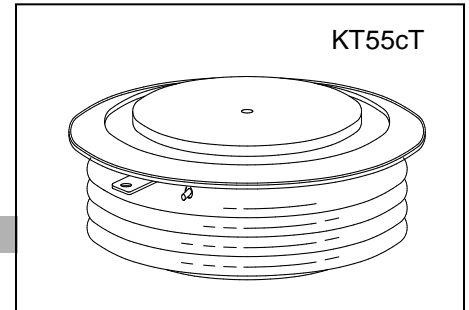




FREE FLOATING TYPE THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . Free-floating silicon technology
- . Low on-state and switching losses
- . Optimum power handling capability
- . Blocking capability up to 5200 volts
- . Distributed amplifying gate



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

Device Type	V _{RRM} (1)	V _{DRM} (1)	V _{RSM} (1)
KP970/44	4400	4400	4500
KP970/46	4600	4600	4700
KP970/48	4800	4800	4900
KP970/50	5000	5000	5100
KP970/52	5200	5200	5300

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}	10mA 200 mA (3)
Critical rate of voltage rise	dv/dt (4)	2000 V/sec (min)

Notes:

- (1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range 0 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).The value of di/dt is established in accordance with JB/T 8950.2-2013

Conducting - On State

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I _{T(AV)}		970		A	Sinewave, 180° conduction, T _c =70°C
RMS value of on-state current	I _{TRMS}		1523		A	Nominal value
Peak one cycle surge (non repetitive) current	I _{TSM}		13500		A	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T _j = 125 °C
I square t	I ² t		9.1x10 ⁵		A ² s	10 msec
Latching current	I _L		1000		mA	V _D = 12 V; R _L = 12 ohms
Holding current	I _H		200		mA	V _D = 12 V; I = 2.5 A
Peak on-state voltage	V _{TM}		2.7		V	I _{TM} =2000A; T _j =25°C
Threshold voltage, low-level	V _{TO}		1.05		V	T _j =125°C
Slope resistance, low-level	r _T		0.6		mΩ	500A to1500A
Critical rate of rise of on-state current	di/dt		100		A/μs	Repetition

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P _{GM}		20		W	
Average gate power dissipation	P _{G(AV)}		4		W	
Gate-trigger current	I _{GT}		300		mA	V _D =12 V;R _L = 3 ohms;T _j = +25 °C
Gate- trigger voltage	V _{GT}	0.8	3.0		V	V _D = 12 V;R _L = 3 ohms;T _j = +25 °C
Peak negative voltage	V _{GRM}		10		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t _d		3.0		μs	I _{FG} =2.0A; V _D =0.4V _{DRM} ; t _r =0.5μs
Turn-off time (with V _R = -5 V)	t _q		800		μs	I _{TM} =1000 A; di/dt =- 10A/μs; V _R =100 V; dV/dt=30V/μs ; V _D = 67%V _{DRM} ;T _j =125°C
Reverse recovery charge	Q _{rr}		2800		μC	I _{TM} =1000A; di/dt=-1 A/s; V _R =100 V; T _j =125°C

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	+125		°C	
Thermal resistance - junction to case	R _{Θ(j-c)}		0.022		°C/W	Double sided cooled
Thermal resistance - case to heatsink	R _{Θ(c-s)}		0.005		°C/W	Double sided cooled
Mounting force	P	20	24	22	kN	
Weight	W			0.60	kg	

* Mounting surfaces smooth, flat and greased

