

ELECTRICAL CHARACTERISTICS AND RATINGS

Asymmetric thyristors

Type: YZPST A60133

Blocking - Off State

V_{RRM} (1)	V_{DRM} (1)
20	2000

V_{RRM} = Repetitive peak reverse voltage

V_{DRM} = Repetitive peak off state voltage

Repetitive peak reverse leakage and off state	I_{RRM} / I_{DRM}	100 mA
Critical rate of voltage rise	dV/dt (4)	1000 V/ μ sec

Conducting - on state

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 a snubber circuit, comprising a $0.2\ \mu\text{F}$ capacitor and 20 ohms resistance in parallel with the thristor under test.

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	$I_{T(AV)M}$		1000		A	Sinewave, 180° conduction, $T_{\text{sink}}=55^\circ\text{C}$
RMS value of on-state current	I_{TRMS}		2000		A	Nominal value
Peak one cPSTCle surge (non repetitive) current	I_{TSM}		20		KA	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, $T_j = 125^\circ\text{C}$
I square t	I^2t		2×10^6		A^2s	10.0 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}		2.42		V	$I_{TM} = 2000\text{ A}$; $T_j = 125^\circ\text{C}$
Critical rate of rise of on-state current (5, 6)	di/dt		-		A/ μs	Switching from $V_{DRM} \leq 1000\text{ V}$, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		800		A/ μs	Switching from $V_{DRM} \leq 1000\text{ V}$

ELECTRICAL CHARACTERISTICS AND RATINGS

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		30		W	$t_p = 40 \mu s$
Average gate power dissipation	$P_{G(AV)}$		5		W	
Peak gate current	I_{GM}		-		A	
Gate current required to trigger all units	I_{GT}		- 300 -		mA mA mA	$V_D = 6 V; R_L = 3 \text{ ohms}; T_j = -40^\circ C$ $V_D = 6 V; R_L = 3 \text{ ohms}; T_j = +25^\circ C$ $V_D = 6 V; R_L = 3 \text{ ohms}; T_j = +125^\circ C$
Gate voltage required to trigger all units	V_{GT}		- 3.0 -		V V V	$V_D = 6 V; R_L = 3 \text{ ohms}; T_j = -40^\circ C$ $V_D = 6 V; R_L = 3 \text{ ohms}; T_j = 0-125^\circ C$ $V_D = \text{Rated } V_{DRM}; R_L = 1000 \text{ ohms}; T_j = +125^\circ C$
Peak negative voltage	V_{GRM}		5		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d		1.6	0.8	μs	$I_{TM} = 500 A; V_D = \text{Rated } V_{DRM}$ Gate pulse: $V_G = 20 V; R_G = 20 \text{ ohms}; t_r = 0.1 \mu s; t_p = 20 \mu s$
Turn-off time (with $V_R = -50 V$)	t_q		-	30	μs	$I_{TM} = 1000 A; di/dt = 25 A/\mu s;$ $V_R \geq -50 V; \text{Re-applied } dV/dt = 20 V/\mu s \text{ linear to } 80\% V_{DRM}; V_G = 0;$ $T_j = 125^\circ C; \text{Duty cPSTC} \geq 0.01\%$
Reverse recovery charge	Q_{rr}		-	-	μC	$I_{TM} = 1000 A; di/dt = 25 A/\mu s;$ $V_R \geq -50 V$

* For guaranteed max. value, contact factory.

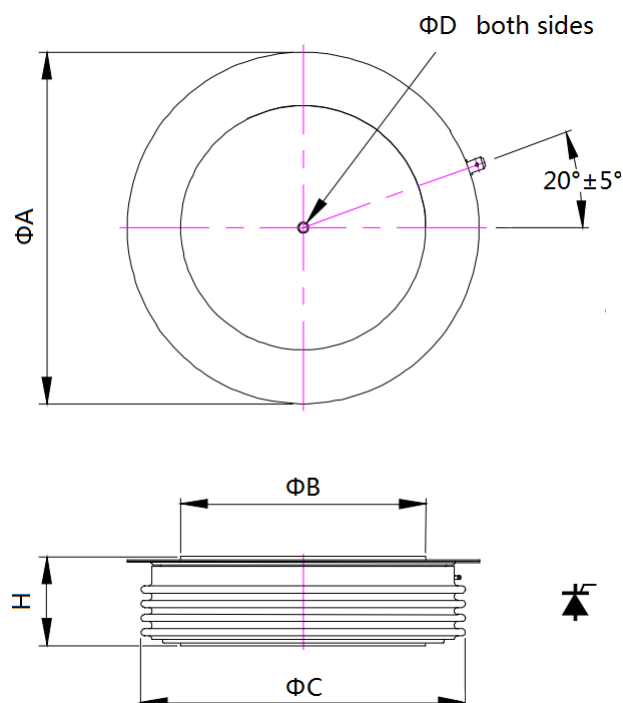
THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^\circ C$	
Storage temperature	T_{stg}	-40	+150		$^\circ C$	
Thermal resistance - junction to case	$R_{\Theta(j-c)}$		- -		K/W	Double sided cooled Single sided cooled
Thermal resistance - case to heatsink	$R_{\Theta(c-s)}$		- -		K/W	Double sided cooled Single sided cooled
Thermal resistance - junction to heatsink	$R_{\Theta(j-s)}$		0.02 0.04		K/W	Double sided cooled Single sided cooled
Mounting force	P	19	26		kN	
Weight	W			-	g	about

* Mounting surfaces smooth, flat and greased

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

CASE OUTLINE AND DIMENSIONS.



Sym	A	B	C	D	H
mm	75	47	66	3.5×3	26±1