

SCT1176F

Fast Switching Thyristor



Key Parameters

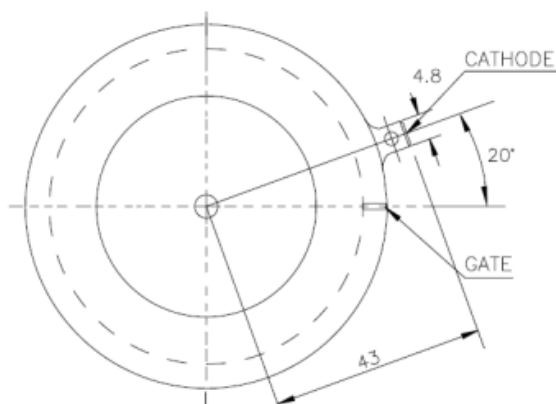
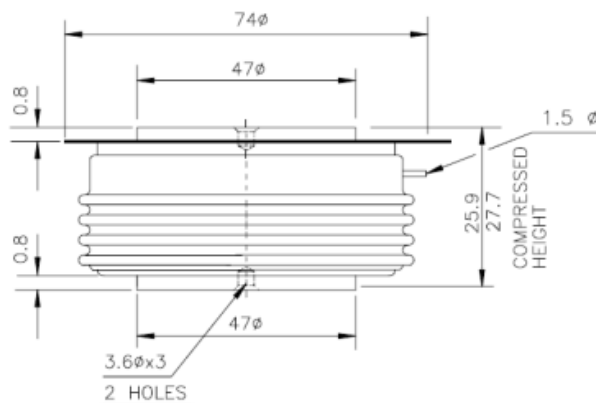
V_{DRM} / V_{RRM}	= 1400V
$I_{T(AV)}$	= 1175A
I_{TSM}	= 20.0kA
$V_{T(TO)}$	= 1.60V
r_T	= 0.30mΩ

Features

- Full blocking capability over wide temperature range
- High Surge current capability
- Hermetic metal case with ceramic insulator
- Distributed gate

Applications

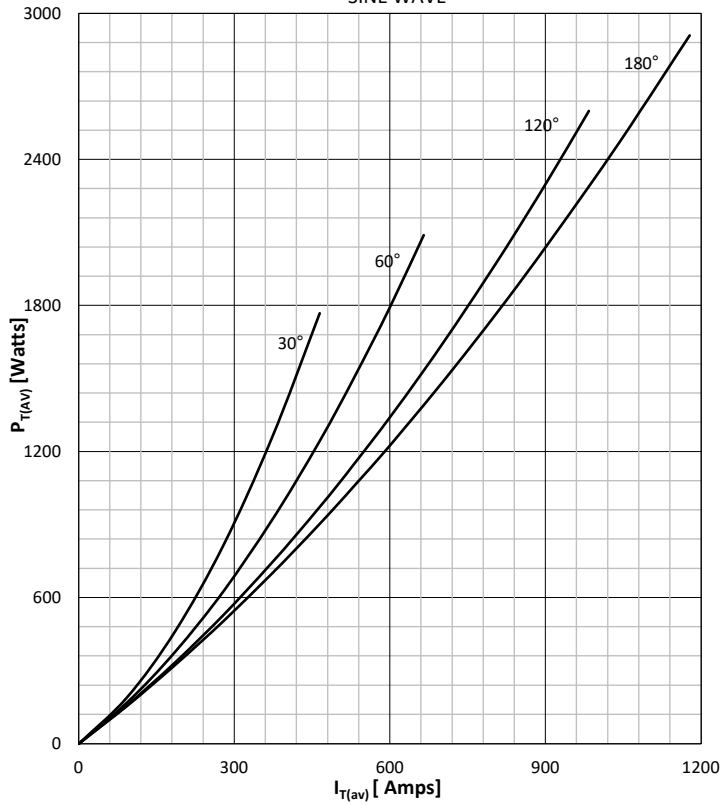
- Battery Chargers
- Medical Equipment
- UPS
- Power Supplies
- Motor control
- Transportation
- Induction Heating
- Welding



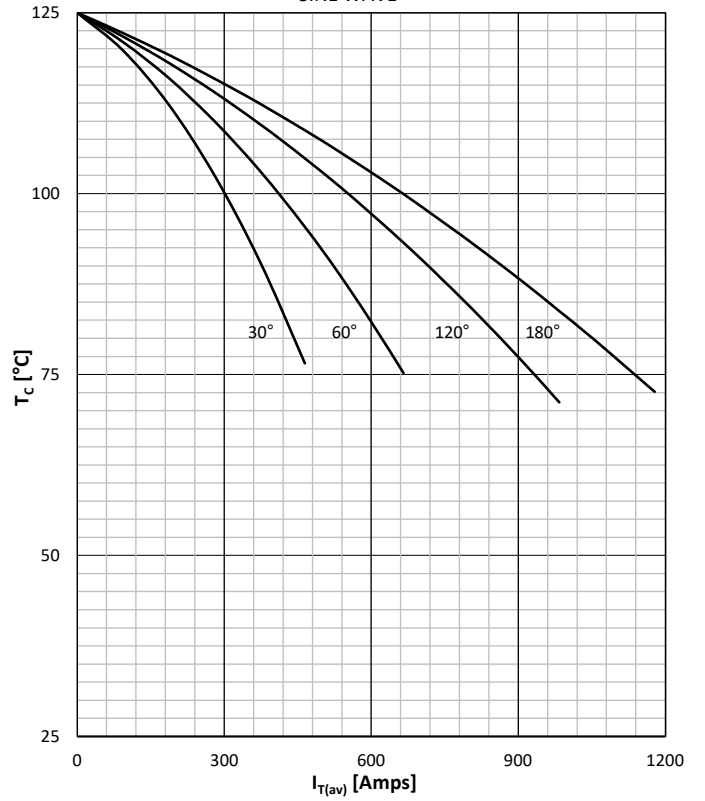
Symbol	Characteristic	Conditions	T _j [°C]	Value	Unit
BLOCKING					
V _{RRM}	Repetitive peak reverse voltage		125	800 - 1200	V
V _{RSM}	Non-repetitive peak reverse voltage		125	900 - 1300	V
V _{DRM}	Repetitive peak off-state voltage		125	800 - 1200	V
I _{RRM}	Repetitive peak reverse current	V = V _{RRM}	125	70	mA
I _{DRM}	Repetitive peak off-state current	V = V _{DRM}	125	70	mA
CONDUCTING					
I _{T(AV)}	Mean on state current	180° sin ,50 Hz, T _c =72°C, Double side cooled		1175	A
I _{RMS}	RMS on-state current	T _c =72°C, Double side cooled		1845	A
I _{TSM}	Surge on-state current	Sine wave, 10 ms Without reverse voltage	25	20000	A
			125	18700	A
I ² t	I ² t	Sine wave, 10 ms Without reverse voltage	25	2000 x 10 ³	A ² s
			125	1748 x 10 ³	A ² s
V _T	On-state voltage	On-state current = 2000A	125	2.2	V
V _{T(TO)}	Threshold voltage		125	1.60	V
r _T	On-state slope resistance		125	0.30	mΩ
SWITCHING					
di/dt	Critical rate of rise of on-state current	Repetitive	125	1000	A/μs
dv/dt	Critical rate of rise of off-state voltage	V _{DR} = 80%V _{DRM}	125	400	V/μs
T _q	Circuit commutated turn off time	I _{TM} =1000A, -di _F /dt = 60A/μs, V _R = 50V, t ₀ =1000μs Reapplied dv/dt = 200V/μs, V _{DR} = 80%V _{DRM}	125	25	μs
GATE					
I _{gt}	Gate trigger current	V _D =6V	25	300	mA
V _{gt}	Gate trigger voltage	V _D =6V	25	3.0	V
I _H	Holding current	V _D =6V, gate open circuit	25	1000	mA
I _L	Latching current	V _D =6V	25	1200	mA
MOUNTING					
R _{th(j-c)}	Thermal impedance, sin 180°	Junction to case, Double side cooled		0.018	°C/W
R _{th(j-c)}	Thermal impedance, rec120°	Junction to case, Double side cooled		0.020	°C/W
R _{th(c-h)}	Thermal impedance	Case to heatsink, Double side cooled		0.006	°C/W
T _j	Max. junction temperature			125	°C
T _{stg}	Storage temperature			-40 125	°C
M	Clamping Force			19 - 26	kN
W	Weight (Approx.)			500	gm

DISSIPATION CHARACTERISTICS

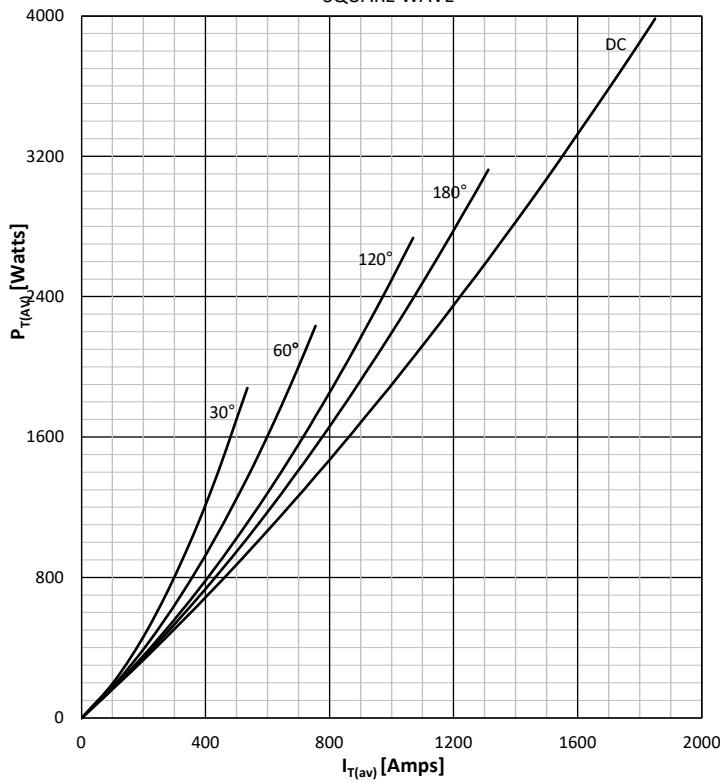
SINE WAVE


ON STATE CURRENT DERATING CURVE

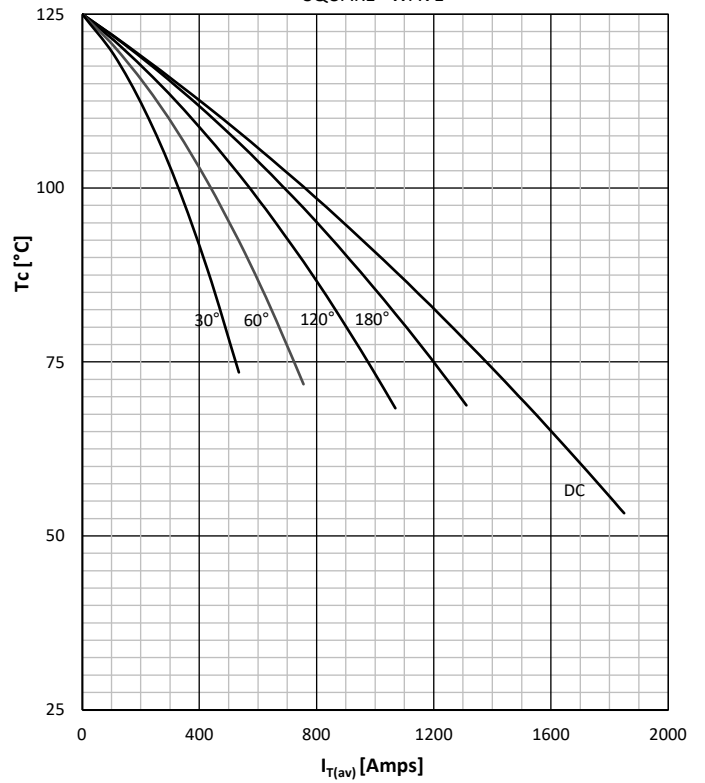
SINE WAVE


DISSIPATION CHARACTERISTICS

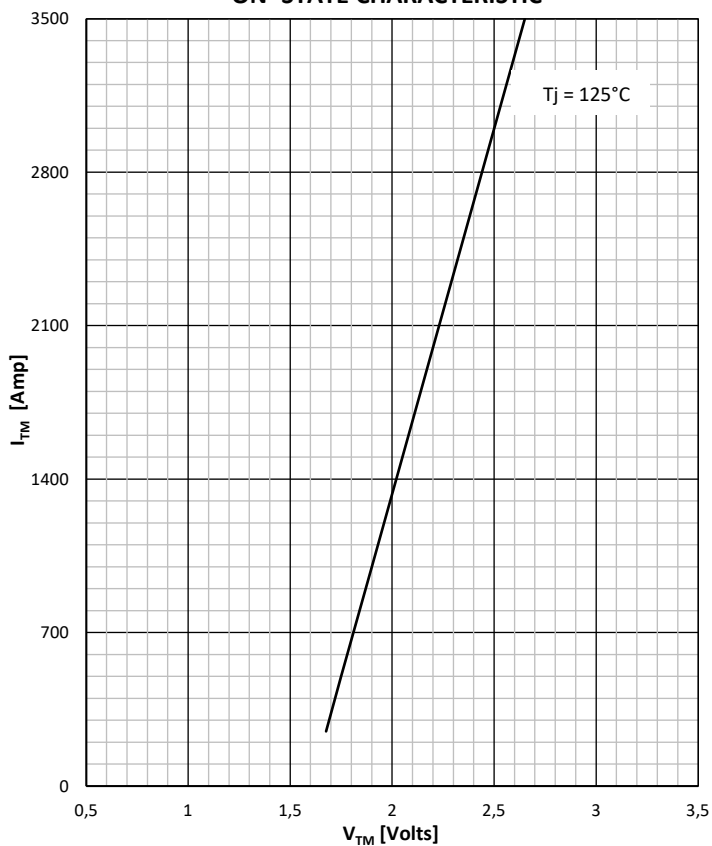
SQUARE WAVE


ON STATE CURRENT DERATING CURVE

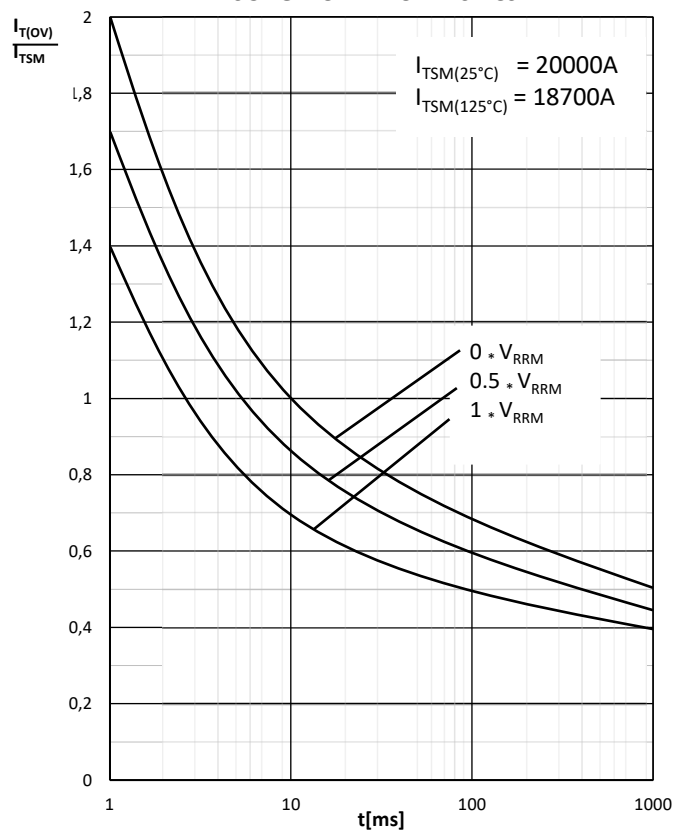
SQUARE WAVE



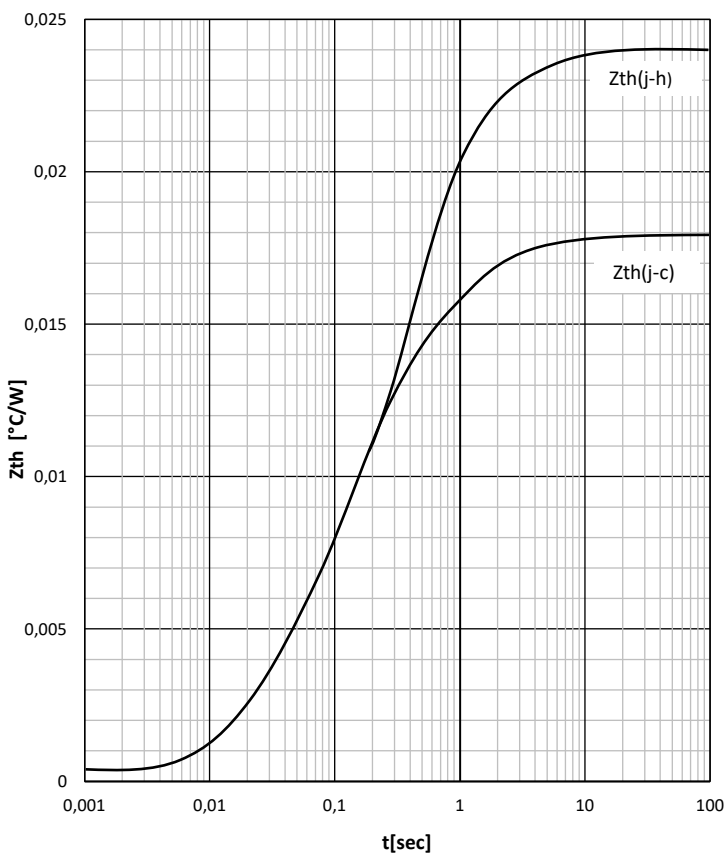
ON -STATE CHARACTERISTIC



SURGE CHARACTERISTICS



TRANSIENT THERMAL IMPEDANCE, PER ARM



GATE TRIGGER CHARACTERISTICS

