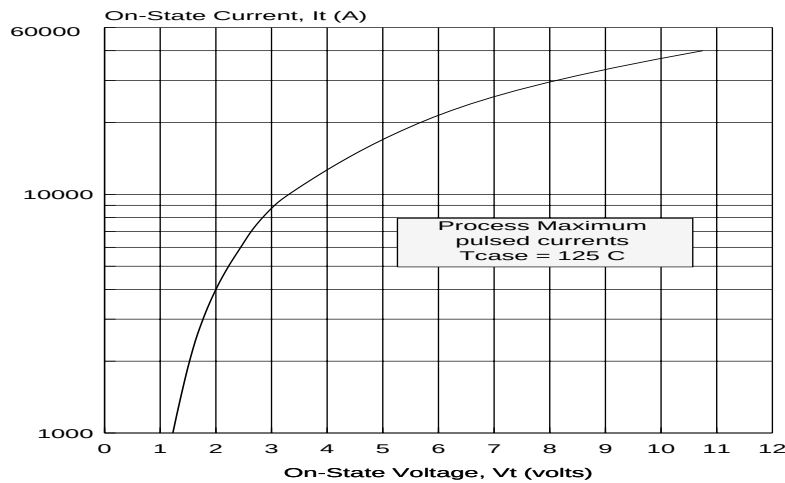


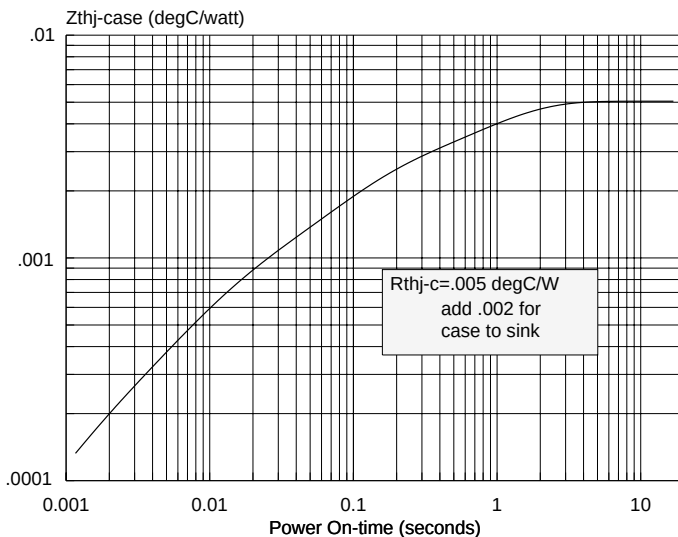
Type C791 thyristor is suitable for phase control applications such as for HVDC valves, static VAR compensators and synchronous motor drives. The silicon junction design utilizes a second generation pilot gate and a unique orientation of emitter shorts which promote the lateral expansion of conducting plasma resulting in lower spreading losses while achieving high dv/dt withstand. It is supplied in an industry accepted disc-type package, ready to mount using commercially available heat dissipators and mechanical clamping hardware

On-State Characteristic



01a:C791

Thermal Impedance



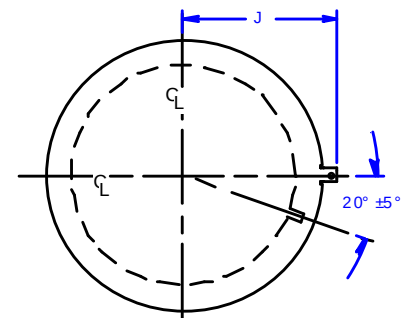
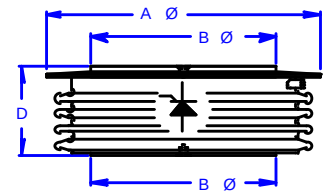
01a:t305tau

REPETITIVE PEAK REVERSE AND OFF-STATE BLOCKING VOLTAGE

$T_j = 0 \text{ to } 125^\circ\text{C}$

MODEL	V_{DRM} (volts)	V_{RRM} (volts)
C791EP	5000	5000
C791DT	4900	4900
C791DN	4800	4800
C791DS	4700	4700
C791DM	4600	4600
C791DE	4500	4500

MECHANICAL OUTLINE



AF = 5.65 in (143.5 mm)
BF = 3.92 in (99.4 mm)
D = 1.45 in (36.8 mm)

ELECTRICAL CREEPAGE / STRIKE

1.6 / 1.0 in

40.6 / 25.4 mm

CLAMPING FORCE

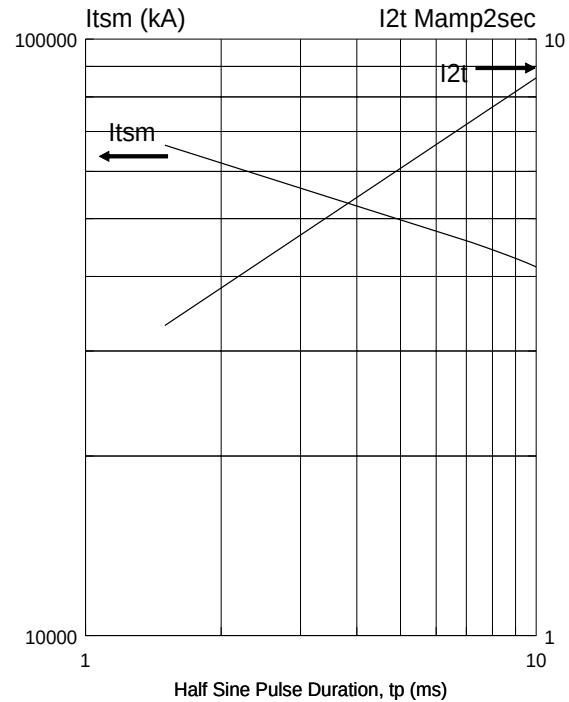
(range)

17000-19000 lb.

LIMITING CHARACTERISTICS AND RATINGS

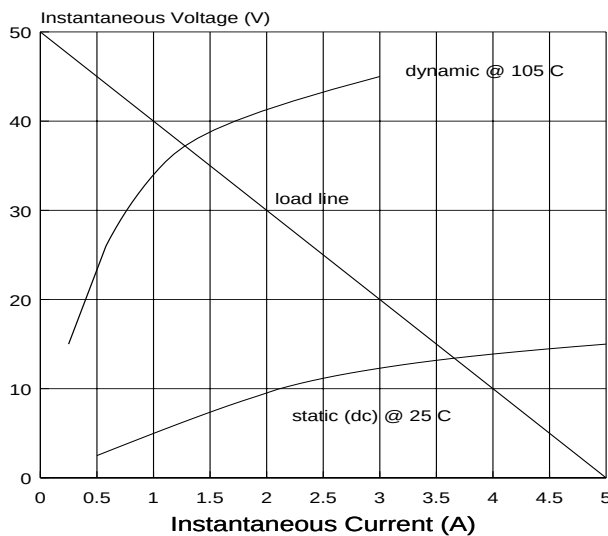
Repetitive peak off-state & reverse volts @ 5Hz	V_{DRM} V_{RRM}	$T_J = \theta$ to 125°C	up to 5000	V
Repetitive working crest voltage, 60Hz	V_{DWM} V_{DRM}	$T_J = \theta$ to 125°C	$0.8V_{DRM}$ $0.8V_{RRM}$	
Off-state & reverse leakage current, 60Hz	I_{DWM} I_{RRM}	$T_J = \theta$ to 125°C	200 200	ma
Average on-state current	$I_{T(AV)}$	$T_{case} = 70^\circ\text{C}$	3600	A
Peak half-cycle non-rep surge current	I_{TSM}	60 Hz 50 Hz	44.5 41.5	kA
On-state voltage	V_{TM}	$I_T = 4000A$ $t_p = 8.3ms$ $T_J = 125^\circ\text{C}$	2.00	V
Critical rate of rise of on-state current	di/dt_{rep}	$T_J = 125^\circ\text{C}$ 60 Hz	100	A/us
Critical rate of rise of off-state voltage	dv/dt	$T_J = 125^\circ\text{C}$ $V_D = .67V_{DRM}$	1000	V/us
Recovery current	I_{RM}	$T_J = 125^\circ\text{C}$ 2A/us 5A/us	90 195	A
Turn-on delay	t_u	$V_d = .5V_{DRM}$	4	us
Turn-off time	T_{off}	5A/us, -100V 20V/us to 2000V	500	us
Thermal resistance	R_{thJC}		.005	c/w
Externally applied clamping force	F		17000 -19000	lb

Non-Repetitive Surge Current and I2t for Fusing



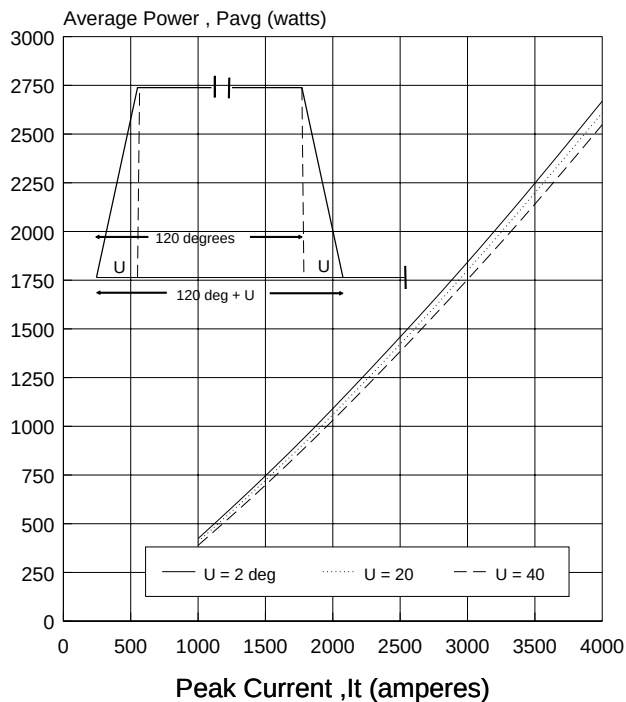
01:C791ITSM

Gate Characteristics and Gate Supply Requirements



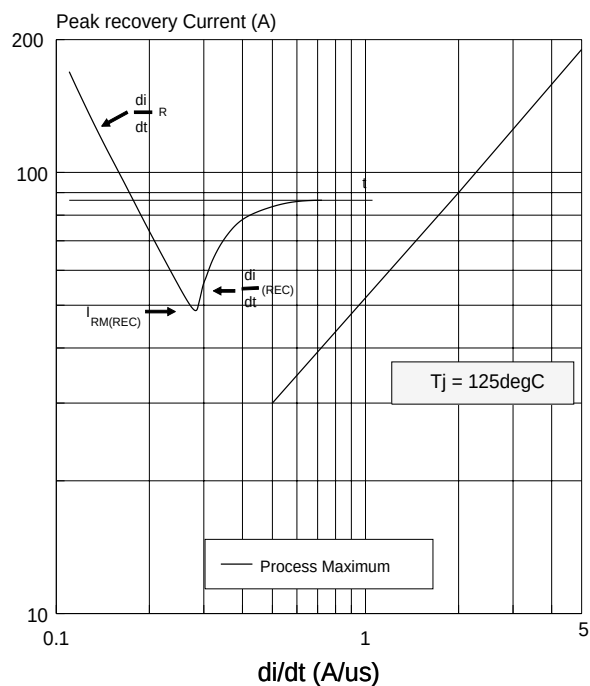
- **THYRISTOR GATE IMPEDANCE**
Enhanced by fast rising gate voltage, increasing anode bias and junction temperature. It is at a minimum for dc current, zero anode bias and low temperature.
- **GATE SUPPLY**
Prefer 50V/10 ohm for supporting the di/dt rating and life expectancy. The short circuit current risetime should be nominally 0.5us and the duration longer than the expected delay time for all magnitudes of anode bias. Practically 10-30us is recommended followed by a back porch of 750ma if needed to sustain conduction.
- **MINIMUM ACCEPTABLE GATE CURRENT**
The intersection of the load line and gate impedance characteristic indicates the minimum value of actual current needed during the delay time interval to support di/dt . A different load line meeting this criterion may be used.
- **MAXIMUM GATE RATINGS**
Peak gate power, $P_{gm}(100us) = 300$ W
Average gate power, $P_{g(av)} = 50$ W
Peak gate current, $I_{gfm} = 25$ A
Peak reverse voltage, $V_{grm} = 25$ V

FULL CYCLE AVERAGE POWER DISSIPATION
120-deg Conduction -includes spread loss
as function of Overlap Angle , U



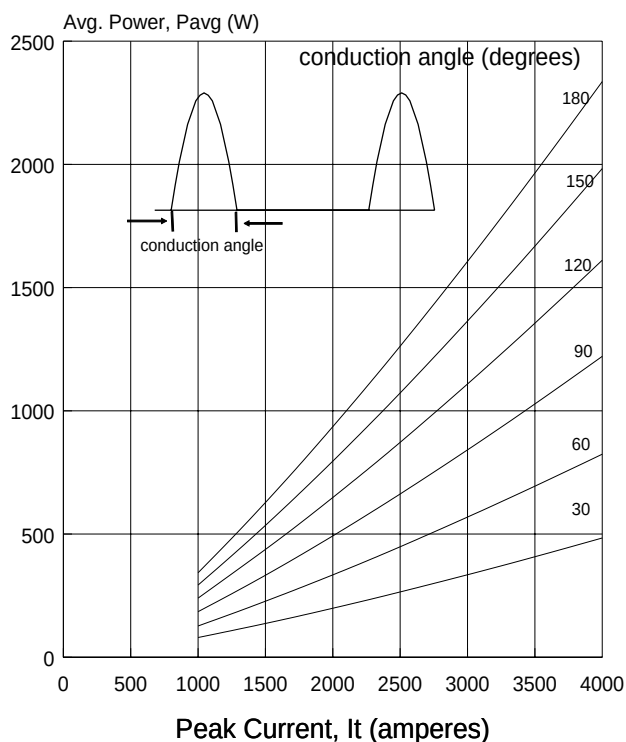
5000V 100mm

PEAK RECOVERY CURRENT
versus
COMMUTATING di/dt



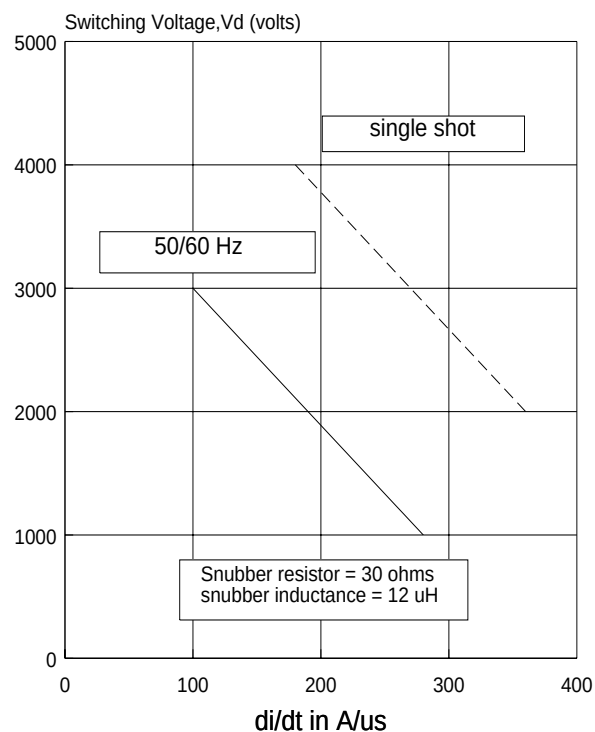
6RT302

FULL CYCLE AVERAGE POWER DISSIPATION
Sine Wave - includes spread loss
as function of conduction angle



6RT302

INRUSH CURRENT (di/dt) RATING
versus
SWITCHING VOLTAGE



T302