## Capsule Phase Control Thyristor

Consists of a diffused silicon element mounted in an hermetic ceramic cold welded capsule, and features an amplifying gate. Available in industry standard housing.

| Ratings | Unless otherwise indicated Tj = 125°C | Maximum Limits | | | | | | | | | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Voltage Codes** | **02** | **04** | **06** | **08** | **10** | **12** | **14** | **16** | **18** | |
| $V_{DRM}$ | Repetitive peak off-state voltage | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | V |
| $V_{DSM}$ | Non-repetitive peak off-state voltage | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | V |
| $V_{RRM}$ | Repetitive peak reverse voltage | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | V |
| $V_{RSM}$ | Non-repetitive peak reverse voltage | 300 | 500 | 700 | 900 | 1100 | 1300 | 1500 | 1700 | 1900 | V |

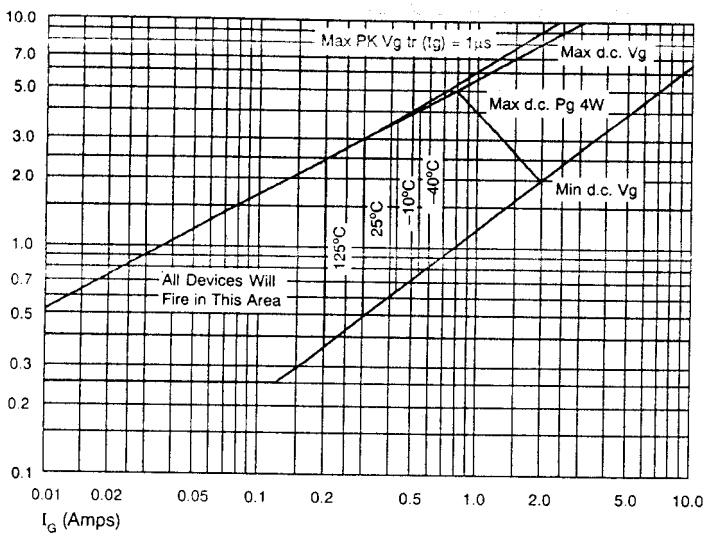
| | | | | |
|---|---|---|---|---|
| $I_{T(AV)}$ | Average on-state current | Half sine wave, 55°C heatsink temperature (double side cooled) | 1130 | A |
| | | Half sine wave, 85°C heatsink temperature (single side cooled) | 445 | A |
| $I_{T(RMS)}$ | R.M.S on-state current | 25°C heatsink temperature, double side cooled | 2260 | A |
| $I_T$ | Continuous on-state current | 25°C heatsink temperature, double side cooled | 1890 | A |
| $I_{TSM(1)}$ | Peak one-cycle surge | 10ms duration, 60% $V_{RRM}$ re-applied | 12700 | A |
| $I_{TSM(2)}$ | Peak one-cycle surge | 10ms duration, $V_R \leq 10$ volts | 14000 | A |
| $I^2t_{(2)}$ | Maximum permissible surge energy | 10ms duration, $V_R \leq 10$ volts | $975 \times 10^3$ | $A^2s$ |
| | | 3ms duration, $V_R \leq 10$ volts | $720 \times 10^3$ | $A^2s$ |
| $I_{FGM}$ | Peak forward gate current | Anode positive with respect to cathode | 7.5 | A |
| $V_{FGM}$ | Peak forward gate voltage | Anode positive with respect to cathode | 10 | V |
| $V_{RGM}$ | Peak reverse gate voltage | | 5 | V |
| $P_G$ | Average gate power | | 4 | W |
| $P_{GM}$ | Peak gate power | 100µs pulse width | 30 | W |
| dv/dt | Rate of rise of off-state voltage | Linear to 80% $V_{DRM}$ gate open-circuit | *200 | V/µs |
| $di/dt_{(1)}$ | Rate of rise of on-state current (repetitive) | Gate drive 20 volts, 20 ohms with $t_r \leq 1\mu s$. Anode voltage $\leq$ 80% $V_{DRM}$ | 500 | A/µs |
| $di/dt_{(2)}$ | Rate of rise of on-state current (non-repetitive) | | 1000 | A/µs |
| $T_j$ | Operating temperature range | | −40 to +125 | °C |
| $T_{stg}$ | Storage temperature range | | −40 to +150 | °C |

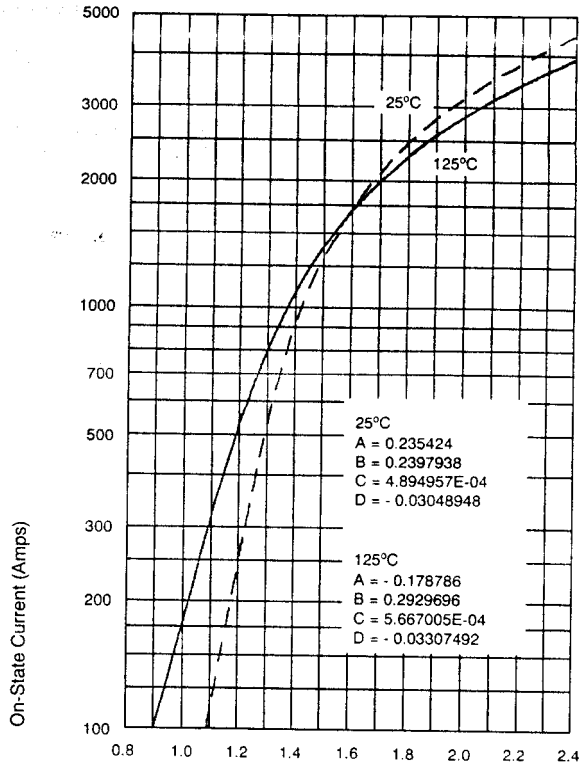
| **Characteristics** | Unless otherwise indicated Tj = 125°C | | | |
|---|---|---|---|---|
| $V_{TM}$ | Peak on-state voltage | $I_{TM}$ = 1700 A | 1.59 | V |
| $V_O$ | Forward conduction threshold voltage | | 1.06 | V |
| r | Forward conduction slope resistance | | 0.312 | mΩ |
| $I_{DRM}$ | Repetitive peak off-state current | At $V_{DRM}$ | 60 | mA |
| $I_{RRM}$ | Repetitive peak reverse current | At $V_{RRM}$ | 60 | mA |
| $I_{GT}$ | Gate current required to fire all devices | At 25°C, $V_A$ = 10 V, $I_A$ = 2 A | 300 | mA |
| $V_{GT}$ | Gate voltage required to fire all devices | | 3.0 | V |
| $I_H$ | Holding current | | 1.0 | A |
| $V_{GD}$ | Gate voltage which will not trigger any device | | 0.25 | V |
| $R_{th\ (j\text{-}hs)}$ | Thermal resistance, junction to heat sink | Double side cooled | 0.032 | K/W |
| | | Single side cooled | 0.064 | K/W |

**Ordering Information** (Please quote device code as explained below)

| N370 | C H | • • | * dv/dt Code for 80% $V_{DRM}$ |
|---|---|---|---|
| Fixed Type Code | Outline Code Nominal Thickness CH - 26.2 | Voltage Code (see ratings) | 200V/µs – No Code<br>300V/µs – GOO<br>400V/µs – HOO<br>500V/µs – JOO<br>750V/µs – KOO<br>1000V/µs – LOO |

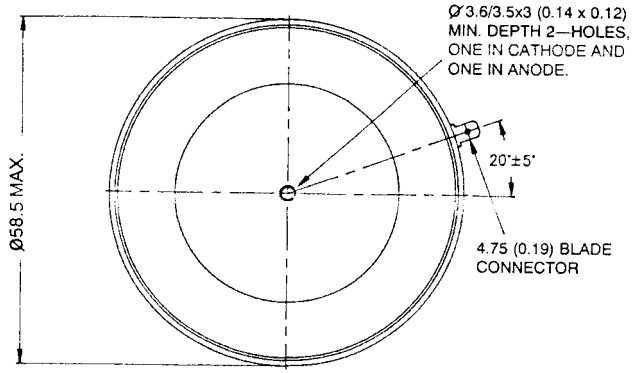
Typical code: N370CH16LOO, 1600 $V_{DRM}$ 1600 $V_{RRM}$, 1000V/µs dv/dt to 80% $V_{DRM}$

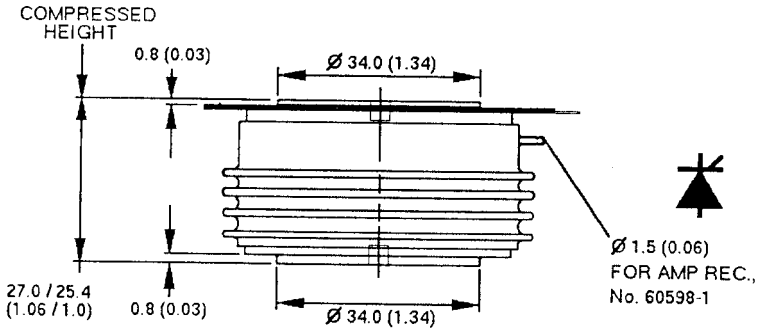



Forward Volt-Drop Calculations:

$V_T = A + B\ln I_T + CI_T + D\sqrt{I_T}$




**Notes:**
Dimensions in mm (inches)
Mounting Force: 1000 – 2000 Kgf
Weight: 340 grams

Standard gate leads , 300mm long , available on request.



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