

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.

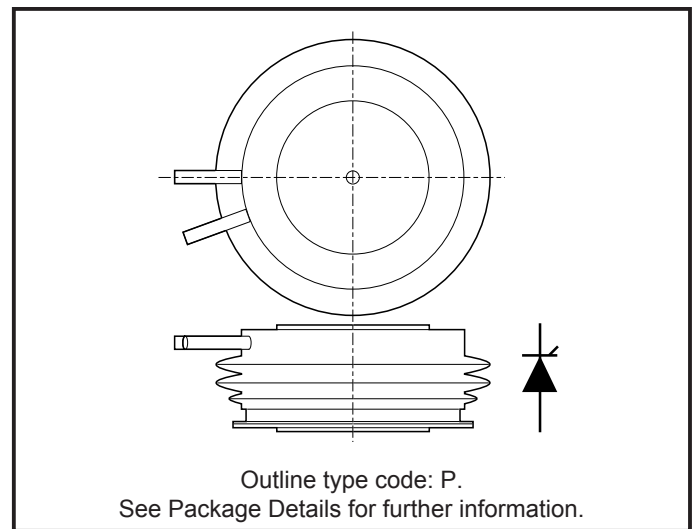


Fig.1 Package outline

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

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	-	0.033	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 12.0kN with mounting compound	-	0.008	$^{\circ}C/W$
T_{vj}	Virtual junction temperature	On-state (conducting)	-	135	$^{\circ}C$
		Reverse (blocking)	-	125	$^{\circ}C$
T_{stg}	Storage temperature range		-55	125	$^{\circ}C$
-	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} , $T_{case} = 125^{\circ}C$	-	50	mA
dV/dt	Maximum linear rate of rise of off-state voltage	To 67% V_{DRM} , $T_j = 125^{\circ}C$, $R_{gk} \leq 1.5\Omega$	-	200	$V/\mu s$
dI/dt	Rate of rise of on-state current	From 67% V_{DRM} to 20kA Gate source 30A $t_r = 1.5\mu s$, $T_j = 25^{\circ}C$	-	5000	$A/\mu s$
$V_{T(TO)}$	Threshold voltage	At $T_{vj} = 125^{\circ}C$	-	1.4	V
r_T	On-state slope resistance	At $T_{vj} = 125^{\circ}C$	-	1.52	m Ω

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

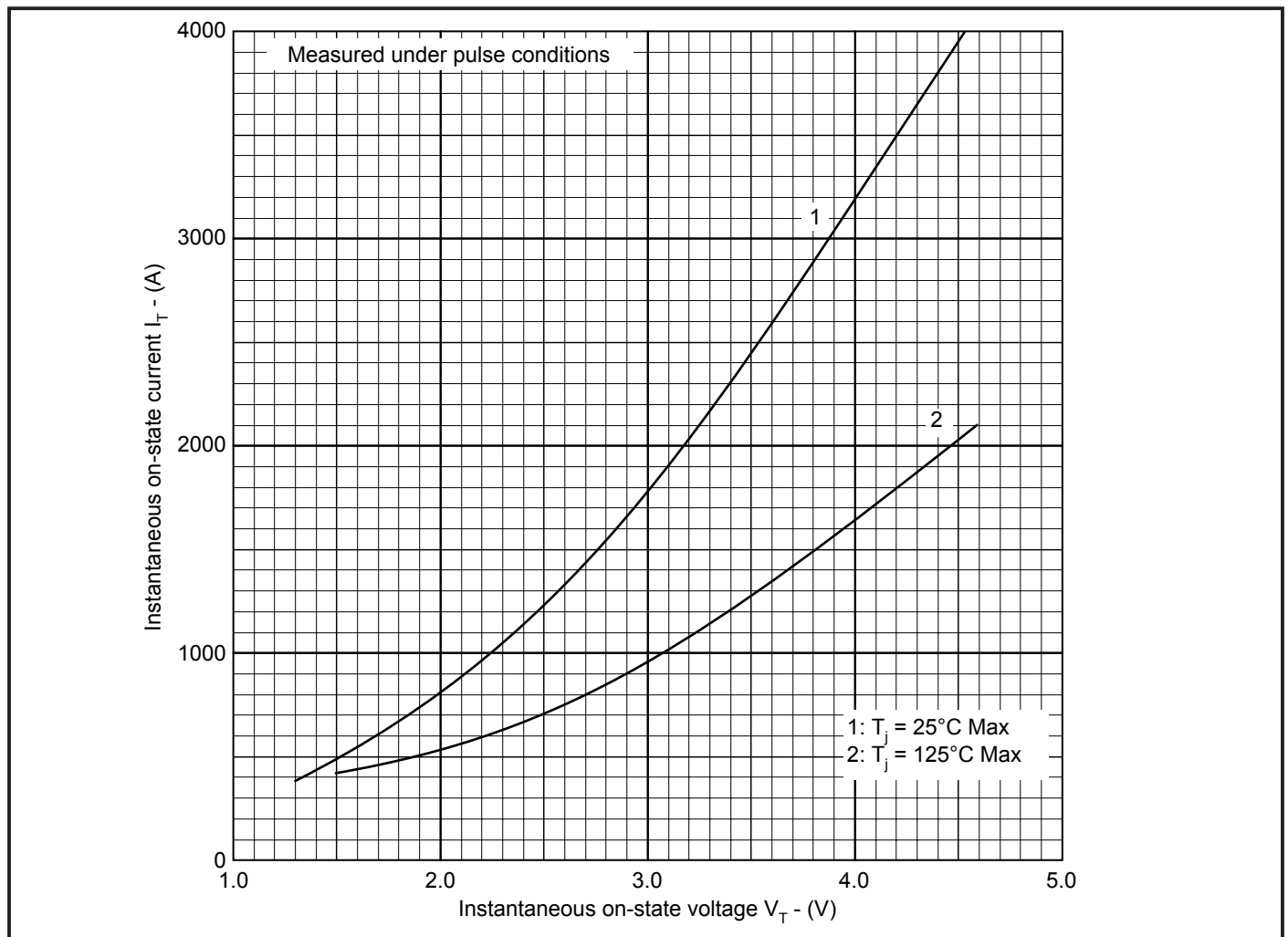


Fig.2 Maximum (limit) on-state characteristics

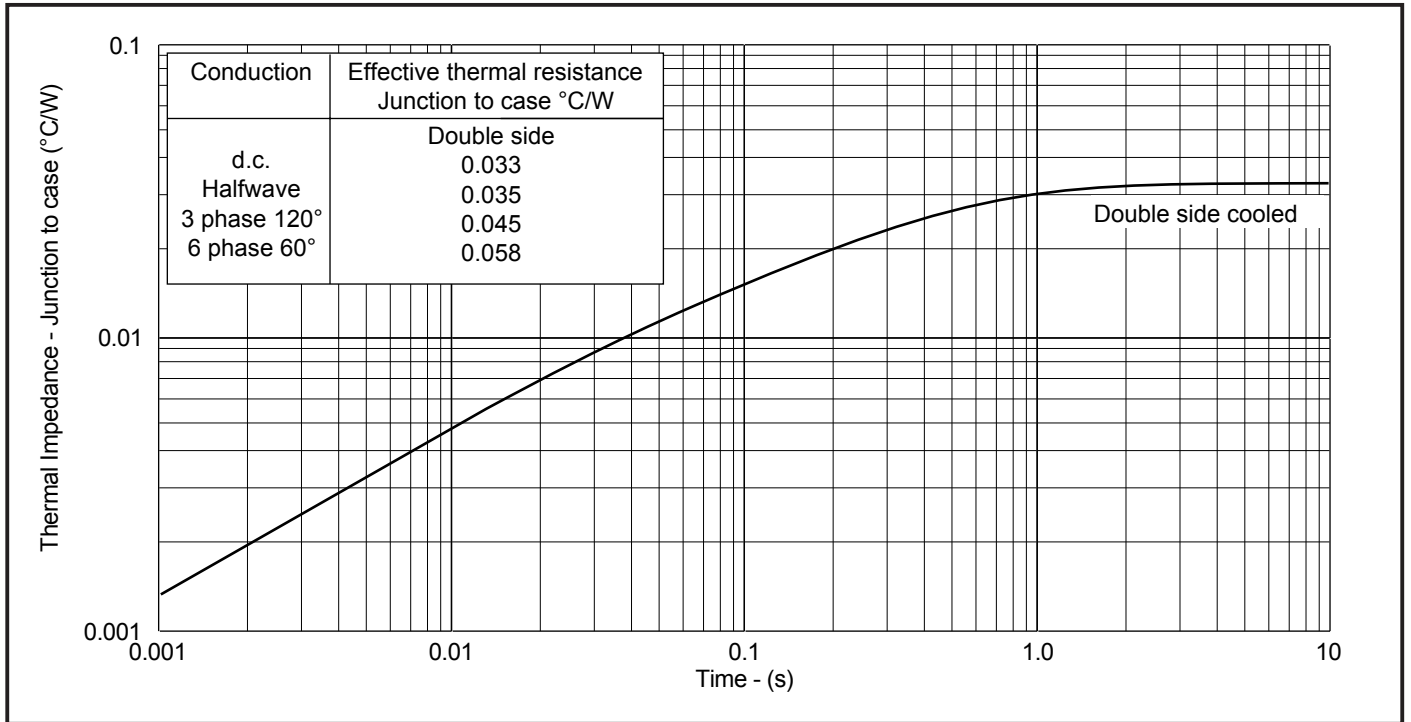
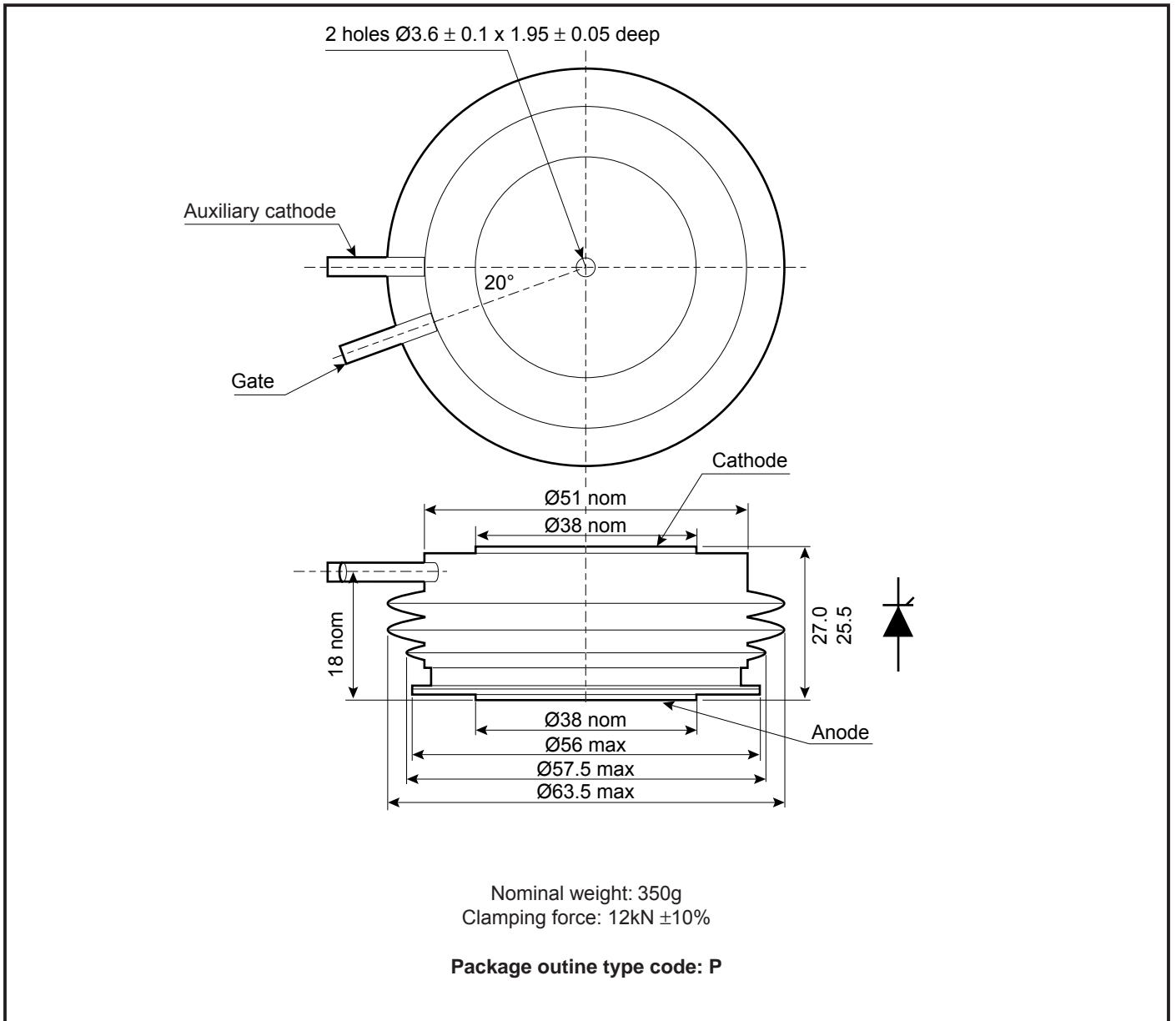


Fig.3 Maximum (limit) transient thermal impedance - junction to case

PACKAGE DETAILS

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





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