POWER THYRISTOR FOR INVERTER AND CHOPPER APPLICATIONS

YZPST-ST303S08PFN

Features:

- All diffused Structure
- Compression bonded construction
- Blocking capability up to 1200 volts

Applications:

- DC choppers
- High power inverters

ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking – Off State

Device Type	V_{RRM}(1)	V_{DRM}(1)	V_{RSM}(1)
ST303S08PFN	800	800	900

Notes:

All ratings are specified for Tj=25℃unless otherwise stated.

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range –40 to +125℃.

(2) 10 msec. Max. pulse width

(3)Maximum value for Tj=125℃.

V_{RRM}=Repetitive peak reverse voltage

V_{DRM}=Repetitive peak off state voltage

V_{RSM}=Non repetitive peak reverse voltage(2)

(4)Minimum value for linear and exponential waveshape to 80rated V_{DRM}. Gate open. Tj=125℃.

Repetitive peak reverse Leakage and off state leakage	I_{RRM}/I_{DRM}	5mA 15mA(3)
Critical rate of voltage rise(4)	dv/dt	200V/ μ sec

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Conducting-on state

Parameter	Symbol	Min.	Max.	Type.	Units	Conditions
Average value of on-state current	$I_{T(AV)}$		300		A	Sinewave,180 °conduction,Tc=65℃
RMS value of on-state current	$I_{T(RMS)}$		471		A	Nominal value
Peak one cycle surge (non repetitive) current	I_{TSM}		7000		A	10 msec(50Hz),sinusoidal wave-shape,180 ℃conduction,Tj=125C
I square t	I^2t		245000		A^2s	10msec
Latching current	I_L		180		mA	V_D=24V;R_L=12 ohms
Holding current	I_H		500	60	mA	V_D=24V;I=2.5A
Peak on-state voltage	V_{TM}		2.3		V	I_{TM}=1250A;Duty cycle≤0.01%
Critical rate of rise of on-sate Current (6)	di/dt		200		A/μs	V_D=1/2DRM I_G=1.0A Tj=125℃

Gating

Parameter	Symbol	Min.	Max.	Type.	Units	Conditions
Peak gate power dissipation	P_{GM}		60		W	Tp=40 μs
Average gate power dissipation	$P_{G(AV)}$		2		W	
Peak gate current	I_{GM}		3		A	
Gate current required to trigger all Units	I_{GT}		200		mA	V_D=6V;R_L=3 ohms;Tj=+25℃
Gate current required to trigger all Units	V_{GT}		3.0		V	V_D=6V;R_L=3 ohms;Tj=25℃

Dynamic

Parameter	Symbol	Min.	Max.	Type.	Units	Conditions
Delay time	t_d		1.5	0.7	μs	I_{TM}=300A;V_D=Rated VDRM Gate pulse:V_G=20V;R_G=20ohms; t_r=0.1 μs;t_p=20 μs
Turn-off time(with V_R=-50V)	t_q	25	40	30	μs	I_{TM}=300A;di/dt=25A/μs; V_R≥-50V;Re-applied dv/dt=20V/μs Linear to 80% V_{DRM};VG=0;Tj=125℃; Duty cycle≥0.01%

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Type.	Units	Conditions
Operating temperature	Tj	-40	+125		℃	
Storage temperature	Tstg	-40	+150		℃	
Thermal resistamce-junction to Case	$R_{th(j-c)}$		0.1		℃/W	Single sided cooled*180 ℃sine wave
Thermal resistance-case to sink	$R_{th(c-s)}$		0.05		℃/W	Single sided cooled*
Mounting torque	T	38	41		Nm	
Weight	W			510	g	

OUTLINE

Outline Table