

# Phase Control Thyristors

-Phaseleg Topology-  
in ISOPLUS i4-PAC™

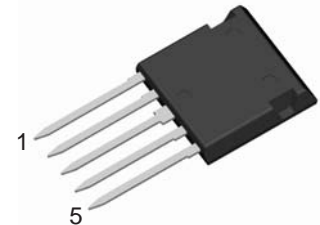
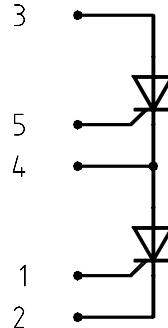
$$V_{DRM} = V_{RRM} = 1200 \text{ V}$$

$$I_{T(AV)} = 21 \text{ A}$$

$$I_{TSM} = 300 \text{ A}$$

## Preliminary Data

$V_{RSM}$	$V_{RRM}$	Type
$V_{DSM}$	$V_{DRM}$	
V	V	
1300	1200	FCC 21-12io



Thyristors		Maximum Ratings	
Symbol	Conditions		
$V_{DRM}, V_{RRM}$		1200	V
$I_{T(AV)}$	sine 180°; $T_C = 90^\circ\text{C}$	21	A
$I_{T(AV)}$	square; $d = 1/3$ ; $T_C = 90^\circ\text{C}$	20	A
$I_{TSM}$	sine 180°; $t = 10 \text{ ms}$ ; $V_R = 0 \text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$	300	A
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 40 \text{ A}$ $f = 50 \text{ Hz}$ ; $t_p = 200 \mu\text{s}$	150	A/ $\mu\text{s}$
	$V_D = 2/3 V_{DRM}$ $I_G = 0.3 \text{ A}$ non repetitive, $I_T = 30 \text{ A}$ $di_G/dt = 0.3 \text{ A}/\mu\text{s}$	500	A/ $\mu\text{s}$
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$ ; $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$ ; method 1 (linear voltage rise)	1000	V/ $\mu\text{s}$

## Features

- Thyristor
  - for line frequency
  - chip technology for long term stability
- ISOPLUS i4-PAC™ package
  - isolated back surface
  - UL registered E 72873
  - low coupling capacity between pins and heatsink
  - enlarged creepage towards heatsink
  - application friendly pinout
  - high reliability
  - industry standard outline

## Applications

- controlled rectifiers
  - power supplies
  - drives
- AC switches

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_T$	$I_T = 30 \text{ A}$ ; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		1.3	1.3 V
$V_{GT}$ $I_{GT}$	$V_D = 6 \text{ V}$			1.4 V 55 mA
$V_{GD}$ $I_{GD}$	$T_{VJ} = T_{VJM}$ ; $V_D = 2/3 V_{DRM}$			0.2 V 5 mA
$I_L$	$t_p = 10 \mu\text{s}$ ; $V_D = 6 \text{ V}$ $I_G = 0.3 \text{ A}$ ; $di_G/dt = 0.3 \text{ A}/\mu\text{s}$			150 mA
$I_H$	$V_D = 6 \text{ V}$ ; $R_{GK} = \infty$			100 mA
$t_{gd}$	$V_D = 1/2 V_{DRM}$ ; $V_D = 6 \text{ V}$ $I_G = 0.3 \text{ A}$ ; $di_G/dt = 0.3 \text{ A}/\mu\text{s}$			2 $\mu\text{s}$
$I_R, I_D$	$V_R = V_{RRM}$ ; $V_D = V_{DRM}$ ; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		0.5	50 $\mu\text{A}$ mA
$R_{thJC}$ $R_{thJH}$	DC current		1.32	1.0 K/W K/W

IXYS reserves the right to change limits, test conditions and dimensions.

**Component**

Symbol	Conditions	Maximum Ratings	
$T_{VJ}$		-40...+125	°C
$T_{stg}$		-55...+125	°C
$V_{ISOL}$	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500	V~
$F_c$	mounting force with clip	20...120	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$C_p$	coupling capacity between shorted pins and mounting tab in the case		40	pF
$d_s, d_A$	pin - pin	1.7		mm
$d_s, d_A$	pin - backside metal	5.5		mm
<b>Weight</b>			9	g

**Dimensions in mm (1 mm = 0.0394")**
