

APPLICATIONS

- Pulse Power
- Crowbars
- Ignitron Replacement

KEY PARAMETERS

| | |
|-------------|----------------|
| V_{DRM} | 4500V |
| $I_{T(AV)}$ | 760A |
| I_{TSM} | 13000A |
| di/dt | 5000A/ μ s |

FEATURES

- Double Side Cooling
- Fast Turn-on
- Low Turn-on Losses

VOLTAGE RATINGS

| Type Number | Repetitive Peak Voltages V_{DRM}/V_{RRM} | Conditions |
|-------------|---|--|
| PT40QPx45 | 4500/16 | $T_{vj} = 0^{\circ}$ to 125°C , $I_{DRM} = I_{RRM} = 50\text{mA}$, $V_{DRM}, V_{RRM} t_p = 10\text{ms}$ |

Lower voltage grades available.

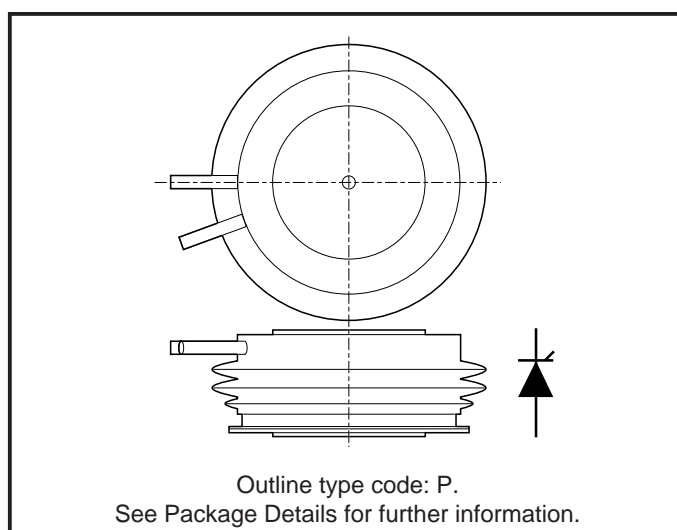


Fig.1 Package outline

CURRENT RATINGS

| Symbol | Parameter | Conditions | Max. | Units |
|---------------------------|-----------------------|---|------|-------|
| Double Side Cooled | | | | |
| $I_{T(AV)}$ | Mean on-state current | Half wave resistive load, $T_{case} = 80^{\circ}\text{C}$ | 760 | A |
| $I_{T(RMS)}$ | RMS value | $T_{case} = 80^{\circ}\text{C}$ | 1190 | A |

PT40QPx45

SURGE RATINGS

| Symbol | Parameter | Conditions | Max. | Units |
|-----------|---|--|-------------------|------------------|
| I_{TSM} | Surge (non-repetitive) on-state current | 10ms half sine; $T_{case} = 125^{\circ}C$ $V_R = 50\% V_{RRM} - 1/4$ sine | 10.4 | kA |
| I^2t | I^2t for fusing | | 541×10^3 | A ² s |
| I_{TSM} | Surge (non-repetitive) on-state current | 10ms half sine; $T_{case} = 125^{\circ}C$ $V_R = 0$ | 13.0 | kA |
| I^2t | I^2t for fusing | | 845×10^3 | A ² s |

THERMAL AND MECHANICAL DATA

| Symbol | Parameter | Conditions | | Min. | Max. | Units |
|---------------|---------------------------------------|--|-------------|------|-------|-------|
| $R_{th(j-c)}$ | Thermal resistance - junction to case | Double side cooled | dc | - | 0.033 | °C/W |
| $R_{th(c-h)}$ | Thermal resistance - case to heatsink | Clamping force 12.0kN with mounting compound | Double side | - | 0.008 | °C/W |
| T_{vj} | Virtual junction temperature | On-state (conducting) | | - | 135 | °C |
| | | Reverse (blocking) | | - | 125 | °C |
| T_{stg} | Storage temperature range | | | -55 | 125 | °C |
| - | Clamping force | | | 11.0 | 15.0 | kN |

DYNAMIC CHARACTERISTICS

| Symbol | Parameter | Conditions | | Typ. | Max. | Units |
|------------------------------------|--|---|----------------|------|-------|-------|
| I _{RRM} /I _{DRM} | Peak reverse and off-state current | At V _{RRM} /V _{DRM} , T _{case} = 125°C | | - | 50 | mA |
| dV/dt | Maximum linear rate of rise of off-state voltage | To 67% V _{DRM} T _j = 125°C. R _{gk} ≤ 1.5Ω | | - | 200 | V/μs |
| dI/dt | Rate of rise of on-state current | From 67% V _{DRM} to 20kA Gate source 30A t _r = 1.5μs, T _j = 25°C | Non-repetitive | - | 5000 | A/μs |
| V _{T(TO)} | Threshold voltage | At T _{vj} = 125°C | | - | 1.4 | V |
| r _T | On-state slope resistance | At T _{vj} = 125°C | | - | 0.152 | mΩ |

GATE TRIGGER CHARACTERISTICS AND RATINGS

| Symbol | Parameter | Conditions | Typ. | Max. | Units |
|----------|----------------------|---|------|------|-------|
| V_{GT} | Gate trigger voltage | $V_{DRM} = 5V$, $T_{case} = 25^{\circ}C$ | 1.0 | 4.0 | V |
| I_{GT} | Gate trigger current | $V_{DRM} = 5V$, $T_{case} = 25^{\circ}C$ | - | 1.5 | A |

ORDERING INFORMATION

PT Pulse Power Thyristor
40Q Device type
P Package outline type code
x lead length (see table, right)
45 Voltage x100

| Lead length (x) | | |
|-----------------|---------|--------|
| O | No lead | |
| C | 8" | 200mm |
| D | 10" | 250mm |
| E | 12" | 300mm |
| F | 16" | 400mm |
| G | 18" | 450mm |
| H | 20" | 500mm |
| J | 24" | 600mm |
| K | 30" | 750mm |
| L | 40" | 1000mm |

CURVES

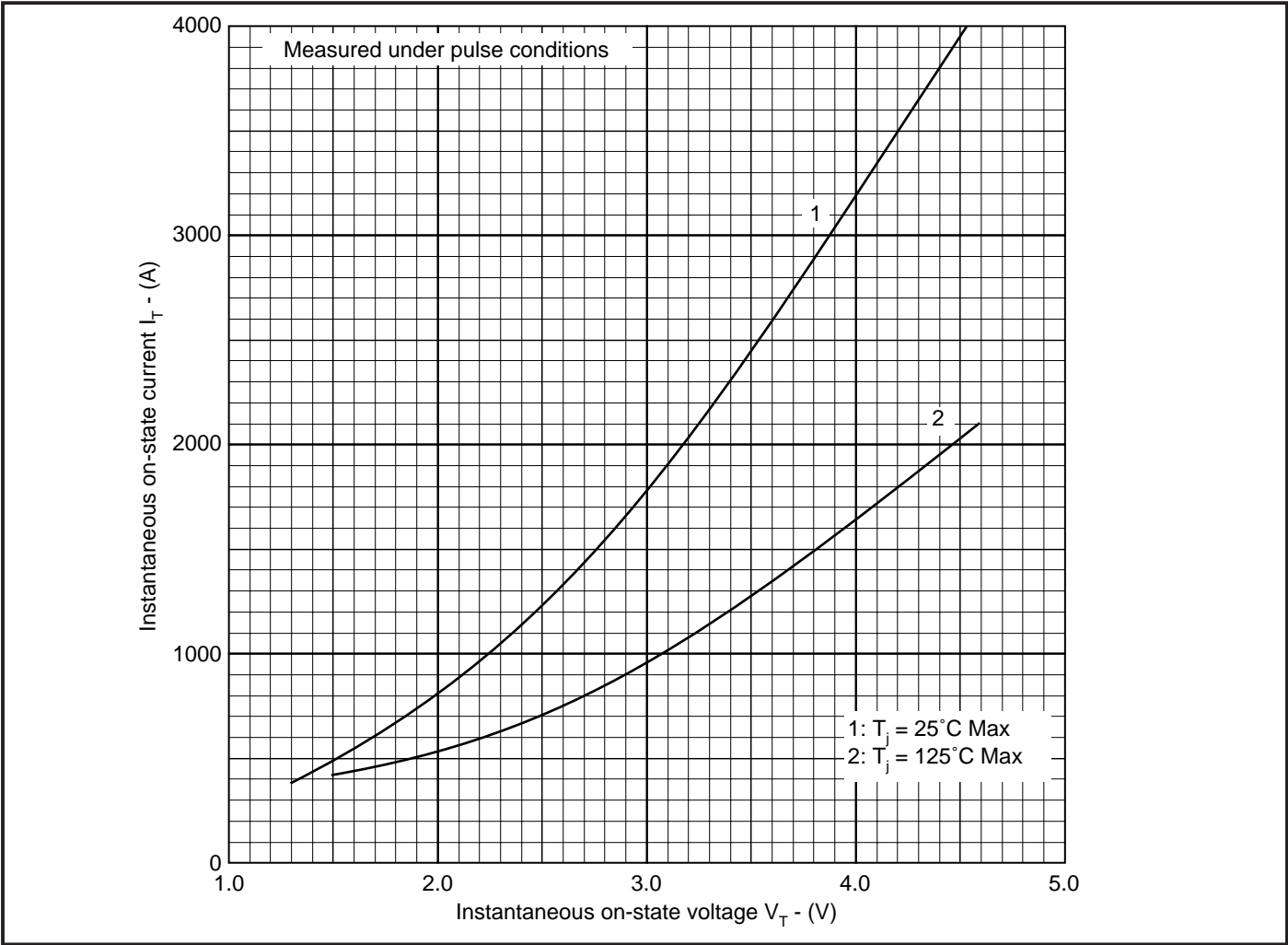


Fig.2 Maximum (limit) on-state characteristics

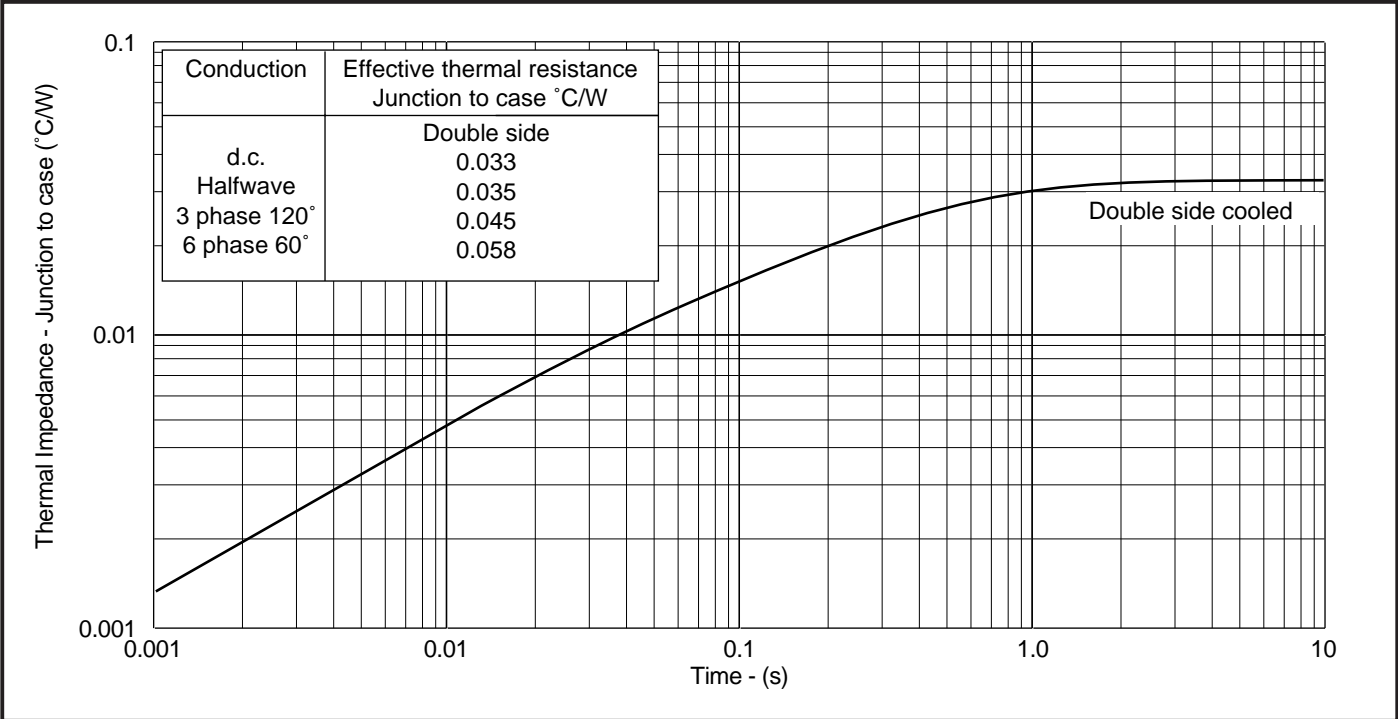
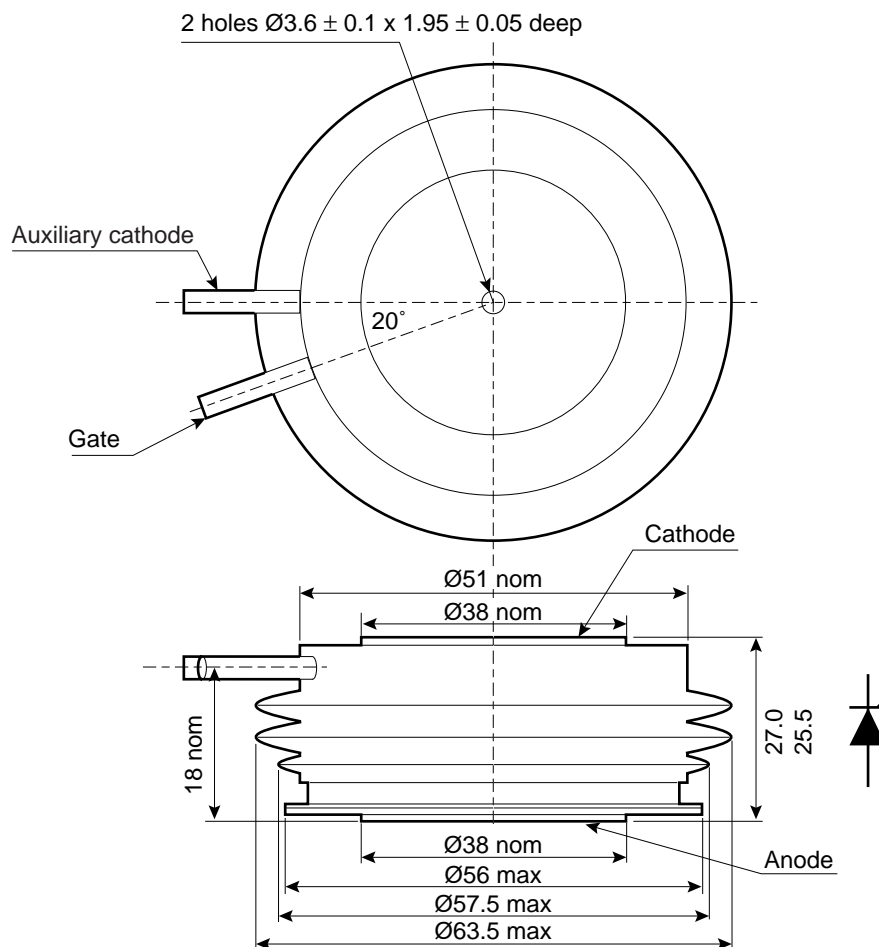


Fig.3 Maximum (limit) transient thermal impedance - junction to case

PACKAGE DETAILS

For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise.
DO NOT SCALE.



Nominal weight: 350g
Clamping force: 12kN $\pm 10\%$

Package outline type code: P

POWER ASSEMBLY CAPABILITY

The Power Assembly group was set up to provide a support service for those customers requiring more than the basic semiconductor, and has developed a flexible range of heatsink and clamping systems in line with advances in device voltages and current capability of our semiconductors.

We offer an extensive range of air and liquid cooled assemblies covering the full range of circuit designs in general use today. The Assembly group offers high quality engineering support dedicated to designing new units to satisfy the growing needs of our customers.

Using the latest CAD methods our team of design and applications engineers aim to provide the Power Assembly Complete Solution (PACs).

HEATSINKS

The Power Assembly group has its own proprietary range of extruded aluminium heatsinks which have been designed to optimise the performance of Dynex semiconductors. Data with respect to air natural, forced air and liquid cooling (with flow rates) is available on request.

For further information on device clamps, heatsinks and assemblies, please contact your nearest sales representative or Customer Services.

Stresses above those listed in this data sheet may cause permanent damage to the device. In extreme conditions, as with all semiconductors, this may include potentially hazardous rupture of the package. Appropriate safety precautions should always be followed.



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- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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