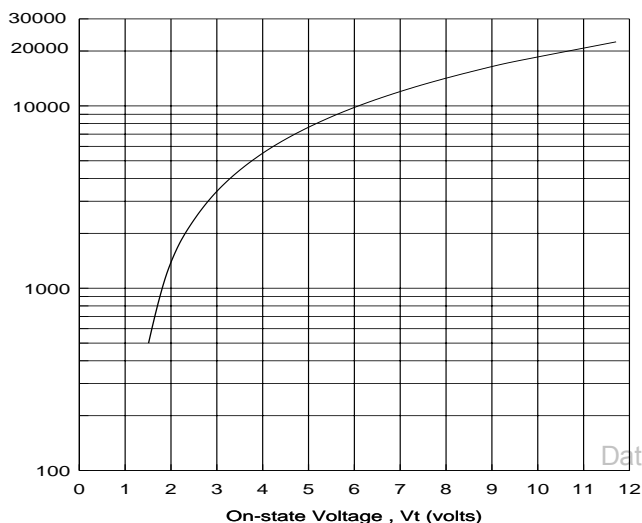


Type C789 thyristor is suitable for phase control applications such as HVDC valves, static VAR compensators and synchronous motor drives.

The silicon junction is manufactured by the proven multi-diffusion process and is supplied in an industry standard disc-type package, ready to mount to forced or naturally cooled heat dissipators using commercially available mechanical clamping hardware.

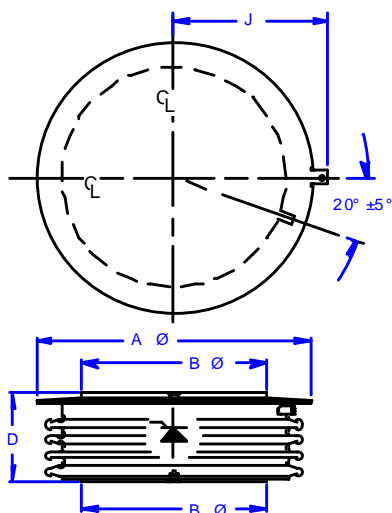
ON-STATE CHARACTERISTIC

Process Maximum @ Tj=115 C



93C:C789 3/24/93

MECHANICAL OUTLINE



A Φ = 4.35 in (110.5 mm)
 B Φ = 2.88 in (73.2 mm)
 D = 1.45 in (36.8 mm)

PRINCIPAL RATINGS AND CHARACTERISTICS

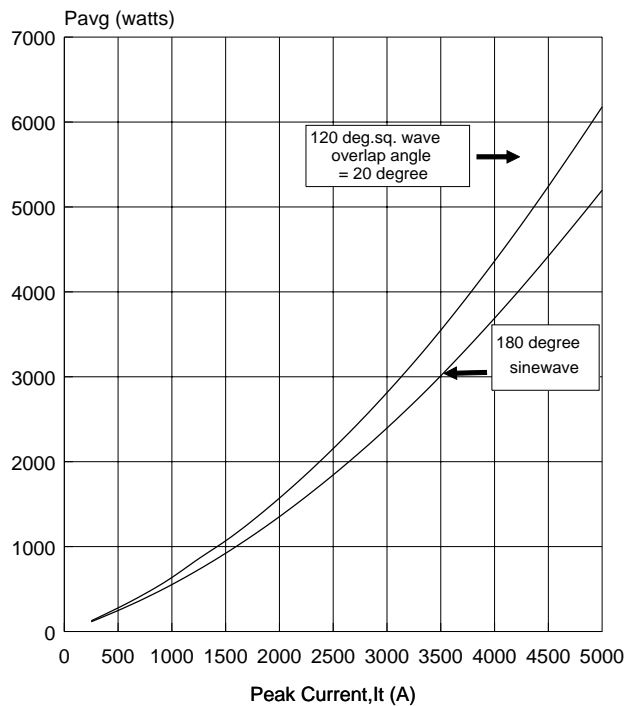
Repetitive peak off-state & reverse volts	V_{DRM} V_{RRM}	$T_J=0$ to 115°C	up to 6000	V
Repetitive working crest voltage	V_{DWM} V_{DRM}	$T_J=0$ to 115°C	$0.8V_{DRM}$ $0.8V_{RRM}$	
Off-state & reverse leakage current	I_{DWM} I_{RRM}	$T_J=0$ to 115°C	200 200	ma
Average on-state current	$I_{T(AV)}$	$T_{case} = 70^\circ C$	1200	A
Peak half-cycle non-rep surge current	I_{TSM}	60 Hz 50 Hz	22.5 20	kA
On-state voltage	V_{TM}	$I_T=2000A$ $t_p=8ms$ $T_J=115^\circ C$	2.3	V
Critical rate of rise of on-state current	di/dt rep	$T_J=115^\circ C$ 60 Hz	75	A/us
	$V_d = .67V_{DRM}$ allowable surter discharge		50	A
Critical rate of rise of off-state voltage	dv/dt	$T_J=115^\circ C$ $V_{DCRIT} = .67V_{DRM}$	1500	V/us
Recovery current	I_{RM}	$T_J=115^\circ C$ 2A/us 5A/us	97 161	A
	minimum snap factor	S = 0.3		
Turn-on delay	t_a	$V_d = .5V_{DRM}$	5	us
Turn-off time	T_{off}	5A/us, -100V 20V/us to 2000V	600	us
Thermal resistance	R_{thc}		.012	c/w
Externally applied clamping force	F		8000-9000 35.6-40.0	lb. kN

REPETITIVE PEAK REVERSE AND OFF-STATE BLOCKING VOLTAGE

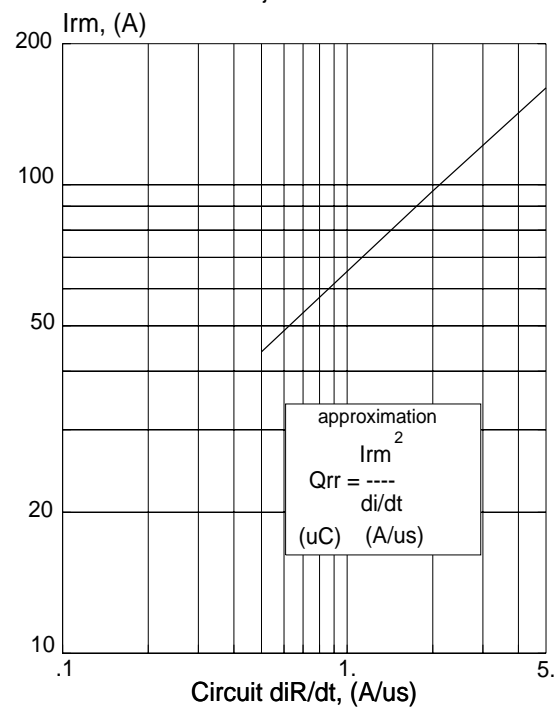
$T_J = 0$ to 115°C

MODEL	V_{DRM} (volts)	V_{RRM} (volts)
C789FP	6000	6000
C789ET	5900	5900
C789EN	5800	5800
C789ES	5700	5700
C789EM	5600	5600
C789EE	5500	5500

FULL CYCLE AVERAGE POWER LOSS
versus
PEAK CURRENT at 50/60 Hz
(plasma spreading and conduction loss)



MAXIMUM PEAK RECOVERY CURRENT
 $T_j=115\text{ C}$



93c:

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Full Cycle Power Loss (watts)

50/60 Hz, $T_j=115^\circ\text{C}$

I_t (peak) (A)	Half-sine 180°	3 Phase 120°
250	115	126
500	244	274
750	389	441
1000	550	628
1250	727	834
1500	919	1060
1750	1127	1304
2000	1350	1568
2250	1589	1850
2500	1842	2152
2750	2110	2471
3000	2394	2810
3500	3006	3542
4000	3678	4348
5000	5197	6178

GATE SUPPLY REQUIREMENTS

Open circuit voltage	40 V
Short circuit current - rise time	4 A 0.5 μs
Pulse duration (min)	20 μs