



HIGH FREQUENCY THYRISTOR

Features:

- . All Diffused Structure
- . Amplifying Gate Configuration
- . Blocking capability up to 1200 volts
- . High d_v/d_t Capability
- . Pressure Assembled Device

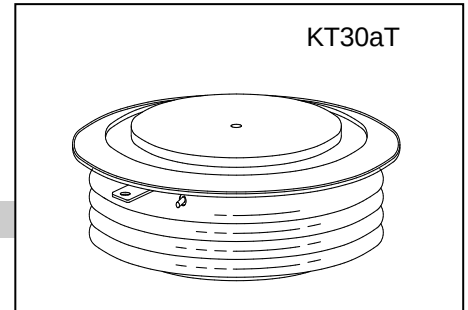
ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking off-state

Blocking Voltage	V _{RRM} (1)	V _{DRM} (1)	V _{RSM} (1)
1200	1200	1200	1325

V_{RRM} = Repetitive peak reverse voltageV_{DRM} = Repetitive peak off state voltageV_{RSM} = Non Repetitive peak reverse voltage(2)

Repetitive peak reverse leakage and off state leakage	I _{RRM} / I _{DRM}	10 mA 30 mA (3)
Critical rate of voltage rise	d_v/d_t (4)	800 V/ μ sec



Notes:

- (1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to +125 °C
- (2) 10 msec. Max. Pulse width
- (3) Maximum value for T_j=125 °C.
- (4) Minimum value for linear and exponential waveshape to 67% rated V_{DRM}. Gate open, T_j=125 °C
- (5) Non repetitive value
- (6) The value of di/dt is established in accordance with EIA/NIMA Standard RS-397, Section5-2-2-6.

Conducting on-state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average on-state current	I _{T(AV)}		200		A	Sinewave, 180° conduction, T _c =55°C
RMS on-state current	I _{TRMS}		314		A	
Peak one cycle surge (non repetitive) current	I _{TSM}		2800		A	10 msec (50Hz), sinusoidal wave-shape, 180° conduction, T _j = 125
I square t	I ² t		3.9×10 ⁴		A ² s	10 msec
Latching current	I _L		200		mA	V _D =24V; R _L =12ohms
Holding current	I _H		200		mA	V _D =24V; I=2.5A
Peak on-state voltage	V _{TM}		3.20		V	I _{TM} = 640A; T _j = 25°C
Critical rate of rise of on-state current(5,6)	di/dt		800		A/ μ s	Non repetitive
Critical rate of rise of on-state current(5)	di/dt		400		A/ μ s	Repetitive

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	$t_p = 40 \mu s$
Average gate power dissipation	$P_{G(AV)}$		5		W	
Gate trigger current	I_{GT}		300		mA	$V_D = 6V$; $R_L = 3 \text{ ohms}$; $T_j = -40^\circ C$
			200		mA	$V_D = 6V$; $R_L = 3 \text{ ohms}$; $T_j = +25^\circ C$
			125		mA	$V_D = 6V$; $R_L = 3 \text{ ohms}$; $T_j = +125^\circ C$
Gate trigger voltage	V_{GT}		5		V	$V_D = 6V$; $R_L = 3 \text{ ohms}$; $T_j = -40^\circ C$
			3		V	$V_D = 6V$; $R_L = 3 \text{ ohms}$; $T_j = 0-125^\circ C$
		0.30			V	$V_D = \text{Rated } V_{DRM}$; $R_L = 1000 \text{ ohms}$; $T_j = +125^\circ C$
Gate reverse repetitive voltage	V_{GRM}		5		V	

Switching

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Turn-on time	t_{gt}		1.2	0.7	μs	$I_{TM} = 50 A$; $V_D = 67\% V_{DRM}$ Gate pulse: $V_G = 30V$; $R_G = 10 \text{ ohms}$; $t_r = 0.1 \mu s$; $t_p = 20 \mu s$
Turn-off time ($V_R = -5V$)	t_q	10	20	15	μs	$I_{TM} > 500A$; $di/dt = -25A/\mu s$; $V_R \geq -5V$; Re-applied $d_v/d_i = -30V/\mu s$ linear to $67\% V_{DRM}$; $T_j = 125^\circ C$; Duty cycle $\geq 0.01\%$
Reverse recovery current	I_{rr}				A	$I_{TM} > 500 A$; $di/dt = 50 A/\mu s$; $V_R \geq -50 V$; $T_j = 125^\circ C$

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	+140		$^\circ C$	
Thermal resistance-junction to case	$R_{\theta(j-c)}$		0.06		$^\circ C/W$	Double sided cooled
Thermal resistance - case to heatsink	$R_{\theta(c-s)}$		0.03		$^\circ C/W$	Double sided cooled
Mounting force	P		10		kN	
Weight	W			0.08	kg	

* Mounting surfaces smooth, flat and greased

