POSEICO SPA
Via Pillea 42-44, 16153 Genova - ITALY
Tel. + 39 010 8599400 - Fax + 39 010 8682006
Sales Office:
Tel. + 39 010 8599400 - Fax + 39 010 8681180

## FAST SWITCHING THYRISTOR

# ATF614

| | |
|---|---|
| Repetitive voltage up to | **1200 V** |
| Mean on-state current | **1355 A** |
| Surge current | **20 kA** |
| Turn-off time | **20 µs** |

***FINAL SPECIFICATION***

gen 18 - ISSUE : 04

| Symbol | Characteristic | Conditions | Tj [°C] | Value | Unit |
|---|---|---|---|---|---|
| **BLOCKING** | | | | | |
| $V_{RRM}$ | Repetitive peak reverse voltage | | 125 | 1200 | V |
| $V_{RSM}$ | Non-repetitive peak reverse voltage | | 125 | 1300 | V |
| $V_{DRM}$ | Repetitive peak off-state voltage | | 125 | 1200 | V |
| $I_{RRM}$ | Repetitive peak reverse current | V=VRRM | 125 | 100 | mA |
| $I_{DRM}$ | Repetitive peak off-state current | V=VDRM | 125 | 100 | mA |
| **CONDUCTING** | | | | | |
| $I_{T(AV)}$ | Mean on-state current | 180° sin, 50 Hz, Th=55°C, double side cooled | | 1355 | A |
| $I_{T(AV)}$ | Mean on-state current | 180° sin, 1 kHz, Th=55°C, double side cooled | | 1205 | A |
| $I_{TSM}$ | Surge on-state current, non repetitive | sine wave, 10 ms | 125 | 20 | kA |
| $I^2t$ | $I^2t$ | without reverse voltage | | 2000 x1E3 | $A^2s$ |
| $V_T$ | On-state voltage | On-state current = 2000 A | 25 | 2,5 | V |
| $V_{T(TO)}$ | Threshold voltage | | 125 | 1,36 | V |
| $r_T$ | On-state slope resistance | | 125 | 0,328 | mohm |
| **SWITCHING** | | | | | |
| di/dt | Critical rate of rise of on-state current, min | From 75% VDRM up to 1200 A, gate 10V 5 ohm | 125 | 800 | A/µs |
| dv/dt | Critical rate of rise of off-state voltage, min | Linear ramp up to 75% of VDRM | 125 | 600 | V/µs |
| td | Gate controlled delay time, typical | VD=200V, gate source 20V, 10 ohm , tr=.5 µs | 25 | 0,85 | µs |
| tq | Circuit commutated turn-off time | di/dt = 60 A/µs, I = 1000 A<br>dV/dt = 200 V/µs , up to 80% VDRM | 125 | 20 | µs |
| Q rr | Reverse recovery charge | di/dt = 60 A/µs, I = 1000 A | 125 | 120 | µC |
| I rr | Peak reverse recovery current | VR = 50 V | | 100 | A |
| $I_H$ | Holding current, typical | VD=5V, gate open circuit | 25 | | mA |
| $I_L$ | Latching current, typical | VD=12V, tp=30µs | 25 | | mA |
| **GATE** | | | | | |
| $V_{GT}$ | Gate trigger voltage | VD=5V | 25 | 3,5 | V |
| $I_{GT}$ | Gate trigger current | VD=5V | 25 | 350 | mA |
| $V_{GD}$ | Non-trigger gate voltage, min. | VD=VDRM | 125 | 0,25 | V |
| $V_{FGM}$ | Peak gate voltage (forward) | | 25 | 30 | V |
| $I_{FGM}$ | Peak gate current | | 25 | 10 | A |
| $V_{RGM}$ | Peak gate voltage (reverse) | | 25 | 5 | V |
| $P_{GM}$ | Peak gate power dissipation | Pulse width 100 µs | 25 | 150 | W |
| $P_{G(AV)}$ | Average gate power dissipation | | 25 | 2 | W |
| **MOUNTING** | | | | | |
| $R_{th(j-h)}$ | Thermal impedance, DC | Junction to heatsink, double side cooled | | 21 | °C/kW |
| $T_j$ | Operating junction temperature | | | -30 / 125 | °C |
| F | Mounting force | | | 17.0 / 21.0 | kN |
| | Mass | | | 520 | g |

**ORDERING INFORMATION : ATF614 S 12 A** — tq code; standard specification; VDRM&VRRM/100

**tq code**

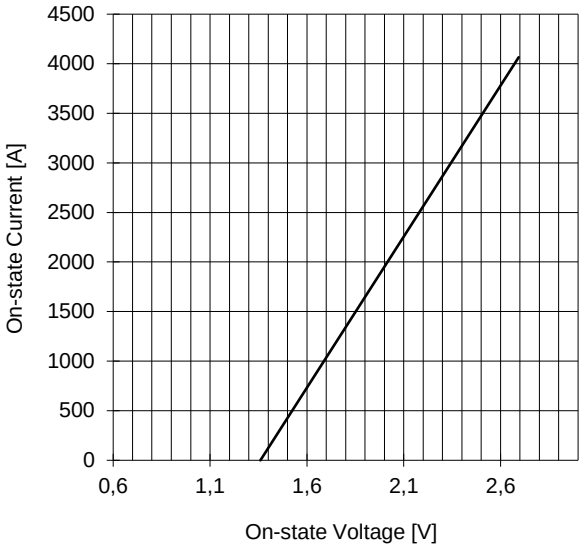
| | | | | |
|---|---|---|---|---|
| D 10 µs | C 12 µs | B 15 µs | A 20 µs | L 25 µs |
| M 30 µs | N 35 µs | P 40 µs | R 45 µs | S 50 µs |
| T 60 µs | U 70 µs | W 80 µs | X 100µs | Y 150µs |

# ATF614 FAST SWITCHING THYRISTOR

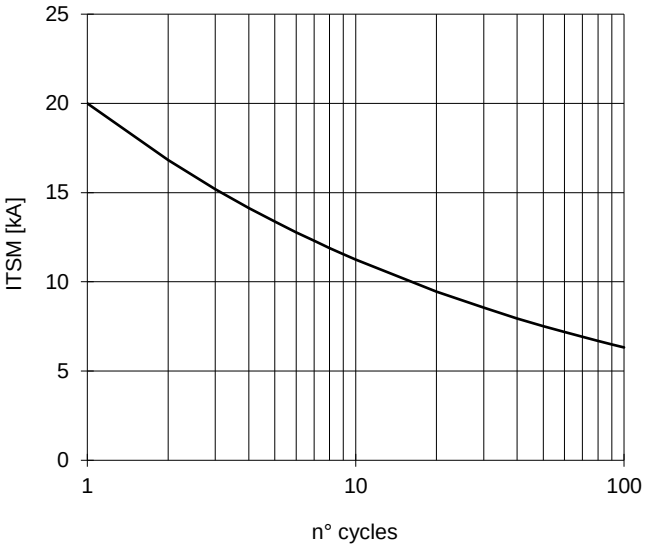
POSEICO POWER ELECTRONICS

FINAL SPECIFICATION gen 18 - ISSUE : 04

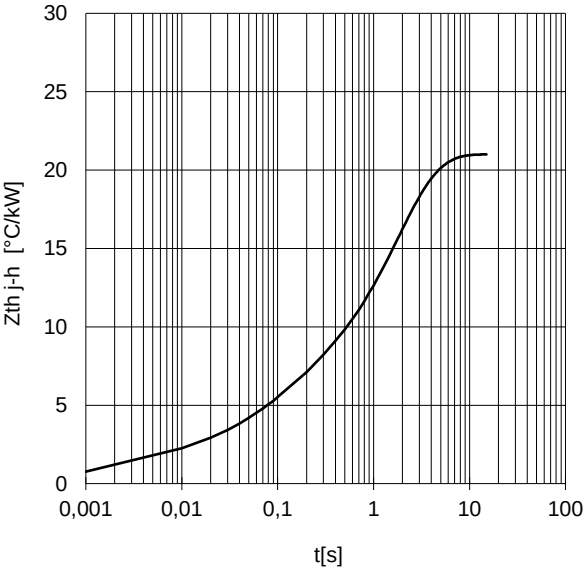
ON-STATE CHARACTERISTIC
Tj = 125 °C

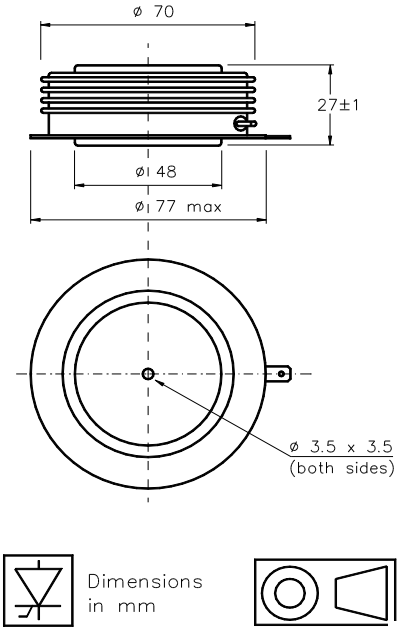



SURGE CHARACTERISTIC
Tj = 125 °C




TRANSIENT THERMAL IMPEDANCE
DOUBLE SIDE COOLED




Cathode terminal type DIN 46244 - A 4.8 - 0.8

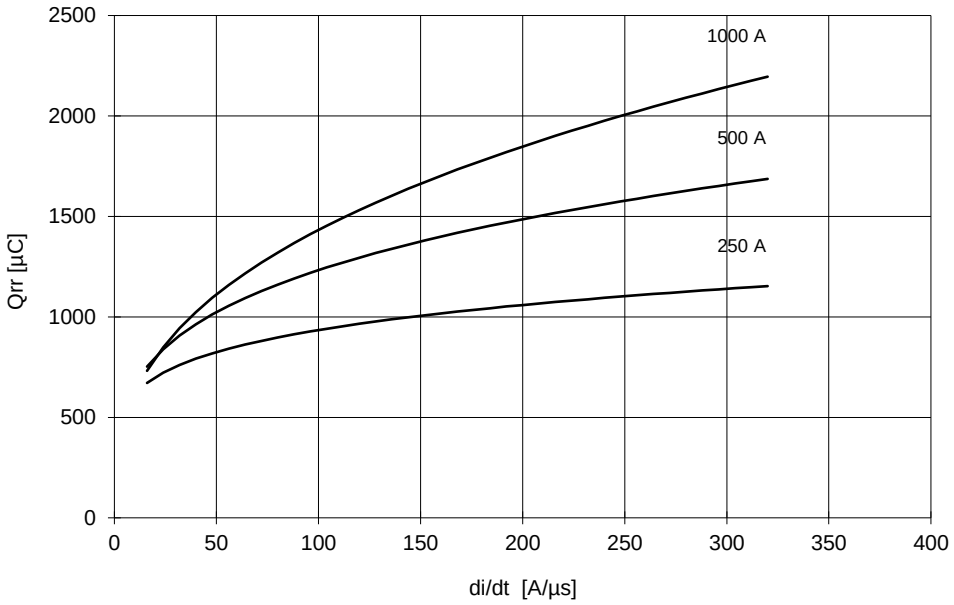
Gate terminal type AMP 60598 - 1

All the characteristics given in this data sheet are guaranteed only with uniform clamping force, cleaned and lubricated heatsink, surfaces with flatness < .03 mm and roughness < 2 µm.
In the interest of product improvement POSEICO SpA reserves the right to change any data given in this data sheet at any time without previous notice.
If not stated otherwise the maximum value of ratings (simbols over shaded background) and characteristics is reported.

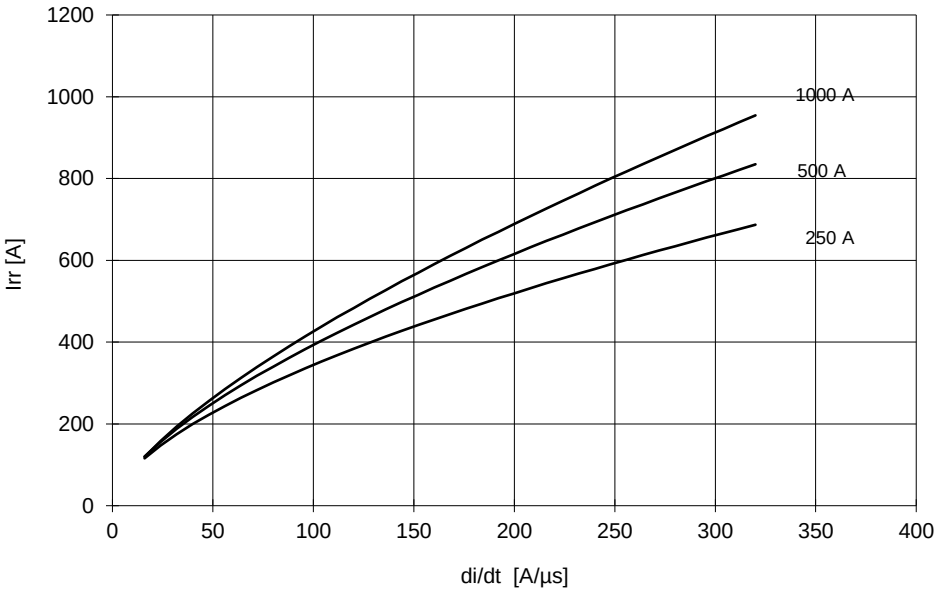
Distributed by

## SWITCHING CHARACTERISTICS

REVERSE RECOVERY CHARGE
Tj = 125 °C




REVERSE RECOVERY CURRENT
Tj = 125 °C




ta = Irr / (di/dt) tb = trr - ta

Softness (s factor) s = tb / ta

Energy dissipation during recovery Er = Vr · (Qrr - Irr ·ta / 2 )