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PHASE CONTROL THYRISTOR AT970

Repetitive voltage up to **3400 V**
Mean on-state current **4128 A**
Surge current **68 kA**

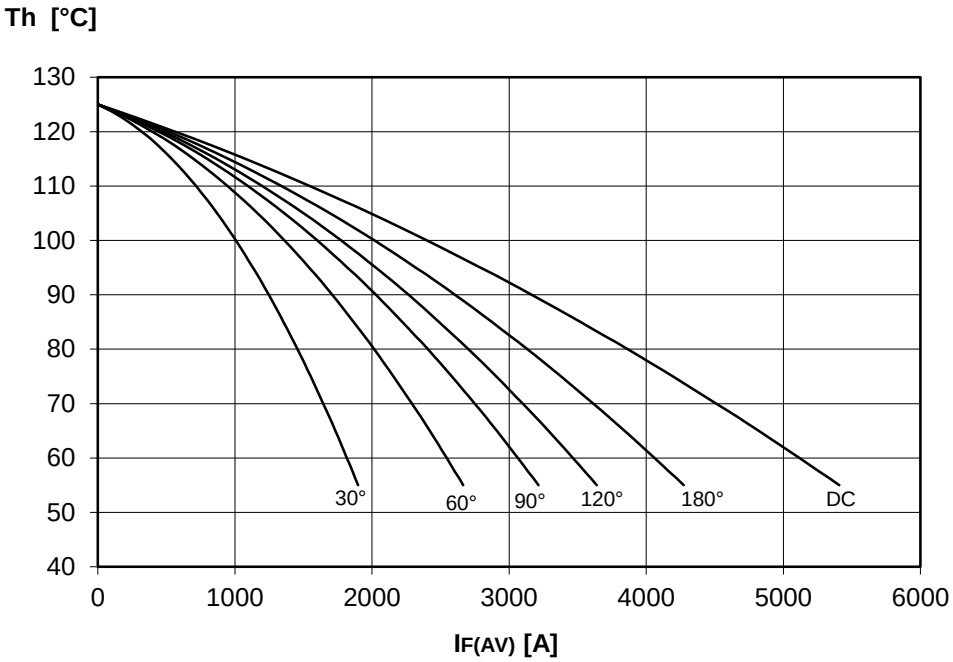
FINAL SPECIFICATION
July 22 - Issue: 4

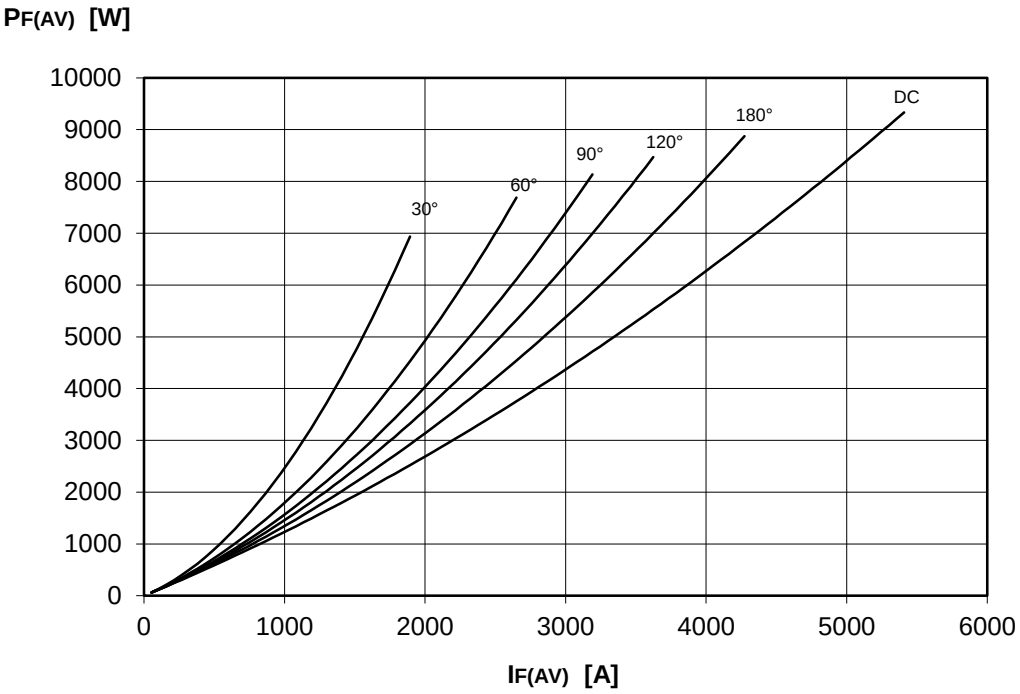
Symbol	Characteristic	Conditions	Tj [°C]	Value	Unit
BLOCKING					
V_{RRM}	Repetitive peak reverse voltage		125	3400	V
V_{RSM}	Non-repetitive peak reverse voltage		125	3500	V
V_{DRM}	Repetitive peak off-state voltage		125	3400	V
I_{RRM}	Repetitive peak reverse current	V=VRRM	125	300	mA
I_{DRM}	Repetitive peak off-state current	V=VDRM	125	300	mA
CONDUCTING					
$I_{T(AV)}$	Mean on-state current	DC sin, 50 Hz, Th=55°C, double side cooled		4128	A
$I_{T(AV)}$	Mean on-state current	DC sin, 50 Hz, Tc=85°C, double side cooled		3287	A
I_{TSM}	Surge on-state current	sine wave, 10 ms	125	68.0	kA
I^2t	I^2t	without reverse voltage		23120 x1E3	A^2s
V_T	On-state voltage	On-state current = 7500 A	25	1.95	V
$V_{T(TO)}$	Threshold voltage		125	1.12	V
r_T	On-state slope resistance		125	0.112	mohm
SWITCHING					
di/dt	Critical rate of rise of on-state current, min.	From 67% VDRM, gate 10V 5ohm	125	200	A/µs
dv/dt	Critical rate of rise of off-state voltage, min.	Linear ramp up to 67% of VDRM	125	1000	V/µs
td	Gate controlled delay time, typical	VD=100V, gate source 10V, 10 ohm , tr=5 µs	25	.	µs
tq	Circuit commutated turn-off time, typical	dv/dt = 20 V/µs linear up to 75% VDRM		700	µs
Q_{RR}	Reverse recovery charge	di/dt=-20 A/µs, I= 2150 A	125	.	µC
I_{RR}	Peak reverse recovery current	VR= 50 V		.	A
I_H	Holding current, typical	VD=5V, gate open circuit	25	500	mA
I_L	Latching current, typical	VD=12V, tp=50µs	25	1500	mA
GATE					
V_{GT}	Gate trigger voltage	VD=12V	25	3.5	V
I_{GT}	Gate trigger current	VD=12V	25	250	mA
V_{GD}	Non-trigger gate voltage, min.	VD=67%VDRM	125	0.25	V
V_{FGM}	Peak gate voltage (forward)			10	V
I_{FGM}	Peak gate current			10	A
V_{RGM}	Peak gate voltage (reverse)			10	V
P_{GM}	Peak gate power dissipation	Pulse width 100 µs		150	W
P_G	Average gate power dissipation			3	W
MOUNTING					
$R_{th(j-c)}$	Thermal impedance, DC	Junction to case, double side cooled		6.0	°C/kW
$R_{th(c-h)}$	Thermal impedance	Case to heatsink, double side cooled		1.5	°C/kW
T_j	Operating junction temperature			-30 / 125	°C
F	Mounting force			80.0 / 100.0	kN
	Mass			3000	g

ORDERING INFORMATION : AT970 S 34
standard specification — VDRM&VRRM/100

DISSIPATION CHARACTERISTICS

SQUARE WAVE

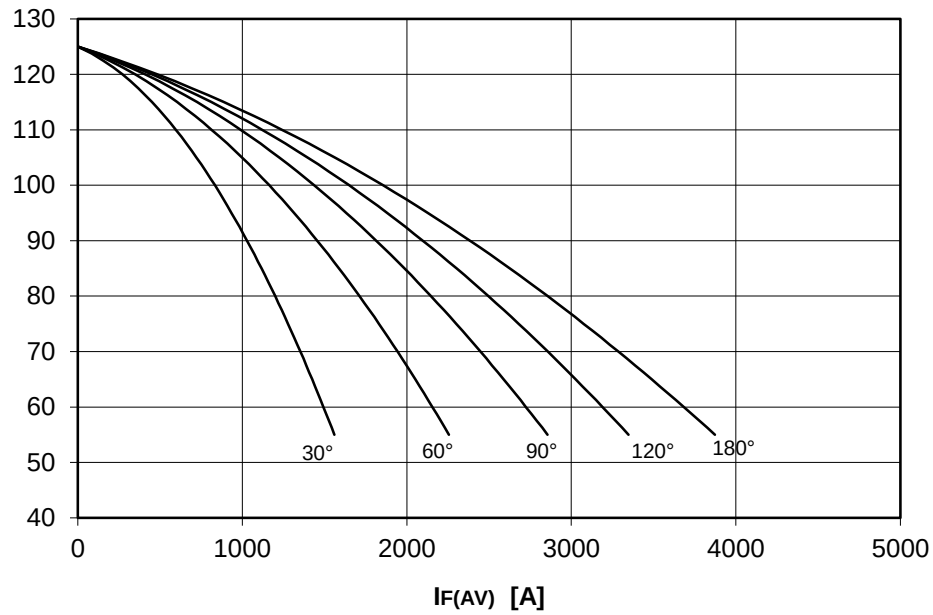




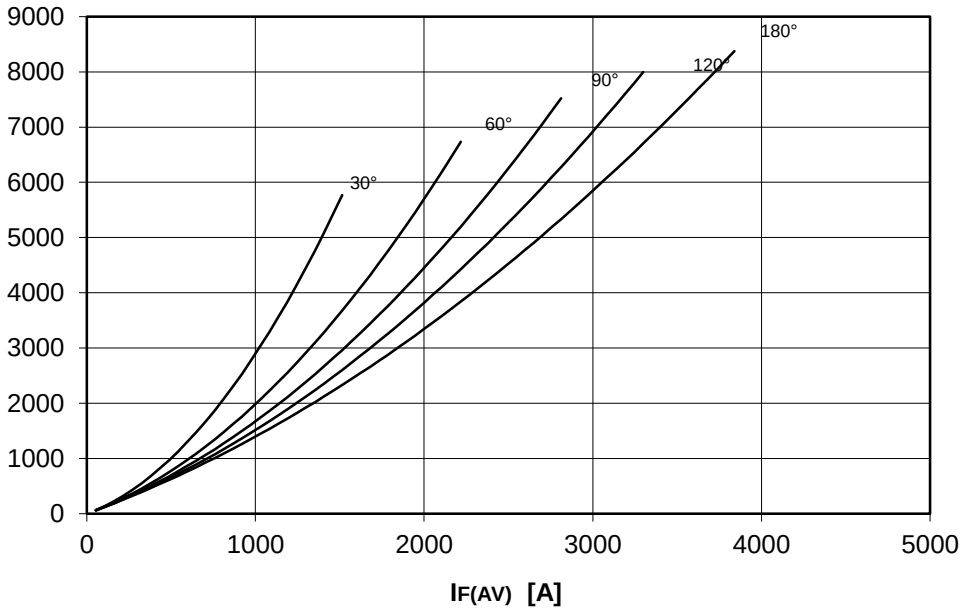
DISSIPATION CHARACTERISTICS

SINE WAVE

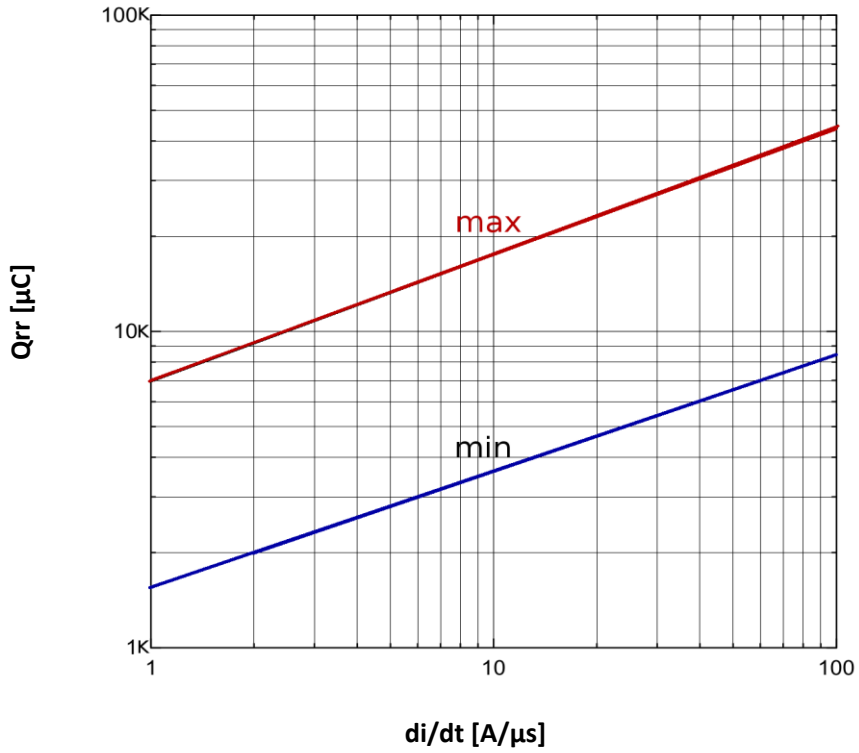
Th [°C]



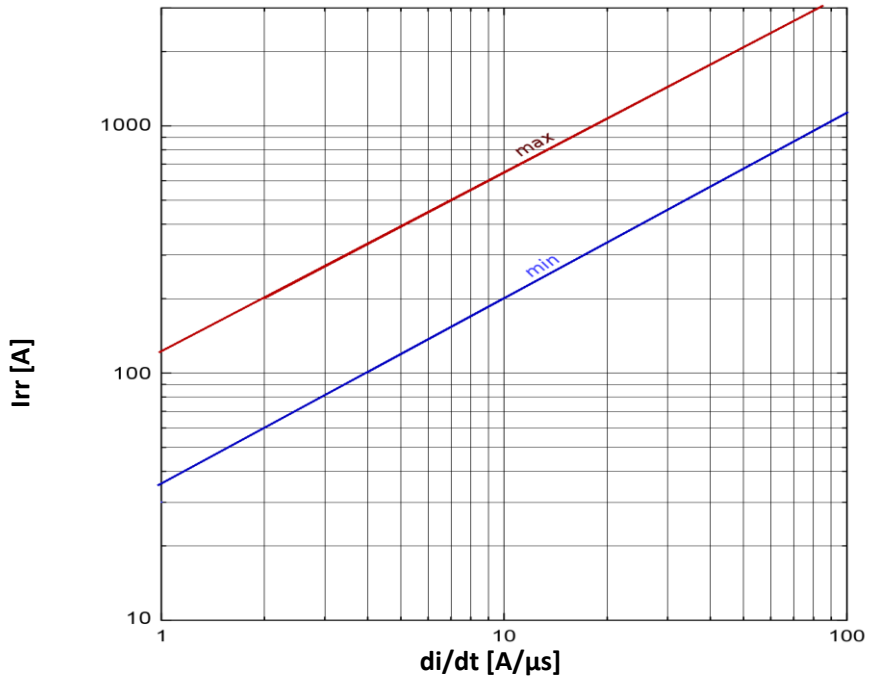
PF(AV) [W]



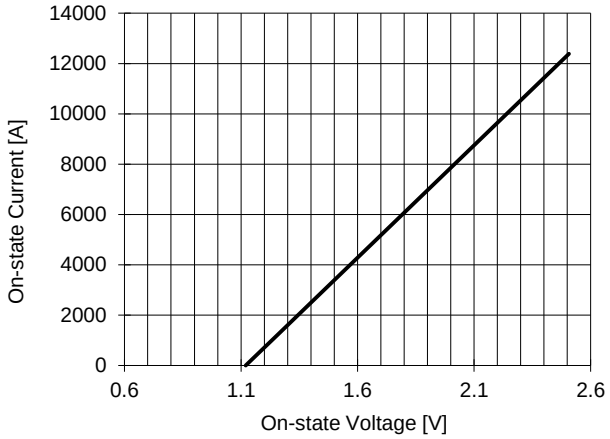
REVERSE RECOVERY CHARGE
Tj = 125°C - I_T = 3000 A



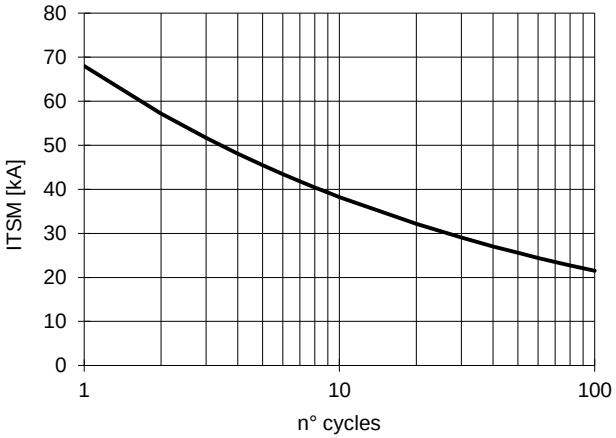
REVERSE RECOVERY CURRENT
Tj = 125°C - I_T = 3000 A



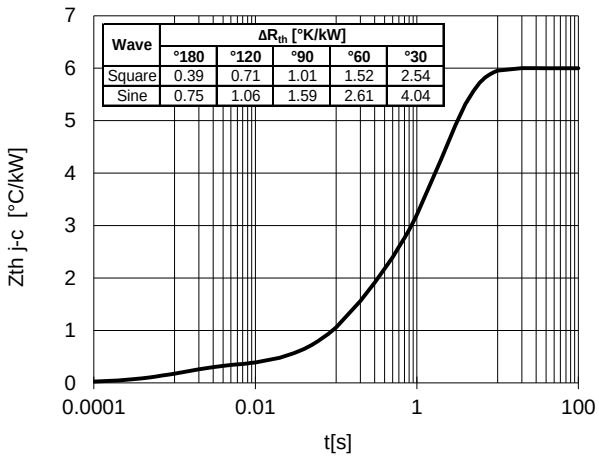
ON-STATE CHARACTERISTIC
Tj = 125 °C



SURGE CHARACTERISTIC
Tj = 125 °C



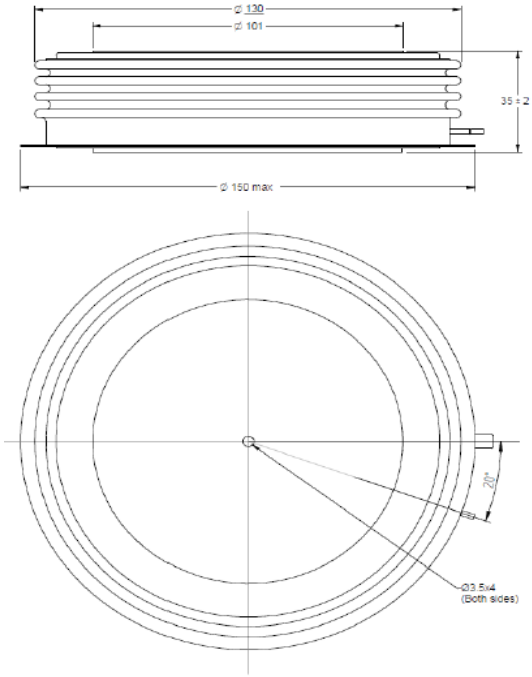
TRANSIENT THERMAL IMPEDANCE
DOUBLE SIDE COOLED



Wave	ΔR$_{th}$ [°K/kW]				
	°180	°120	°90	°60	°30
Square	0.39	0.71	1.01	1.52	2.54
Sine	0.75	1.06	1.59	2.61	4.04

$$Z_{th\ j-c}(t) = \sum_{i=1}^{n} A_i * \left(1 - e^{-\frac{t}{\tau_i}}\right)$$

i	1	2	3	4
A_i [°C/kW]	2.738	1.779	1.186	0.297
τ_i [s]	2.4	1.70	0.16	0.001



Dimensions in mm

Cathode terminal type DIN 46244 - A 4.8 - 0.8

Gate terminal type AMP 60598 - 1

All the characteristics given in this data sheet are guaranteed only with uniform clamping force, cleaned and lubricated heatsink, surfaces with flatness < .03 mm and roughness < 2 µm.
In the interest of product improvement POSEICO SpA reserves the right to change any data given in this data sheet at any time without previous notice.
If not stated otherwise the maximum value of ratings (simbols over shaded background) and characteristics is reported.

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