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润奥电子（扬州）制造有限公司

BCT500—双向晶闸管

500-1600V_{DRM}; 500A avg

大功率双向晶闸管

特点:

- . 全扩散结构
- . 同一个硅片上含有正反两个晶闸管
- . 阻断电压到**1600V**
- . 高的 **dV/dt** 能力
- . 冷压封装

电特性和额定值

阻断 - 断态

Device Type	V _{RRM} (1)	V _{DRM} (1)	V _{RSM} (1)
BCT500E	500	500	600
BCT500M	600	600	720
BCT500N	800	800	960
BCT500P	1000	1000	1150
BCT500PB	1200	1200	1300
BCT500PD	1400	1400	1500
BCT500PM	1600	1600	1700

V_{RRM} = Repetitive peak reverse voltage

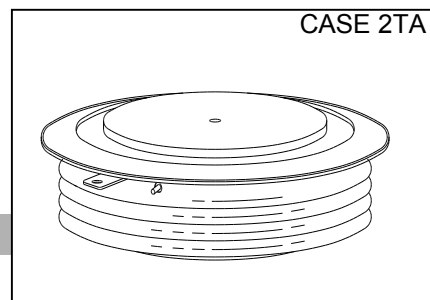
V_{DRM} = Repetitive peak off state voltage

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

重复峰值反向阻断漏电流	I _{RRM} / I _{DRM}	15 mA 35 mA (3)
通态电压上升率	dV/dt (4)	500 V/μsec
换向时的电压上升率	dV/dt _{com}	500 V/μsec

Conducting - on state

参数	符号	最小值	最大值	典型值	单位	条件
平均电流	I _{T(AV)}		500		A	Sinewave, 180° conduction, T _c =65°C
方均根电流	I _{TRMS}		785		A	Nominal value
浪涌电流	I _{TSM}		4200		A	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T _j = 125 °C
I square t	I ² t		45000		A ² s	10.0 msec
擎柱电流	I _L		800		mA	V _D = 24 V; R _L = 12 ohms
维持电流	I _H		400		mA	V _D = 24 V; I = 2.5 A
通态峰值压降	V _{TM}		1.65		V	I _{TM} = 700 A;
电流上升率(5, 6)	di/dt		400		A/μs	Switching from V _{DRM} ≤ 1000 V, non-repetitive
电流上升率(6)	di/dt		100		A/μs	Switching from V _{DRM} ≤ 1000 V



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 -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 80% 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, Section 5-2-2-6. The value defined would be in addition to that obtained from a snubber circuit, comprising a 0.2 μF capacitor and 20 ohms resistance in parallel with the thyristor under test.

电特性和额定值

BCT500 – 双向晶闸管

门极特性

参数	符号	最小值	最大值	典型值	单位	条件
峰值门极耗散功率	P_{GM}		200		W	$t_p = 40 \mu s$
平均门极耗散功率	$P_{G(AV)}$		5		W	
峰值门极电流	I_{GM}		10		A	
门极触发电流	I_{GT}		300 150 125		mA mA mA	$V_D = 6 V; R_L = 3 \text{ ohms}; T_j = -40^\circ C$ $V_D = 6 V; R_L = 3 \text{ ohms}; T_j = +25^\circ C$ $V_D = 6 V; R_L = 3 \text{ ohms}; T_j = +125^\circ C$
门极触发电压	V_{GT}	0.30	5 3		V V V	$V_D = 6 V; R_L = 3 \text{ ohms}; T_j = -40^\circ C$ $V_D = 6 V; R_L = 3 \text{ ohms}; T_j = 0-125^\circ C$ $V_D = \text{Rated } V_{DRM}; R_L = 1000 \text{ ohms}; T_j = +125^\circ C$
峰值不触发电压	V_{GRM}		5		V	

开关特性

参数	符号	最小值	最大值	典型值	单位	条件
延迟时间	t_d		1.5	0.7	μs	$I_{TM} = 50 A; V_D = 67\% V_{DRM}$ Gate pulse: $V_G = 30 V; R_G = 10 \text{ ohms}; t_r = 0.1 \mu s; t_p = 20 \mu s$
关断时间 (with $V_R = -5 V$)	t_q		150	100	μs	$I_{TM} > 1000 A; di/dt = 25 A/\mu s;$ $V_R \geq -5 V; \text{Re-applied } dV/dt = 200 \text{ V}/\mu s \text{ linear to } 67\% V_{DRM};$ $T_j = 125^\circ C; \text{Duty cycle } \geq 0.01\%$
反向恢复电荷	I_{rr}				μC	$I_{TM} > 1000 A; di/dt = 25 A/\mu s;$ $V_R \geq -50 V; T_j = 125^\circ C$

热特性和机械特性

参数	符号	最小值	最大值	典型值	单位	条件
工作温度	T_j	-40	+125		$^\circ C$	
储存温度	T_{stg}	-40	+150		$^\circ C$	
结壳热阻	$R_{\Theta(j-c)}$		0.040 0.080		$^\circ C/W$	Double sided cooled Single sided cooled
壳散热阻	$R_{\Theta(c-s)}$		0.015 0.030		$^\circ C/W$	Double sided cooled * Single sided cooled
安装力	P	3000 13.4	3500 15.7		lb. kN	
重量	W			N/A	g.	

* Mounting surfaces smooth, flat and greased

2TA

