

HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

R2619ZC21J

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)
2100	2100	2200

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}	20 mA 200 mA (3)
Critical rate of voltage rise	dV/dt (4)	200 V/μsec

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
Average value of on-state current	$I_{T(AV)M}$		2619		A	Sinewave, 180° conduction, $T_c=55^\circ\text{C}$
RMS value of on-state current	I_{TRMS}		5227		A	Nominal value
Peak one cPSTCLe surge (non repetitive) current	I_{TSM}		33.8		kA	8.3 msec (60Hz), sinusoidal wave-shape, 180° conduction, $T_j = 125^\circ\text{C}$
			37.2		kA	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, $T_j = 125^\circ\text{C}$
I square t	I^2t		5.71×10^6		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}		2.3		V	$I_{TM} = 4000\text{ A}$

Critical rate of rise of on-state current (5, 6)	di/dt		1500		A/ μ s	Switching from $V_{DRM} \leq 1000$ V, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		1000		A/ μ s	Switching from $V_{DRM} \leq 1000$ V

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		30		W	
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	$V_D = 10$ V; $I_T = 3$ A; $T_j = +25$ °C
Gate voltage required to trigger all units	V_{GT}		3		V	$V_D = 10$ V; $I_T = 3$ A; $T_j = +25$ °C
Peak negative voltage	V_{RGM}		5		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_{gd}		-	0.8	μ s	$V_D = 67\% V_{DRM}$, $I_T = 2000$ A, $di/dt = 60$ A/ μ s, $I_{FG} = 2$ A, $t_r = 0.5$ μ s, $T_j = 25$ °C
Turn-on time	t_{gt}		-	1.5		
Turn-off time (with $V_R = -5$ V)	t_q		-	50	μ s	$I_{TM} = 4000$ A, $t_p = 2000$ μ s, $di/dt = 60$ A/ μ s, $V_r = 100$ V, $V_{dr} = 67\% V_{DRM}$, $dV_{dr}/dt = 200$ V/ μ s
Reverse recovery current	I_{rm}		-		A	$I_{TM} = 4000$ A, $t_p = 2000$ μ s, $di/dt = 60$ A/ μ s

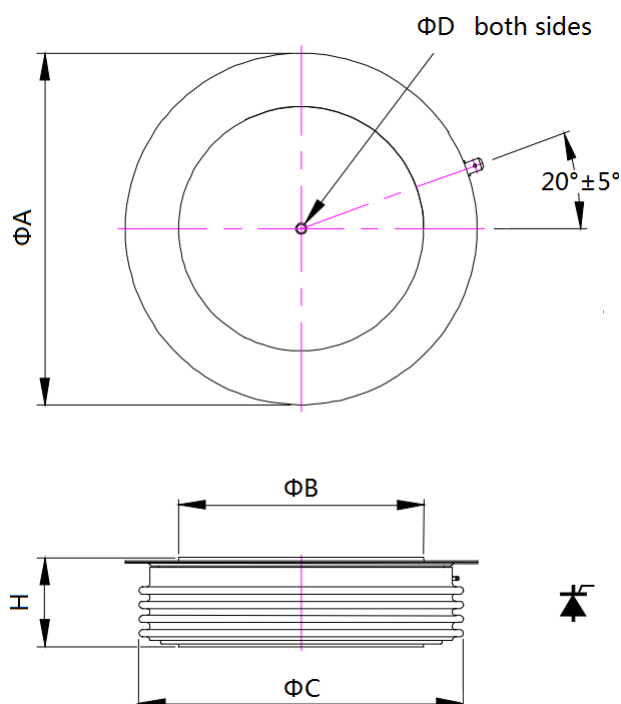
THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		°C	
Storage temperature	T_{stg}	-40	+150		°C	
Thermal resistance - junction to case	$R_{\theta(j-c)}$		-		K/kW	Double sided cooled Single sided cooled
Thermal resistance - case to	$R_{\theta(c-s)}$		-		K/kW	Double sided cooled *

sink			-			Single sided cooled *
Thermal resistance - junction to sink	$R_{\Theta (c-s)}$		11 22		K/kW	Double sided cooled * Single sided cooled *
Mounting force	F	27	47	-	kN	
Weight	W			1.7	Kg	about

* Mounting surfaces smooth, flat and greased

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



Sym	A	B	C	D	H
mm	109	73	98	3.5×3	35±1