

Phase Control Thyristors

Type: YZPST-T171-320-10

**Features**

- Center amplifying gate configuration
- Compression bonded encapsulation
- High dV/dt Capability
- Stud type, thread inch or metric

**Typical Applications**

- Medium power switching
- DC power supplies

**Maximum Ratings And Characteristics**

Symbol	Parameter		Values	Units	Test Conditions
<b>ON-STATE</b>					
$I_{TAV}$	Mean on-state current		320	A	Sinewave, 180° conduction, $T_c=84^\circ\text{C}$
$I_{TRMS}$	RMS value of on-state current		502	A	Nominal value
$I_{TSM}$	Peak one cycle surge (non repetitive) current		7	kA	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, $T_j = 125^\circ\text{C}$
$I^2t$	I square t		240	KA <sup>2</sup> s	8.3 msec and 10.0 msec
$I_L$	Latching current		700	mA	$V_D = 24\text{ V}$ ; $R_L = 12\text{ ohms}$
$I_H$	Holding current		300	mA	$V_D = 24\text{ V}$ ; $I = 2.5\text{ A}$
$V_{TM}$	Peak on-state voltage		1.6	V	$I_{TM} = 1005\text{ A}$
$di/dt$	Critical rate of rise of on-state current	non-repetitive	1000	A/ $\mu\text{s}$	Gate drive 20V, 20 $\Omega$ , $t_r \leq 1\mu\text{s}$ , $T_j = T_{jmax}$ , anode voltage $\leq 80\% V_{DRM}$
		repetitive	-		
<b>BLOCKING</b>					
$V_{DRM}$	Repetitive peak off state voltage		1000	V	
$V_{RRM}$	Repetitive peak reverse voltage				
$V_{DSM}$	Non repetitive peak off state voltage		1100	V	
$V_{RSM}$	Non repetitive peak reverse voltage				
$I_{DRM}$	Repetitive peak off state current		70	mA	$T_j = 100^\circ\text{C}$ , $V_{RRM}$ $V_{DRM}$ applied
$I_{RRM}$	Repetitive peak reverse current				
$dV/dt$	Critical rate of voltage rise		500	V/ $\mu\text{s}$	$T_j = T_{jmax}$ , linear to 80% rated $V_{DRM}$
<b>TRIGGERING</b>					
$P_{G(AV)}$	Average gate power dissipation		3	W	
$P_{GM}$	Peak gate power dissipation		-	W	
$I_{GM}$	Peak gate current		6	A	
$I_{GT}$	Gate trigger current		250	mA	$T_c = 25^\circ\text{C}$
$V_{GT}$	Gate trigger voltage		2.5	V	$T_c = 25^\circ\text{C}$
$V_{GD}$	Gate non-trigger voltage		0.6	V	$T_j = 125^\circ\text{C}$
$V_{T0}$			1.006	V	$T_j = 125^\circ\text{C}$
$r_T$			0612	m $\Omega$	



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SWITCHING				
$t_q$	Turn-off time	125	$\mu s$	$I_{TM}=320A, T_J=T_{Jmax}, di/dt=10A/\mu s,$ $V_R=100V, dv/dt=50V/\mu s, \text{ Gate } 0V \ 100\Omega,$ $t_p=500\mu s$
$t_d$	Delay time	-		Gate current A, $di/dt=40A/\mu s,$ $V_d=0.67\%V_{DRM}, T_J=25^\circ C$

### Thermal And Mechanical

Symbol	Parameter	Values	Units	Test Conditions
$T_j$	Operating temperature	-40~125	$^\circ C$	
$T_{stg}$	Storage temperature	-40~125	$^\circ C$	
$R_{th(j-c)}$	Thermal resistance - junction to case	0.085	$^\circ C/W$	DC operation , Single sided cooled
$R_{th(c-s)}$	Thermal resistance - case to sink	-	$^\circ C/W$	Single sided cooled
P	Mounting force	-	Nm	$\pm 10 \%$
W	Weight	440	g	about

### OUTLINE

