

FEATURES

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

APPLICATIONS

- Pulse Power
- Crowbars
- Ignitron replacement

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{DRM} and V_{RRM} V	Conditions
PT60QHx45	4500/16	$T_{vj} = 0^{\circ}\text{C}$ to 125°C , $I_{DRM} = I_{RRM} = 100\text{mA}$, $V_{DRM}, V_{RRM} t_p = 10\text{ms}$,

Lower voltage grades available.

ORDERING INFORMATION

When ordering, select the required part number shown in the Voltage Ratings selection table.

For example:

PT60QHx45

Note: Please use the complete part number when ordering and quote this number in any future correspondence relating to your order.

KEY PARAMETERS

V_{DRM}	4500V
$I_{T(AV)}$	1000A
I_{TSM}	22500A
di/dt	10000A/μs

* Higher dV/dt selections available

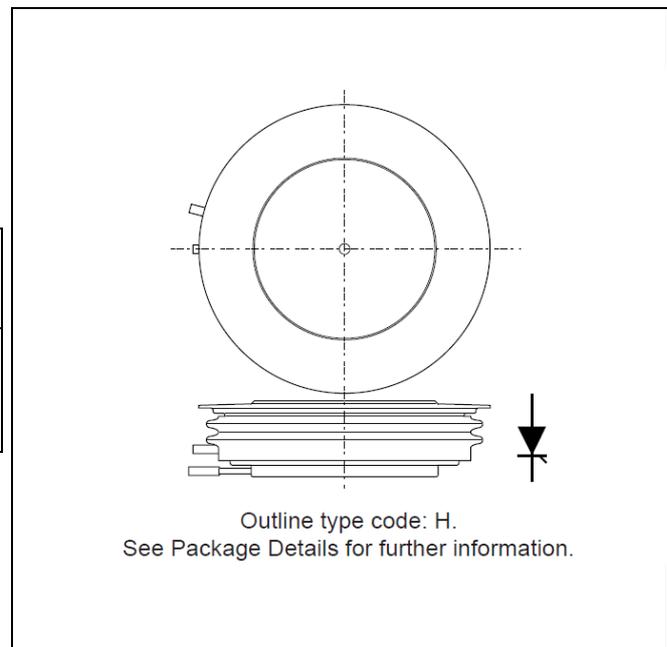


Fig. 1 Package outline

CURRENT RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{T(AV)}$	Mean on-state current	Half wave resistive load, $T_{case} = 80^{\circ}C$	1000	A
$I_{T(RMS)}$	RMS value	-	1570	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{TSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 125^{\circ}C$	17.8	kA
I^2t	I^2t for fusing	$V_R = 50\% V_{RRM}$	1.58	MA ² s
I_{TSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 125^{\circ}C$	22.5	kA
I^2t	I^2t for fusing	$V_R = 0$	2.53	MA ² s

THERMAL AND MECHANICAL RATINGS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance – junction to case	Double side cooled	-	0.013	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Clamping force 18kN	-	0.003	$^{\circ}C/W$
T_{vj}	Virtual junction temperature	Blocking V_{DRM} / V_{RRM}	-	125	$^{\circ}C$
		On-state (conducting)	-	135	$^{\circ}C$
T_{stg}	Storage temperature range		-55	125	$^{\circ}C$
F_m	Clamping force		18	22	kN

DYNAMIC CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Max.	Units
I_{RRM}/I_{DRM}	Peak reverse and off-state current	At V_{RRM}/V_{DRM} , $T_{case} = 125^{\circ}C$		-	100	mA
dV/dt	Max. linear rate of rise of off-state voltage	To 67% V_{DRM} , $T_j = 125^{\circ}C$, $R_{gk} \leq 1.5\Omega$		-	175	V/ μ s
dI/dt	Rate of rise of on-state current	From 67% V_{DRM} to 20kA Gate source 30A $t_r < 1.5\mu$ s, $T_j = 125^{\circ}C$	Non-repetitive	-	10000	A/ μ s
$V_{T(TO)}$	Threshold voltage	$T_{vj} = 125^{\circ}C$		-	1.5	V
r_T	On-state slope resistance – Low level	$T_{case} = 125^{\circ}C$		-	0.67	m Ω

GATE TRIGGER CHARACTERISTICS AND RATINGS

Symbol	Parameter	Test Conditions	Typ.	Max.	Units
V_{GT}	Gate trigger voltage	$V_{DRM} = 5V$, $T_{case} = 25^{\circ}C$	-	1.0	V
I_{GT}	Gate trigger current	$V_{DRM} = 5V$, $T_{case} = 25^{\circ}C$	-	3	A

CURVES

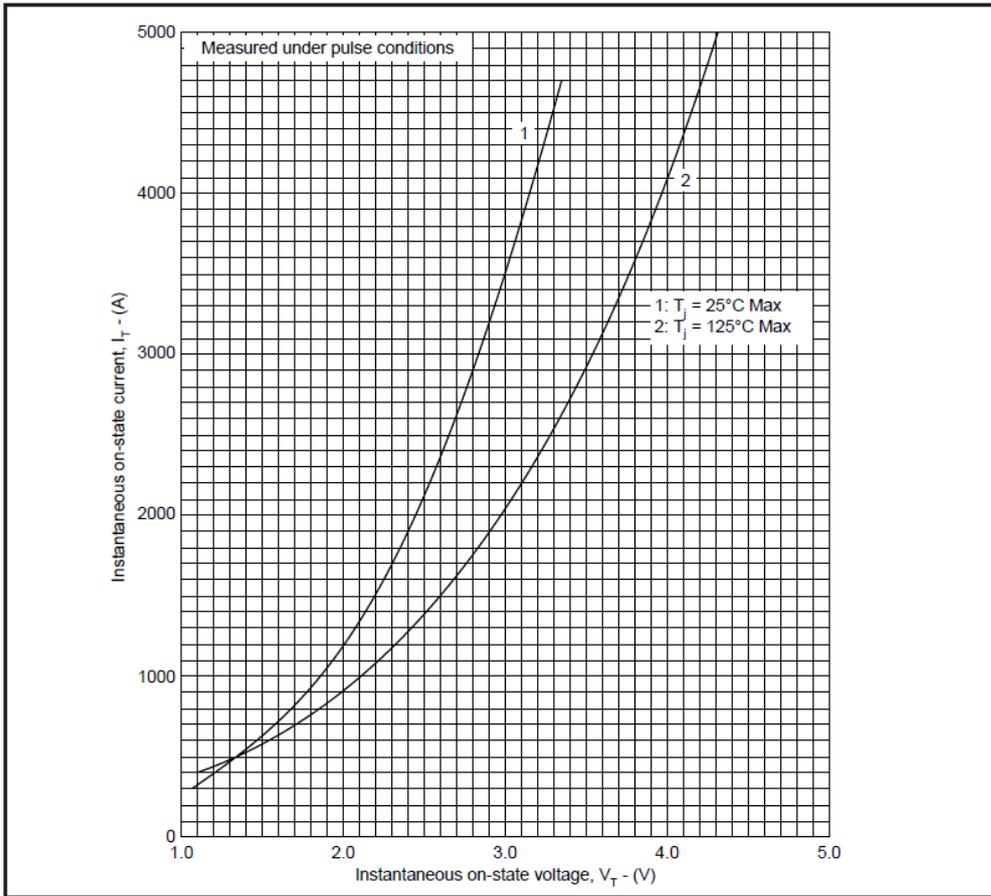


Fig.2 Maximum (limit) on-state characteristics

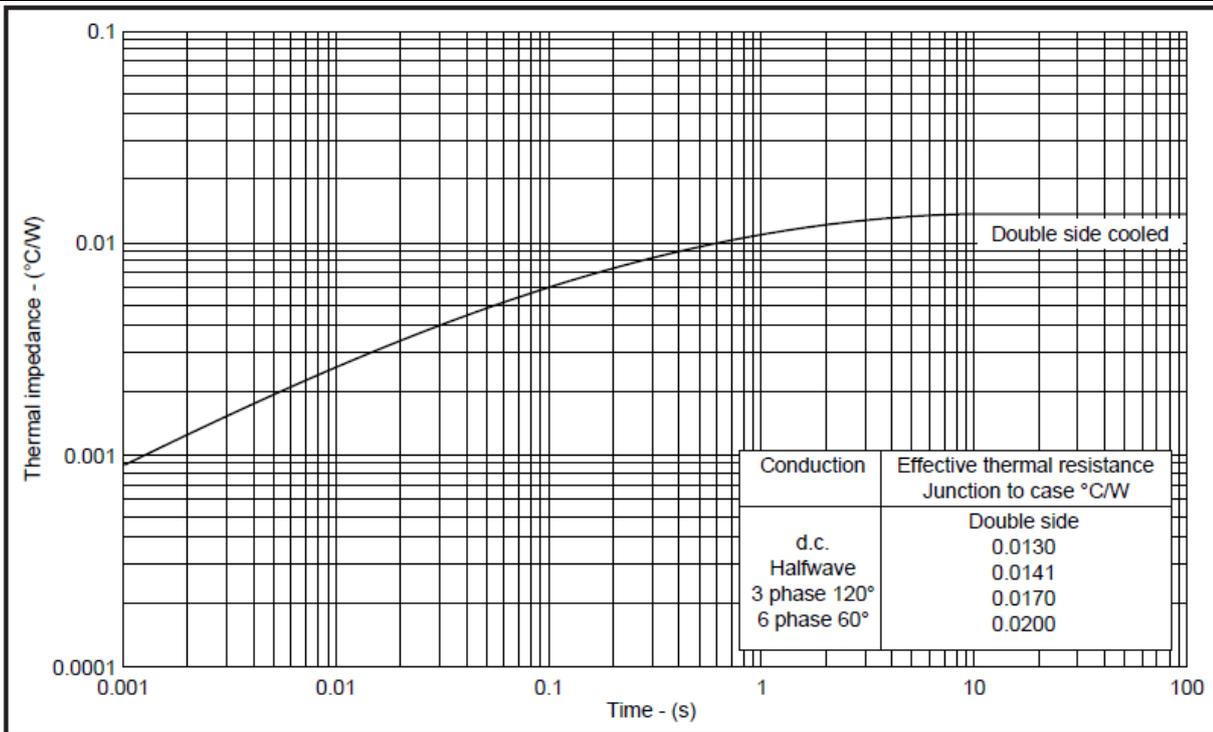


Fig.3 Maximum (limit) transient thermal impedance - junction to case

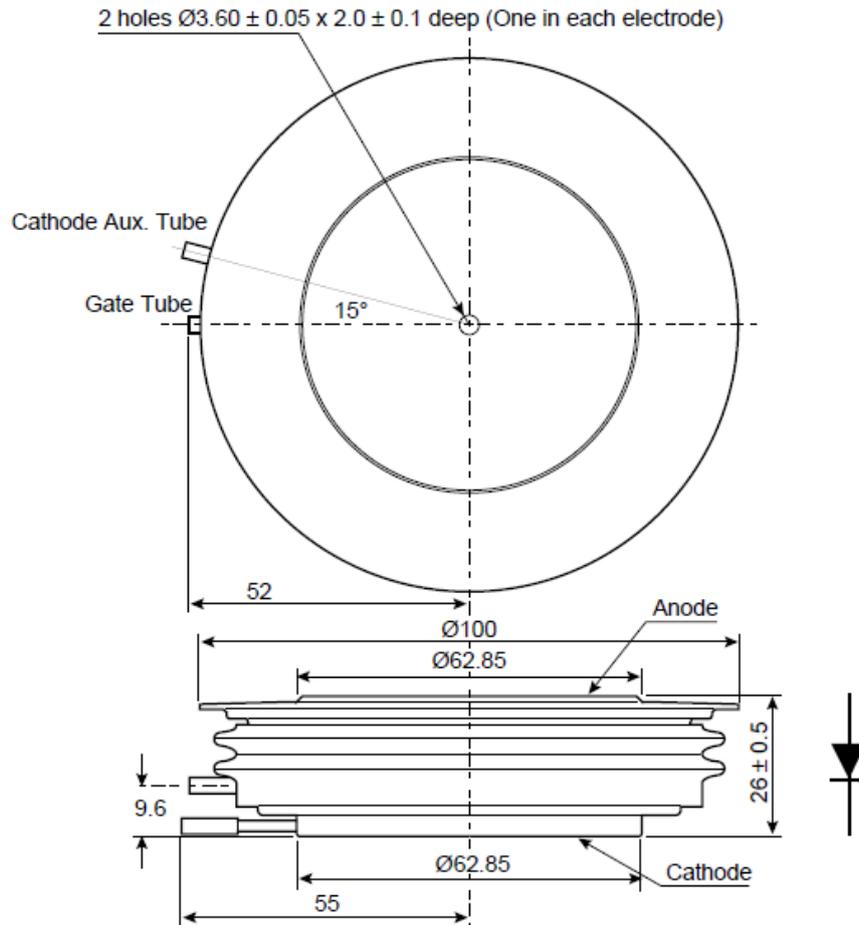
ORDERING INFORMATION

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

PACKAGE DETAILS

For further package information, please contact Customer Services. All dimensions in mm, unless stated otherwise. DO NOT SCALE.



Nominal weight: 820g
Clamping force: 20kN \pm 10%

Package outline type code: H

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The products must not be touched when operating because there is a danger of electrocution or severe burning. Always use protective safety equipment such as appropriate shields for the product and wear safety glasses. Even when disconnected any electric charge remaining in the product must be discharged and allowed to cool before safe handling using protective gloves.

Extended exposure to conditions outside the product ratings may affect reliability leading to premature product failure. Use outside the product ratings is likely to cause permanent damage to the product. In extreme conditions, as with all semiconductors, this may include potentially hazardous rupture, a large current to flow or high voltage arcing, resulting in fire or explosion. Appropriate application design and safety precautions should always be followed to protect persons and property.

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