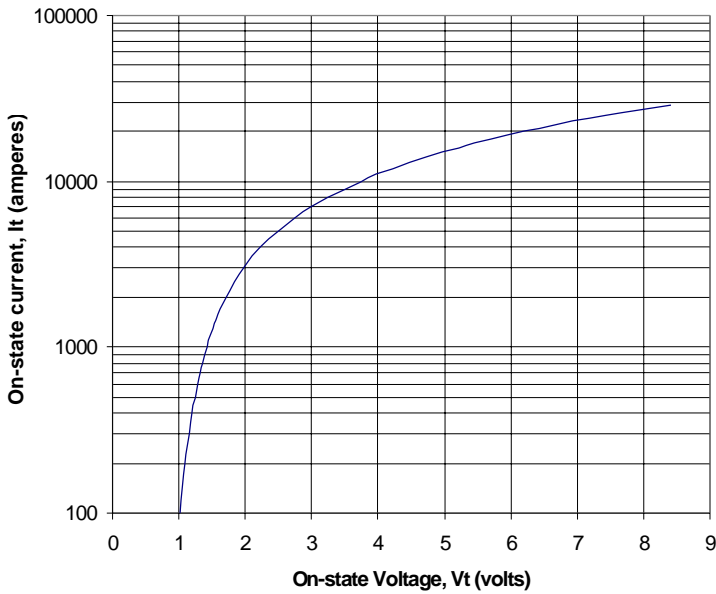


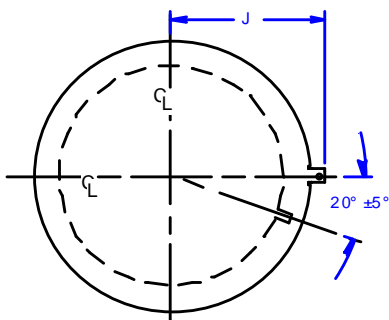
Type C783 reverse blocking thyristor features a 77mm silicon junction design having the exclusive linear amplifying type gate manufactured by the proven multi-diffused process.

It is supplied as a Presspak ready to mount using commercially available heat dissipators or factory-certified, double-sided, cooled assemblies.

**ON-STATE CHARACTERISTIC**



**MECHANICAL OUTLINE**



AF = 4.35 in (110.5 mm)  
BF = 2.88 in (73.2 mm)  
D = 1.45 in (36.8 mm)

**PRINCIPAL RATINGS AND CHARACTERISTICS**

OPERATING JUNCTION TEMPERATURE RANGE  
-40 to +125°C

· Repetitive peak off-state and reverse voltage	$V_{DRM}$ $V_{RRM}$	$t_b$ 3800V
· Average on-state current @ $T_c = 70^\circ C$	$I_{T(AV)}$	1800A
· Peak half cycle surge current for $V_r = 0 V$	$I_{TSM}$	8.3 ms / 10.0 ms 29 kA / 27 kA
· On-state Voltage @ $I_T = 2000A, 125^\circ C$	$V_{TM}$	1.71V
· Critical rate of rise of current @ $V_D = 2000V$	$di/dt$	100A/us
· Critical rate of rise of off-state voltage	$dv/dt$	500V/us to $0.8V_{DRM}$
· Max peak recovery current @ $T_j = 125^\circ C$	$I_{RM}$	2A/us / 10A/us 66A / 250A
· Circuit commutated turn-off time (typ)	$t_q$	300us

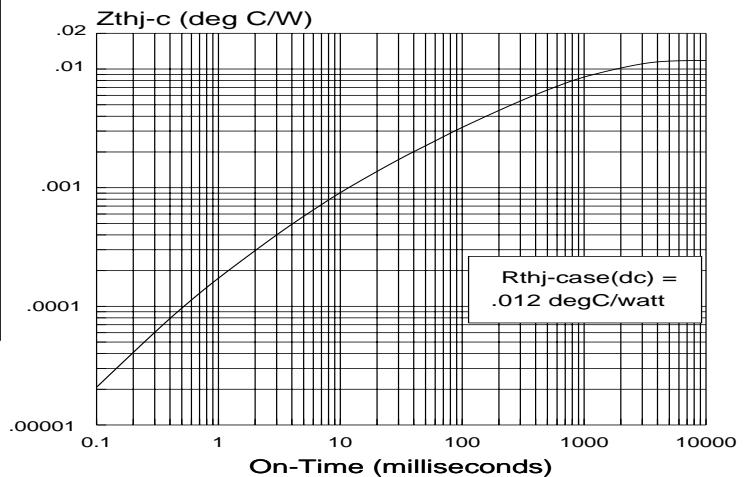
Model No.	$V_{DRM} / V_{RRM}$	$V_{DRM} / V_{RRM}$
	-40°C	0 to +125°C
C783CS	3700 V	3800 V
C783CM	3600	3700
C783CE	3500	3600
C783CD	3400	3500
C783CC	3300	3400
C783CB	3200	3300

**GATE DRIVE REQUIREMENTS**

Open circuit voltage / short circuit current 30V / 3A  
Short circuit risetime 0.5us  
Minimum pulse duration 10us

**EXTERNALLY REQUIRED CLAMPING FORCE**  
8000 - 9000 lbs. / 35.6 - 40.0 kN

**THERMAL IMPEDANCE vs. ON-TIME**



TEST	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Peak Reverse and off-state blocking current	$I_{DRM}$ $I_{RRM}$			10 100	mA mA	$V = V_{DRM} = V_{RRM}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$
Effective thermal resistance, junction to case - double-sided cooling	$R_{\theta JC}$ DC	-	-	0.012	$^\circ\text{C}/\text{W}$	Double-sided cooling - (add 0.002 $^\circ\text{C}/\text{W}$ for interfaces case to sink)
Critical exponential rate of rise of forward blocking voltage (higher values may cause destructive switching)	dv/dt	500 1500			V/ $\mu\text{s}$ V/ $\mu\text{s}$	$T_J = +125^\circ\text{C}$ ; $V_{DM} = 0.8V_{DRM}$ - open gate standard selection - open gate special selection
Delay time	$t_d$		3 4	3.5 5	$\mu\text{s}$	Gate source 30V / 10 $\Omega$ rise time 0.5 $\mu\text{s}$ ; $T_J = 25\text{-}125^\circ\text{C}$ - Bias $V_{DM} = 1800\text{V}$ - Bias $V_{DM} = 500\text{V}$
Gate pulse amplitude (operational)						- $T_C = 40$ to $+125^\circ\text{C}$ - Gate source voltage 30 - 40V - Gate source impedance $\sim 10\Omega$ - Current rise time $\sim 0.5\mu\text{s}$
Gate pulse width (operational)				10	$\mu\text{s}$	See triggering characteristics
DC gate trigger current (non-operational * )	$I_{GT}$	20		300	mAdc	- $T_C = 25^\circ\text{C}$ , $V_D = 10\text{Vdc}$ , $R_L = 3\Omega$ - $T_C = 125^\circ\text{C}$ , $V_D = 0.5V_{DRM}$ , $R_L = 1\text{k}\Omega$
DC gate trigger voltage (non-operational * )	$V_{GT}$	0.5		4.5	Vdc	- $T_C = 25^\circ\text{C}$ , $V_D = 10\text{Vdc}$ - $T_C = 125^\circ\text{C}$ , $V_D = 0.5V_{DRM}$ , $R_L = 1\text{k}\Omega$
Peak on-state voltage	$V_{TM}$		- -	1.71 1.93	V	$I_T = 2000\text{A}$ duty cycle $\leq 0.01\%$ - $T_C = 125^\circ\text{C}$ - $T_C = 25^\circ\text{C}$
Suppressible surge current	$I_{TM(sup)}$		24 22		kA	- 60Hz $T_C = 115^\circ\text{C}$ - 50Hz resistive circuit sinusoidal blocking voltage applied after completion of surge $0.5V_{RRM}$ <span style="float:right"><math>0.5V_{DRM}</math></span>
Circuit commutated turn-off time	$t_q$	-	200	300	$\mu\text{s}$	$T_C = 125^\circ\text{C}$ , $I_{TM} = 500\text{A}$ - Commutating di/dt = 25A/ $\mu\text{s}$ - Min. reverse voltage $V_R = 50\text{V}$ - Reapplied off state voltage 20V/ $\mu\text{s}$ to $0.8V_{DRM}$ - Gate bias during turn-off interval zero volts/100
* characteristic only, di/dt rating does not apply.						