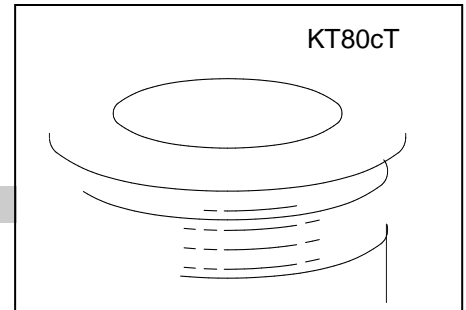




HIGH POWER THYRISTOR FOR INVERTER APPLICATION

Features:

- . All Diffused Structure
- . Amplifying Gate Configuration
- . Blocking capability up to 1400 volts
- . High dv/dt Capability
- . Pressure Assembled Device



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking-Off State

Device Type	V _{RRM} (1)	V _{DRM} (1)	V _{RSM} (1)
KK3000/12	1200	1200	1400
KK3000/14	1400	1400	1600

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}	2 mA 20 mA (3)
Critical rate of voltage rise	dv/dt (4)	1000 V/sec (min)

Notes:

All ratings are specified for T_j=25 °C unless otherwise stated.

(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/T4193-2013.

Conducting-On State

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I _{T(AV)}		3000		A	Sinewave, 180° conduction, T _c =55°C
RMS value of on-state current	I _{T(RMS)}		4710		A	Nominal value
Peak one cycle surge (non repetitive) current	I _{TSM}		42000		A	10 msec (50Hz), sinusoidal waveshape, 180° conduction, T _j = 125 °C
I square t	I ² t		8.8x10 ⁶		A ² s	10 msec
Latching current	I _L		1000		mA	V _D =12V; R _L =12ohms
Holding current	I _H		200		mA	V _D =12V; I=2.5A
Peak on-state voltage	V _{TM}		1.60		V	I _{TM} = 3000A; T _j =25°C
Threshold voltage, low-level	V _{TO}		1.24		V	T _j =125°C
Slope resistance, low-level	r _T		0.12			3000 A to 5500A
Critical rate of rise of on-state current(5)	di/dt		200		6	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}		200	150	mA	V _D =12V;R _L =3ohms;T _j =+25°C
Gate trigger voltage	V _{GT}	0.70	3.0	2.5	V	V _D =12V;R _L =3ohms;T _j =+25°C
Peak negative voltage	V _{GRM}		5		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t _d		3.0	2.5	μs	I _{TM} =50A; V _D =67%V _{DRM} Gate pulse: V _G =30V; R _G =10ohms; t _r =0.1μs; t _p =20μs
Turn-off time (V _R =-5V)	t _q		22		μs	I _{TM} =2000 A; di/dt =- 10 A/μs; V _R =50 V; dV/dt=30V/μs ; V _D = 67%V _{DRM} ;T _j =125°C
Reverse recovery current	Q _{rr}				μC	I _{TM} =2000 A;di/dt=-10A/μs; V _R =50 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	+140		°C	
Thermal resistance-junction to case	R _{□-c}		0.01		°C/W	Double sided cooled
Thermal resistance - case to heatsink	R _{□-s}		0.003		°C/W	Double sided cooled
Mounting force	P			35	kN	
Weight	W			1.10	kg.	

* Mounting surfaces smooth, flat and greased

