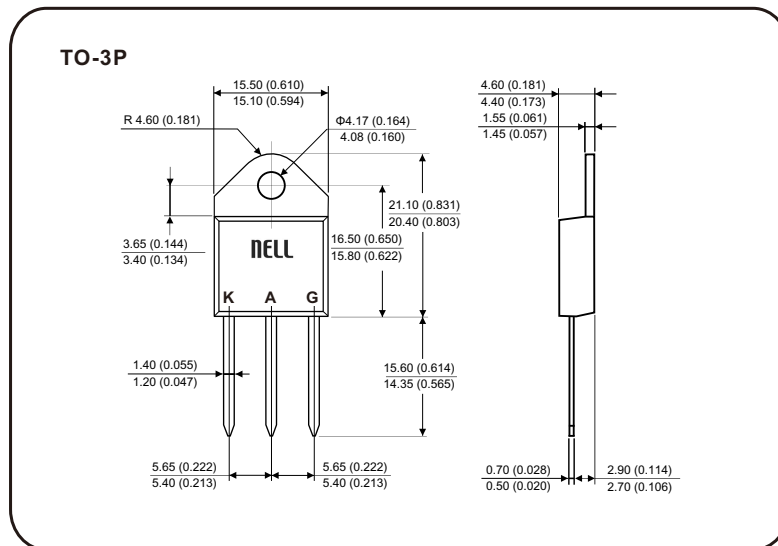


Fig.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Case Style



All dimensions in millimeters(inches)

Case Style

