

HIGH POWER THYRISTOR FOR INVERTER APPLICATIONS

YZPST-R0929LC10 (TQ<10US)

Features:

- . All Diffused Structure
- . Interdigitated Amplifying Gate Configuration
- . Guaranteed Maximum Turn-Off Time
- . High dV/dt Capability
- . Pressure Assembled Device

ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

V_{RRM} (1)	V_{DRM} (1)	V_{RSM} (1)
1000	1100	1200

V_{RRM} = Repetitive peak reverse voltage
 V_{DRM} = Repetitive peak off state voltage
 V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage and off state leakage	I_{RRM} / I_{DRM}	15 mA 70 mA (3)
Critical rate of voltage rise	dV/dt (4)	200 V/ μ sec

Notes:

All ratings are specified for $T_j=25^\circ\text{C}$ unless otherwise stated.

- (1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to $+125^\circ\text{C}$.
- (2) 10 msec. max. pulse width
- (3) Maximum value for $T_j = 125^\circ\text{C}$.
- (4) Minimum value for linear and exponential waveshape to 80% rated V_{DRM} . Gate open. $T_j = 125^\circ\text{C}$.
- (5) Non-repetitive value.
- (6) The value of di/dt is established in accordance with EIA/NIMA Standard RS-397, Section 5-2-2-6. The value defined would be in addition to that obtained from aubber circuit, comprising a 0.2 μF capacitor and 20 ohms resistance in parallel with the thristor under test.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Max. average value of on-state current	$I_{T(AV)M}$		929		A	Sinewave, 180° conduction, $T_c=55^\circ\text{C}$
RMS value of on-state current	$I_{T(RMS)m}$		1893		A	Nominal value
Peak one cPSTCle surge (non repetitive) current	I_{TSM}		-		kA	8.3 msec (60Hz), sinusoidal wave-shape, 180° conduction, $T_j = 125^\circ\text{C}$
			9.0		kA	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, $T_j = 125^\circ\text{C}$
I square t	I^2t		405×10^3		A^2s	8.3 msec
Latching current	I_L		-		mA	$V_D = 24 \text{ V}$; $R_L = 12 \text{ ohms}$
Holding current	I_H		1000		mA	$V_D = 24 \text{ V}$; $I = 2.5 \text{ A}$
Peak on-state voltage	V_{TM}		2.04		V	$I_{TM} = 1400 \text{ A}$
Critical rate of rise of on-state current (5, 6)	di/dt		1500		$\text{A}/\mu\text{s}$	Switching from $V_{DRM} \leq 1000 \text{ V}$, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		1000		$\text{A}/\mu\text{s}$	Switching from $V_{DRM} \leq 1000 \text{ V}$

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		30		W	
Average gate power dissipation	$P_{G(AV)}$		2		W	
Peak gate current	I_{GM}		-		A	
Gate current required to trigger all units	I_{GT}		300		mA	$V_D = 10\text{ V}; I_T = 3\text{ A}; T_j = +25\text{ }^\circ\text{C}$
Gate voltage required to trigger all units	V_{GT}		3.0		V	$V_D = 10\text{ V}; I_T = 3\text{ A}; T_j = +25\text{ }^\circ\text{C}$
Peak negative voltage	V_{RGM}		5		V	

Dynamic

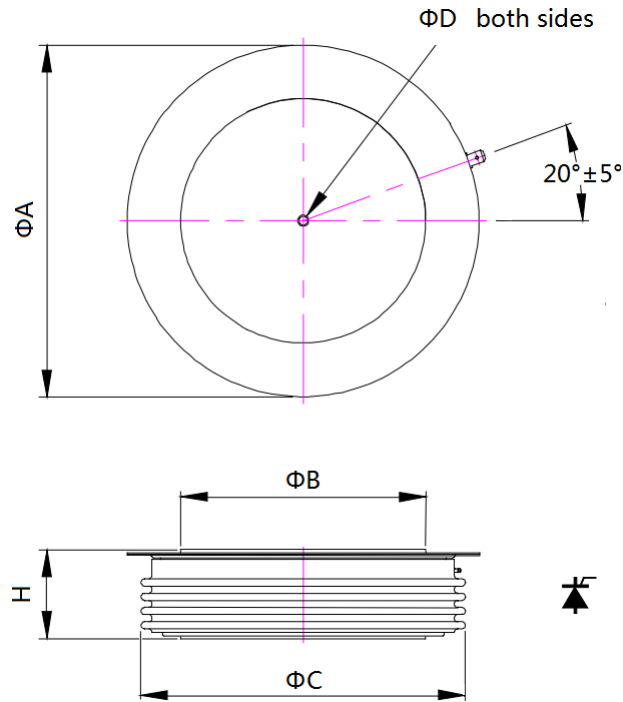
Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_{gd}		1.0	-	μS	$V_D = 67\% V_{DRM}, I_T = 2000\text{ A},$ $di/dt = 60\text{ A/us}, I_{FG} = 2\text{ A}, t_r = 0.5\text{ us},$ $T_j = 25\text{ }^\circ\text{C}$
Turn-on time	t_{gt}		2.0	-		
Turn-off time (with $V_R = -5\text{ V}$)	t_q	-	10	-	μS	$I_{TM} = 1000\text{ A}, t_p = 1000\text{ us},$ $di/dt = 60\text{ A/us}, V_r = 50\text{ V},$ $V_{dr} = 33\% V_{DRM}, dV_{dr}/dt = 200\text{ V/us}$
Reverse recovery current	I_{rm}		-		A	$I_{TM} = 4000\text{ A}, t_p = 2000\text{ us},$ $di/dt = 60\text{ A/us}$

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^\circ\text{C}$	
Storage temperature	T_{stg}	-40	+150		$^\circ\text{C}$	
Thermal resistance - junction to case	$R_{\Theta(j-c)}$		-		K/kW	Double sided cooled Single sided cooled
Thermal resistance - case to sink	$R_{\Theta(c-s)}$		-		K/kW	Double sided cooled * Single sided cooled *
Thermal resistance - junction to case	$R_{\Theta(j-s)}$		32 64		K/kW	Double sided cooled Single sided cooled
Mounting force	F	10	20	-	kN	
Weight	W			-	Kg	about

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing in page 3 of this Technical Data



Sym	A	B	C	D	H
mm	59	34	53	3.5x3	26±1