YZPST

Yangzhou Positioning Tech. Co., Ltd

Technical Data

PST KP847LT

HIGH POWER PHASE CONTROL THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features :

- Blocking Capability up to 2800 V
- High dV/dt Capability
- All Diffused Structure
- Amplifying Gate Configuration
- Rugged Ceramic Hermetic Package

ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Repetitive peak reverse voltage	V_{RRM}		2800		V	T_j = -40 °C to 125 °C
Repetitive peak off-state voltage	V_{DRM}		2800		V	T_j = -40 °C to 125 °C
Non repetitive peak reverse voltage	V_{RSM}		2900		V	T_j = -40 °C to 125 °C
Repetitive peak reverse current	I_{RRM}		200		mA	T_j = Tjmax , V = V_{RRM}
Repetitive peak off-state current	I_{DRM}		200		mA	T_j = Tjmax ,V = V_{DRM}

Conducting

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Average value of on-state current	$I_{T(AV)}$		2670		A	50 Hz sine wave,180° conduction, T_c = 85 °C
RMS value of on-state current	$I_{T(RMS)}$		4192		A	50 Hz sine wave,180° conduction, T_c = 85 °C
Surge non repetitive current	I_{TSM}		40		kA	50 Hz sine wave Half cycle
I square t	I^2t		8000		kA^{2}s	V_R = 0 $T_j = T_{jmax}$
Peak on-state voltage	V_{TM}		1.19		V	On-state current 2000 A, Tj= Tjmax
Threshold voltage	$V_{T(TO)}$		0.84		V	$T_j = T_{jmax}$
On-state slope resistance	r_T		0.175		mΩ	$T_j = T_{jmax}$
Holding current	I_H			600	mA	V_D = 12 V; I_T = 2.5 A
Latching current	I_L			1000	mA	V_D = 12 V; R_L = 12 Ω

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Triggering

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Gate current	I_{GT}		300		mA	$V_D = 6$ V, $R_L = 3$ Ω, Tj = - 40 °C
			400		mA	$V_D = 6$ V, $R_L = 3$ Ω, Tj = 25 °C
			125		mA	$V_D = 6$ V, $R_L = 3$ Ω, Tj = 125 °C
Gate voltage	V_{GT}		5		V	$V_D = 6$ V, $R_L = 3$ Ω, Tj = - 40 °C
			3.5		V	$V_D = 6$ V, $R_L = 3$ Ω, Tj = 0 ÷ 125 °C
		0.3			V	$V_D = V_{DRM}$, $R_L = 1$ kΩ, Tj = 125 °C
Peak gate current	I_{GM}		10		A	
Peak reverse gate voltage	V_{RGM}		10		V	
Peak gate power dissipation	P_{GM}		180		W	
Average gate power dissipation	$P_{G(AV)}$		10		W	

Switching

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Critical rate of rise of on-state current	di/dt		800		A/µs	$I_G = 5 \cdot I_{GT}$, $t_r = 1$µs, $V_{DRM} \leq 2000$V, $T_j = T_{jmax}$
Critical rate of rise of on-state voltage	dv/dt		1000		V/µs	Linear ramp up to 75% of V_{DRM}
Gate controlled delay time	t_d			3	µs	$I_{TM} = 50$ A, $V_D = 67\%$ V_{DRM}, $V_G = 20$ V, $R_G = 20$ Ω, $t_r = 0.1$ µs, $t_p = 20$ µs
Turn-off time	t_q			400	µs	$I_{TM} = 2000$ A; di/dt = 10 A/µs; $V_R \geq 100$ V, dV/dt = 20 V/µs linear to 80% V_{DRM}, $V_G = 0$ V; $T_j = T_{jmax}$
Reverse recovery charge	Q_{rr}				µC	$I_T = 500$ A, di/dt = 20 A/µs
Reverse recovery current	I_{rr}				A/µs	$V_R \geq 50$ V, $T_j = T_{jmax}$

Thermal and mechanical

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Operating temperature	T_j	-40	125		°C	
Storage temperature	T_{stg}	-40	150		°C	
Thermal resistance junction to case	$R_{th(j-c)}$		0.0075		°C/W	Double side cooled, 180° SIN
Thermal resistance case to sink	$R_{th(c-s)}$		0.002		°C/W	Double side cooled, mounting surfaces smooth, flat and greased
Mounting force	F	40	50		kN	
Weight	W			1200	g	

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Thermal impedance junction to case

Zth(j-c) [°C/W] vs t [s]

On-state characteristic

I_T [A] vs V_T [V]

Tj = Tjmax

Surge current vs number of cycles

I_{TSM} [kA] vs no. of cycles

Tj = Tjmax

$V_R = 0$
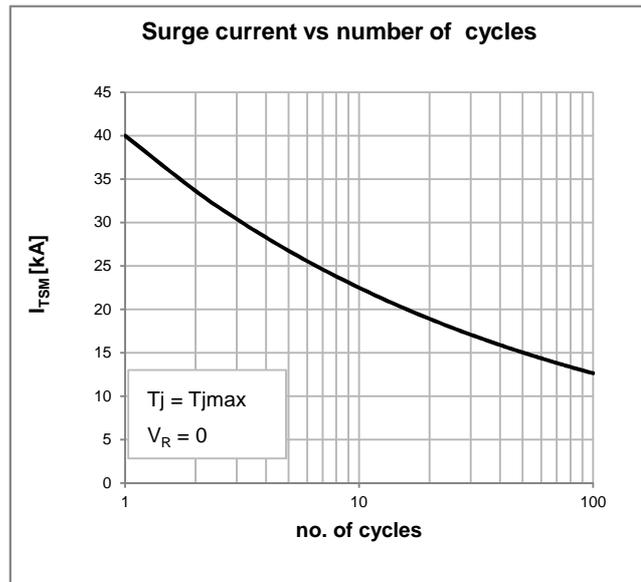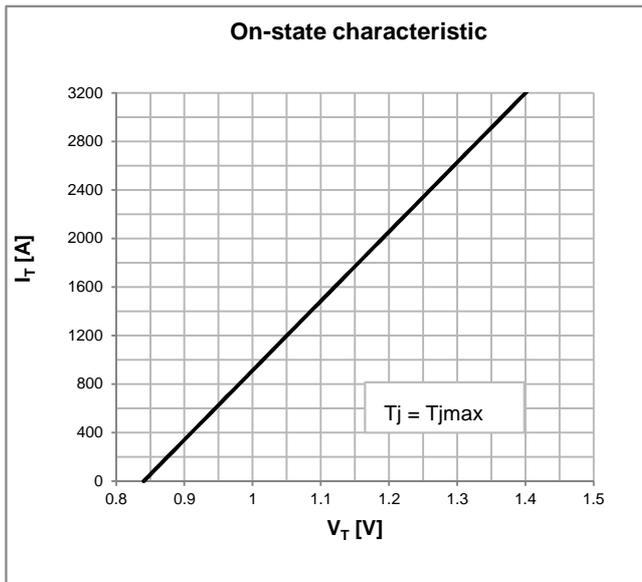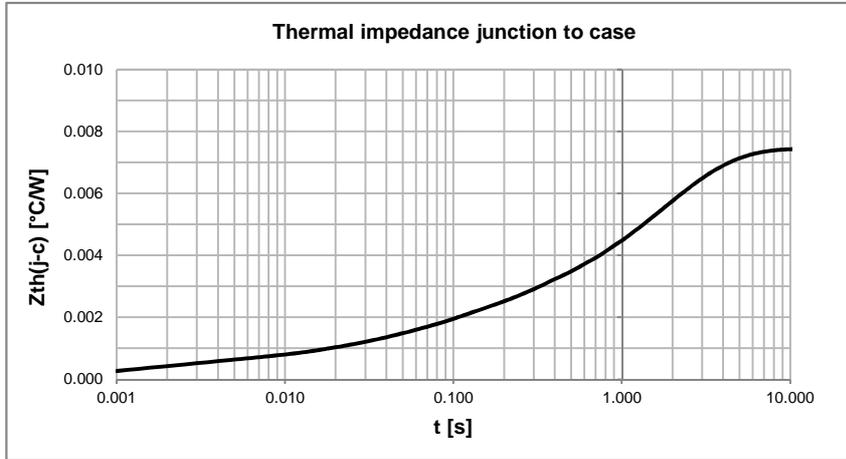
OUTLINE AND DIMENSIONS

⌀ 3.5 x 3.5

20°
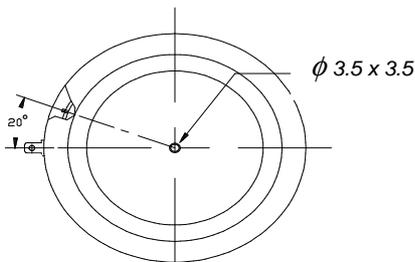
	A	B	C	E
mm	73	110	98	26 ± 0.5

B

A

E

A

C

MARKING
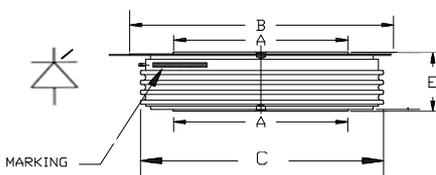
- All the characteristics given in this data sheet are guaranteed only with uniform clamping force,
cleaned and lubricated heatsink surfaces with flatness < 0.03 mm and roughness < 2μm