

Technical Data :

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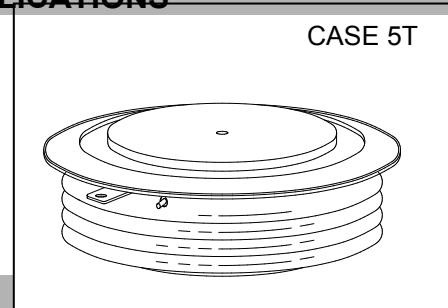
C 781L - Power Thyristor

2000 V_{DRM};

HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . All Diffused Structure
- . Linear Amplifying Gate Configuration
- . Blocking capability up to 2000 volts
- . Guaranteed Maximum Turn-Off Time
- . 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)
C781L	2000	2000	2100

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}	150 mA (3)
Critical rate of voltage rise	dV/dt (4)	500 V/μsec

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 thristor under test.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I _{T(AV)}		2500		A	Sinewave, 180° conduction, T _c =65°C
RMS value of on-state current	I _{TRMS}		3925		A	Nominal value
Peak one cpstcle surge (non repetitive) current	I _{TSM}		45000 41500		A A	8.3 msec (60Hz), sinusoidal wave- shape, 180° conduction, T _j = 125 °C 10.0 msec (50Hz), sinusoidal wave- shape, 180° conduction, T _j = 125 °C
I square t	I ² t		8.5x10 ⁶		A ² s	8.3 msec and 10.0 msec
Latching current	I _L		400		mA	V _D = 24 V; R _L = 12 ohms
Holding current	I _H		100		mA	V _D = 24 V; I = 2.5 A
Peak on-state voltage	V _{TM}		1.90		V	I _{TM} = 7850 A; Duty cpstcle ≤ 0.01%
Critical rate of rise of on-state current (5, 6)	di/dt		200		A/μs	Switching from V _{DRM} ≤ 1000 V, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		100		A/μs	Switching from V _{DRM} ≤ 1000 V

ELECTRICAL CHARACTERISTICS AND RATINGS
Thyristor
C781L - Power
Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P _{GM}		200		W	t _p = 40 us
Average gate power dissipation	P _{G(AV)}		5		W	
Peak gate current	I _{GM}		15		A	
Gate current required to trigger all units	I _{GT}		300 200 125		mA	V _D = 6 V; R _L = 3 ohms; T _j = -40 °C V _D = 6 V; R _L = 3 ohms; T _j = +25 °C V _D = 6 V; R _L = 3 ohms; T _j = +125 °C
Gate voltage required to trigger all units	V _{GT}	0.30	5 4		V	V _D = 6 V; R _L = 3 ohms; T _j = -40 °C V _D = 6 V; R _L = 3 ohms; T _j = 0-125 °C V _D = Rated V _{DRM} ; R _L = 1000 ohms; T _j = + 125 °C
Peak negative voltage	V _{GRM}		15		V	

Dynamic

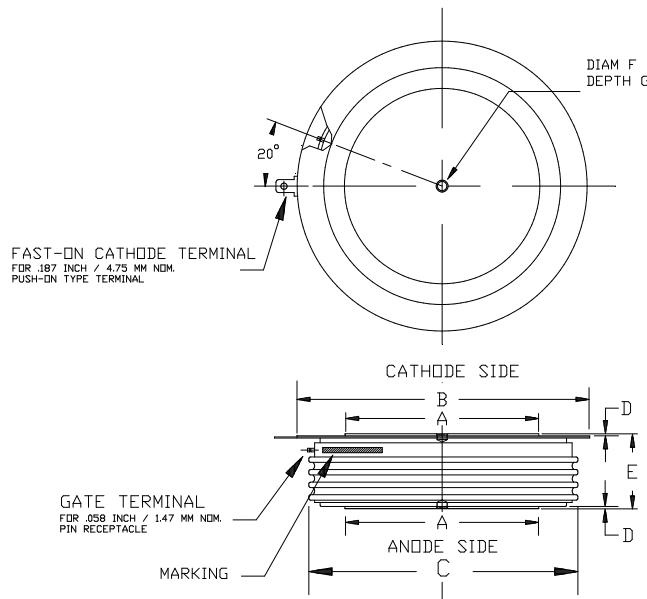
Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t _d		3.0	2.5	μs	I _{TM} = 50 A; V _D = 1500 V Gate pulse: V _G = 20 V; R _G = 20 ohms; t _r = 0.1 μs; t _p = 20 μs
Turn-off time (with V _R = -50 V)	t _q		400	250	μs	I _{TM} > 2000 A; di/dt = 10 A/μs; V _R ≥ -50 V; Re-applied dV/dt = 20 V/μs linear to 80% V _{DRM} ; V _G = 0; T _j = 125 °C; Duty cycle ≥ 0.01%
Reverse recovery current	I _{rr}		200		A	I _{TM} > 2000 A; di/dt = 10 A/μs; V _R ≥ -50 V

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 _{θ(j-c)}		0.012		°C/W	Double sided cooled Single sided cooled
Thermal resistance - case to sink	R _{θ(c-s)}		0.002		°C/W	Double sided cooled * Single sided cooled *
Mounting force	P	8000 35.5	10000 44.4		lb. kN	
Weight	W			3.5 1.60	lb. Kg.	

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing in page 4 of this Technical Data



CASE 5T NOMINAL OUTLINE DIMENSIONS

DIMENSIONS	INCH	MM
DIAM. A	2.88	73.2
DIAM. B	4.36	110.7
DIAM. C	3.95	100.3
D	.030	.76
E	1.400 / 1.440	35.56 / 36.58
F	.140	3.56
G	.080	2.03

STRIKE DISTANCE = 1.04 inch / 26.4 mm MIN.

CREEPAGE DISTANCE = 1.64 inch / 41.6 mm MIN.