PT85QWx45
Pulse Power Thyristor Switch

Preliminary Information

DS5334-2 July 2012 (LN 29644)

KEY PARAMETERS

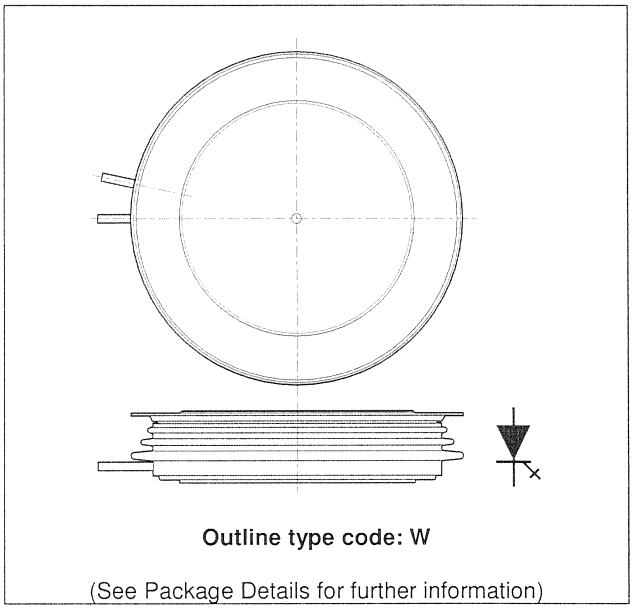
V_{DRM}	4500V
$I_{T(AV)}$	1670A
I_{TSM}	37000A
dI_T/dt	22000A/µs

APPLICATIONS

- Pulse Power
- Crowbars
- Ignitron Replacement

FEATURES

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



Outline type code: W

(See Package Details for further information)

Fig. 1 Package outline

VOLTAGE RATINGS

Type Number	Repetitive Peak Off-state Voltage V_{DRM} (V)	Repetitive Peak Reverse Voltage V_{RRM} (V)	Conditions
PT85QWx45	4500	16	T_{vj} = 0° to125°C, I_{DRM} =, I_{RRM} = 50mA, V_{DRM}, V_{RRM} t_p = 10ms

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
Double Side Cooled				
$I_{T(AV)}$	Mean on-state current	T_{case} = 80°C, Half sine 50Hz resistive load	1670	A
$I_{T(RMS)}$	RMS on-state current	T_{HS} = 80°C	1225	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{TSM}	Surge (non repetitive) on-state current	10ms half sine. T_{case} = 125°C	29.6	kA
I^2t	I^2t for fusing	V_R = 50% V_{RRM} - ¼ sine	4.38	MA^2s
I_{TSM}	Surge (non repetitive) on-state current	10ms half sine; T_{case} = 125°C	37	kA
I^2t	I^2t for fusing	V_R = 0	6.85	MA^2s

THERMAL AND MECHANICAL RATINGS

Symbol	Parameter	Conditions		Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance – junction to case	Double side cooled	dc	-	0.01	°C/W
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Clamping force 40kN with mounting compound	Double side	-	0.001	°C/W
T_{vj}	Virtual junction temperature	On-state (conducting)		-	135	°C
		Reverse (blocking)		-	125	°C
T_{stg}	Rate of rise of reverse gate current			-55	125	°C
-	Clamping force			36.0	44.0	kN

DYNAMIC CHARACTERISTICS

Symbol	Parameter	Conditions		Min.	Max.	Units
I_{RRM}/I_{DRM}	Peak reverse and off-state current	At V_{RRM}/V_{DRM} T_{case} = 125°C, V_{RG} = 0V		-	250	mA
dV/dt	Maximum linear rate of rise of off-state voltage	To 66% V_{DRM}; $R_{GK} \leq 1.5\Omega$, T_j = 125°C		-	200	V/µs
dI/dt	Rate of rise of on-state current	From 67%V_{DRM} to 90kA Gate source 130A t_r 1.5µs, T_j =125°C	Non-repetitive	-	22	kA/µs
$V_{T(TO)}$	Threshold voltage	At T_{vj} = 125°C		-	1.45	V
r_T	On-state slope resistance	At T_{vj} = 125°C		-	0.3	mΩ

GATE TRIGGER CHARACTERISTICS AND RATINGS

Symbol	Parameter	Conditions	Min.	Max.	Units
V_{GT}	Gate trigger voltage	V_{DRM} = 5V, T_{case} = 25°C	1.0	4.0	V
I_{GT}	Gate trigger current	V_{DRM} = 5V, T_{case} = 25°C	-	1.5	A

ORDERING INFORMATION

PT Pulse Power Thyristor
85Q Device type
W package outline type code
x lead length (see table, right)
45 Voltage x 100

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

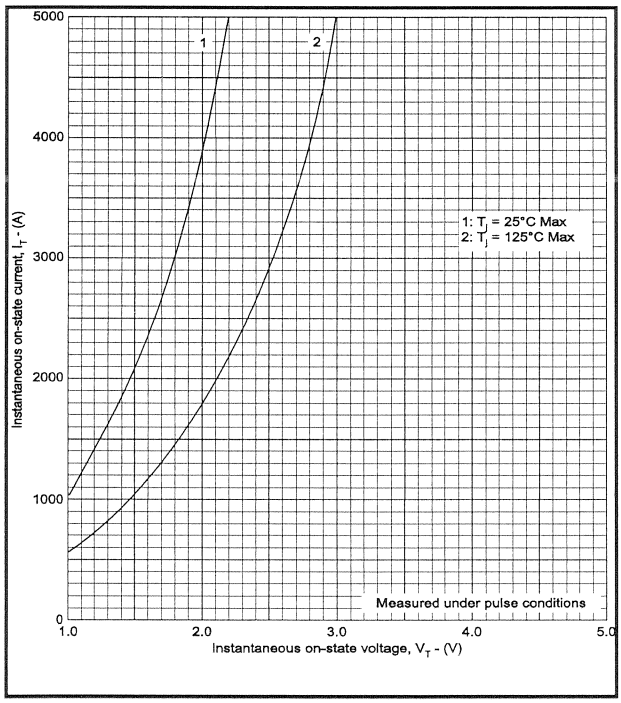


Fig.2 Maximum (limit) on-state characteristics

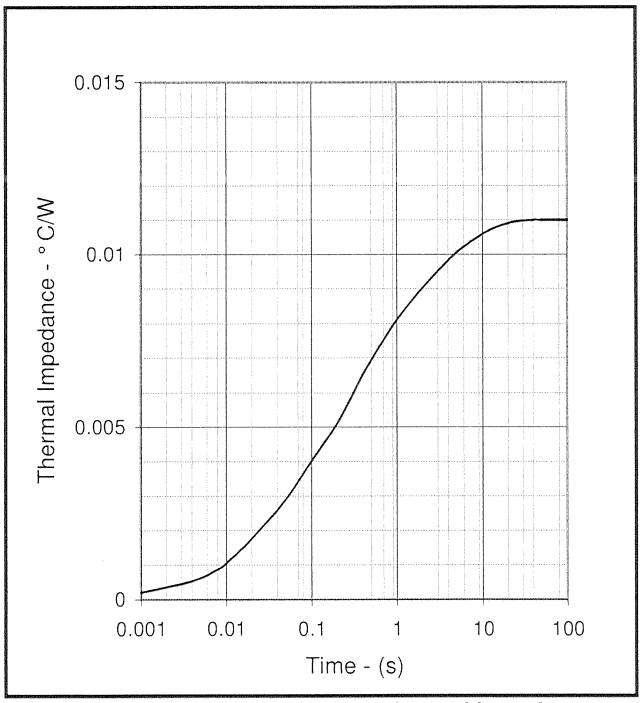
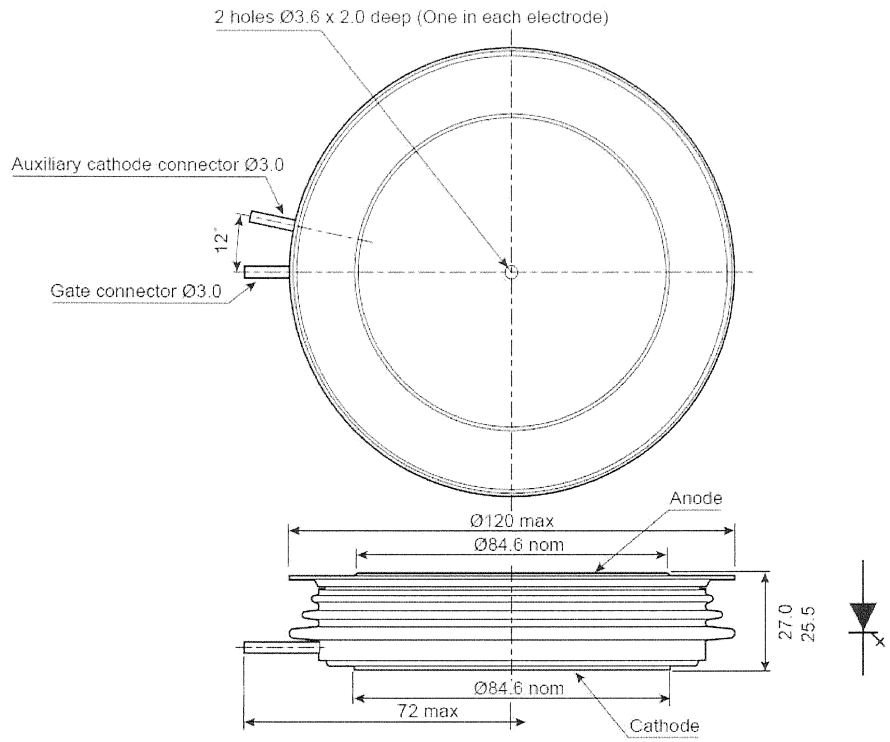


Fig.3 Maximum (limit) transient thermal impedance-double side cooled

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: 40.0kN ±10%

Package outline type code: W

Fig.4 Package outline

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