

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
PT85QWx45	4500/16	$T_{vj} = 0^{\circ}\text{C}$ to 125°C , $I_{DRM} = I_{RRM} = 250\text{mA}$, $V_{DRM}, V_{RRM} t_p = 10\text{ms}$

Lower voltage grades available.

ORDERING INFORMATION

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

For example:

PT85QWx45

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

See “additional ordering information” on page 5 regarding lead length (x).

KEY PARAMETERS

V_{DRM}	4500V
$I_{T(AV)}$	1670A
I_{TSM}	37000A
di/dt	22000A/μs

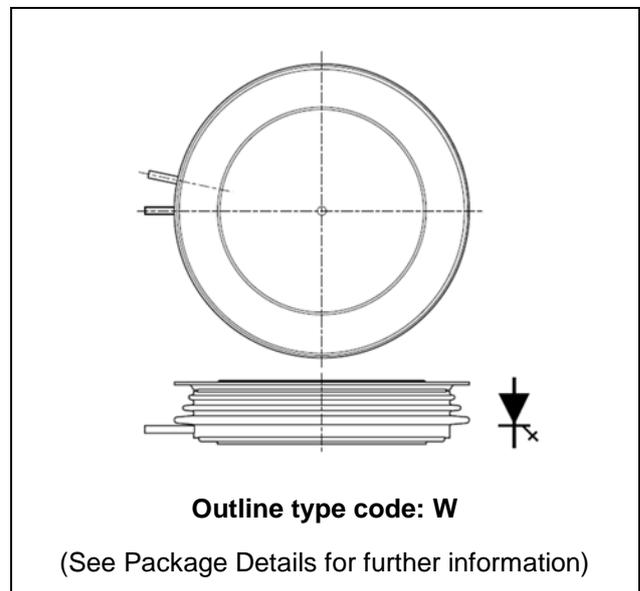


Fig. 1 Package outline

CURRENT RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{T(AV)}$	Mean on-state current	Half wave resistive load, $T_{case} = 80^{\circ}C$	1670	A
$I_{T(RMS)}$	RMS value	-	2622	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{TSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 125^{\circ}C$ $V_R = 50\% V_{RRM}$	29.6	kA
I^2t	I^2t for fusing		4.38	MA ² s
I_{TSM}	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 125^{\circ}C$ $V_R = 0$	37.0	kA
I^2t	I^2t for fusing		6.85	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	DC	-	10.0	$^{\circ}C/kW$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 36kN	Double side	-	1.0	$^{\circ}C/kW$
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			36	44	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} , $T_{case} = 125^{\circ}C$		-	250	mA
dV/dt	Max. linear rate of rise of off-state voltage	To 67% V_{DRM} , $T_j = 125^{\circ}C$, $R_{gk} \leq 1.5\Omega$		-	200	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	-	22	kA/ μ s
$V_{T(RO)}$	Threshold voltage	$T_{vj} = 125^{\circ}C$		-	1.45	V
r_T	On-state slope resistance - low level	$T_{case} = 125^{\circ}C$		-	0.3	m Ω

GATE TRIGGER CHARACTERISTICS AND RATINGS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V_{GT}	Gate trigger voltage	$V_D = 24V$, $I_T = 100A$, $T_{vj} = 25^{\circ}C$	-	1.5	V
I_{GT}	Gate trigger current		1.0	4.0	A

CURVES

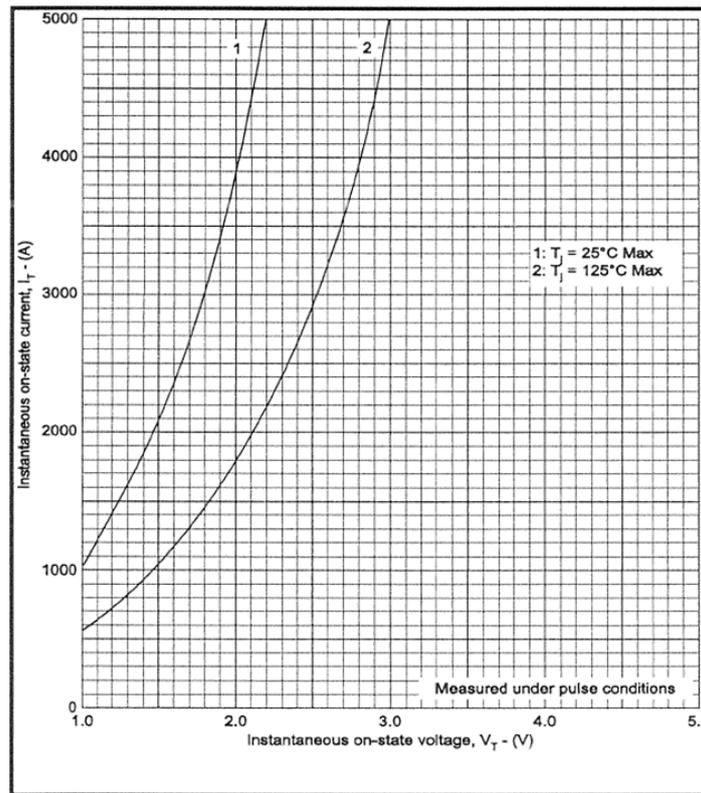


Fig. 2 Maximum (limit) on-state characteristics

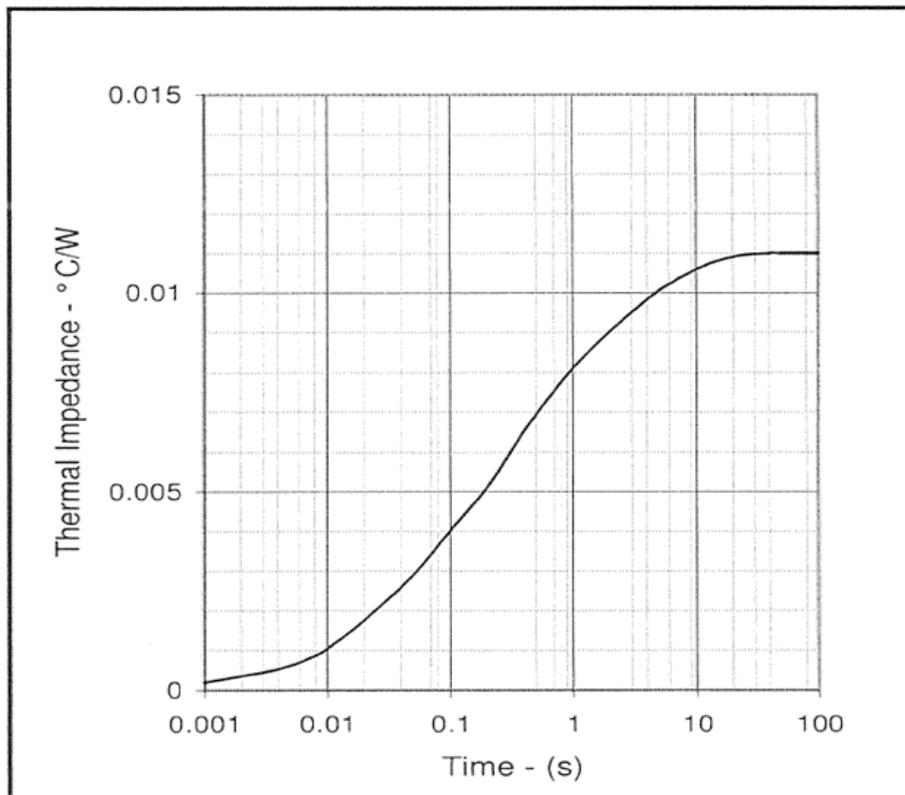


Fig.3 Maximum (limit) transient thermal impedance – double side cooled

ADDITIONAL ORDERING INFORMATION

PT Pulse Power Thyristor
85Q Device type
W Package outline type code
x Lead length (see table, right)
45 Voltage x100

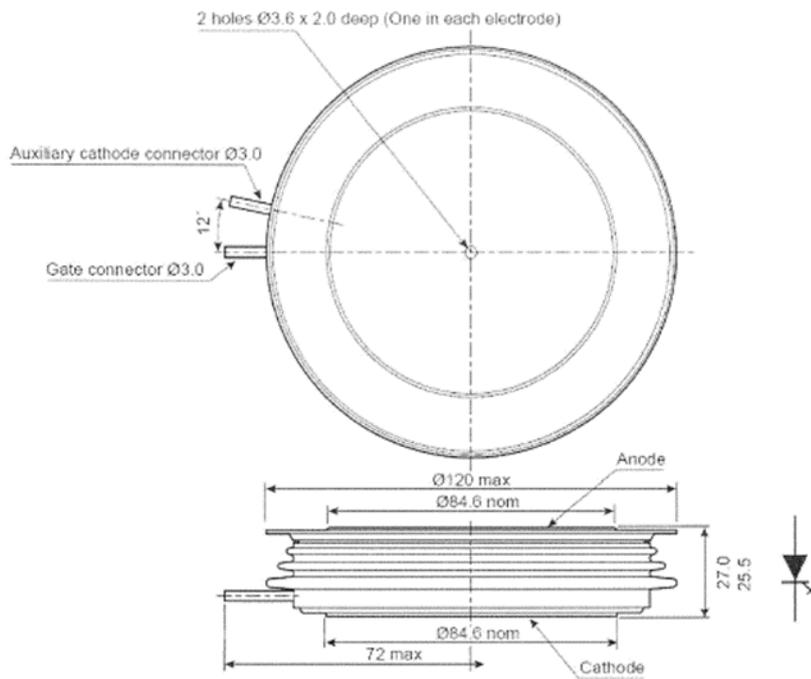
Lead length (x)		
O	No lead	
C	8"	200mm
D	10"	250mm
E	12"	300mm
F	16"	400mm
G	18"	450mm
H	20"	500mm
J	24"	600mm
K	30"	750mm
L	40"	1000mm

PACKAGE DETAILS

For further package information, please contact Customer services.

All dimensions in mm, unless stated otherwise.

DO NOT SCALE



Nominal weight: 1400g
Clamping force: 40kN ± 10%

Package outline type code: W

Fig. 4 Package outline

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The products and information in this publication are intended for use by appropriately trained technical personnel.

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The products are not intended for use in applications where a failure or malfunction may cause loss of life, injury or damage to property. The user must ensure that appropriate safety precautions are taken to prevent or mitigate the consequences of a product failure or malfunction.

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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We annotate datasheets in the top right hand corner of the front page, to indicate product status if it is not yet fully approved for production. The annotations are as follows:

Target Information:	This is the most tentative form of information and represents a very preliminary specification. No actual design work on the product has been started.
Provisional Information:	Some initial development work has been performed. The datasheet represents a view of the end product based on very limited information. Certain details will change.
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