



Key Parameters

V_{DRM} / V_{RRM}	= 1200V
$I_{T(AV)}$	= 1305A
I_{TSM}	= 21kA
$V_{T(TO)}$	= 1.54V
r_T	= 0.24mΩ

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

Ordering Information

MS TF	1305	C	XX	F	K
Fast Switching Thyristor	Current Code	C - Capsule package with Alloyed silicon technology	Voltage Code Code X 100 = V_{DRM}/V_{RRM}	Reapplied dv/dt F = 200V/μsec	Turn Off time code K = 20μsec J = 25μsec N = 30μsec G = 35μsec 2J = 50μsec

Order Code MS TF1305C12FK – 1200V V_{DRM}, V_{RRM} , $T_q=20\mu\text{sec}$, 26mm clamp height capsule

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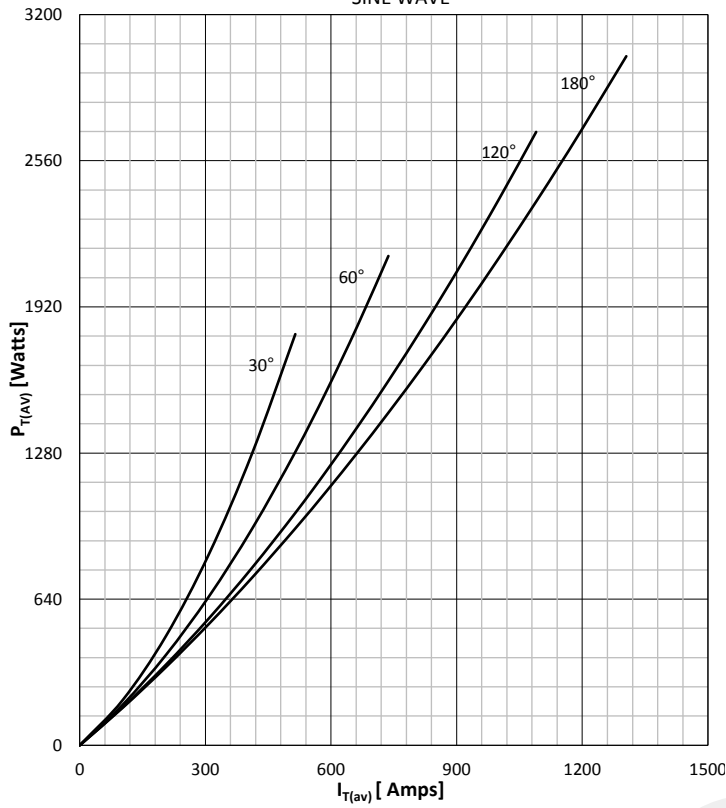
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Symbol	Characteristic	Conditions	T _j [°C]	Value	Unit
BLOCKING					
V _{RRM}	Repetitive peak reverse voltage		125	800 - 1200	V
V _{RSM}	Non-repetitive peak reverse voltage		125	900 - 1300	V
V _{DRM}	Repetitive peak off-state voltage		125	800 - 1200	V
I _{RRM}	Repetitive peak reverse current	V = V _{RRM}	125	150	mA
I _{DRM}	Repetitive peak off-state current	V = V _{DRM}	125	150	mA
CONDUCTING					
I _{T(AV)}	Mean on state current	180° sin ,50 Hz, T _c =70°C, Double side cooled 180° sin ,50 Hz, T _c =72°C, Double side cooled		1305 1271	A
I _{RMS}	RMS on-state current	T _c =70°C, Double side cooled		2049	A
I _{TSM}	Surge on-state current	Sine wave, 10 ms Without reverse voltage	25	21.0	kA
			125	20.0	kA
I ² t	I ² t	Sine wave, 10 ms Without reverse voltage	25	2205 x 10 ³	A ² s
			125	2000 x 10 ³	A ² s
V _T	On-state voltage	On-state current = 3000A	125	2.26	V
V _{T(TO)}	Threshold voltage		125	1.54	V
r _T	On-state slope resistance		125	0.24	mΩ
SWITCHING					
di/dt	Critical rate of rise of on-state current	Repetitive	125	1200	A/μs
dv/dt	Critical rate of rise of off-state voltage	V _{DR} = 67%V _{DRM}	125	500	V/μs
Q _{rr}	Recovered Charge	I _{TM} =1000A, -di _F /dt = 60A/μs, V _R = 50V, t _p =1000μs	125	700	μC
T _q	Circuit commutated turn off time	I _{TM} =1000A, -di _F /dt = 20A/μs, V _R = 50V, t _p =1000μs Reapplied dv/dt = 200V/μs, V _{DR} = 33%V _{DRM}	125	20 - 50	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		0.021	°C/W
R _{th(c-h)}	Thermal impedance	Case to heatsink, Double side cooled		0.004	°C/W
T _j	Max. junction temperature			125	°C
T _{stg}	Storage temperature			-40 125	°C
M	Clamping Force			20 - 24	kN
W	Weight (Approx.)			500	gm
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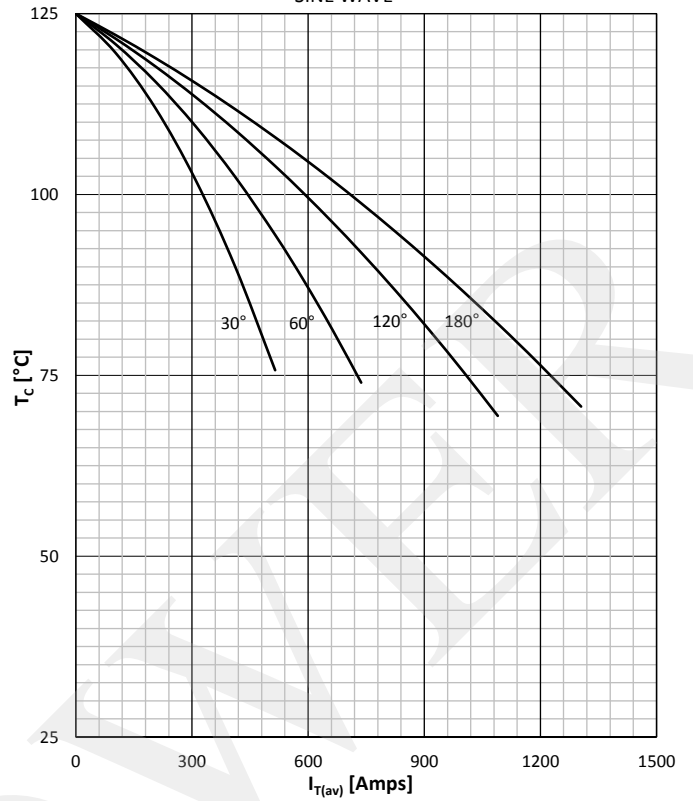
DISSIPATION CHARACTERISTICS

SINE WAVE



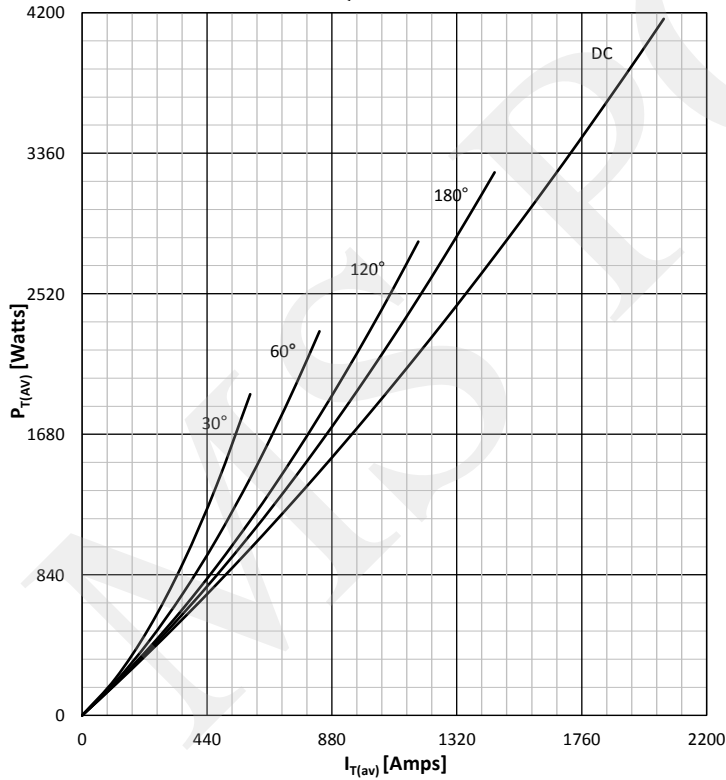
ON STATE CURRENT DERATING CURVE

SINE WAVE



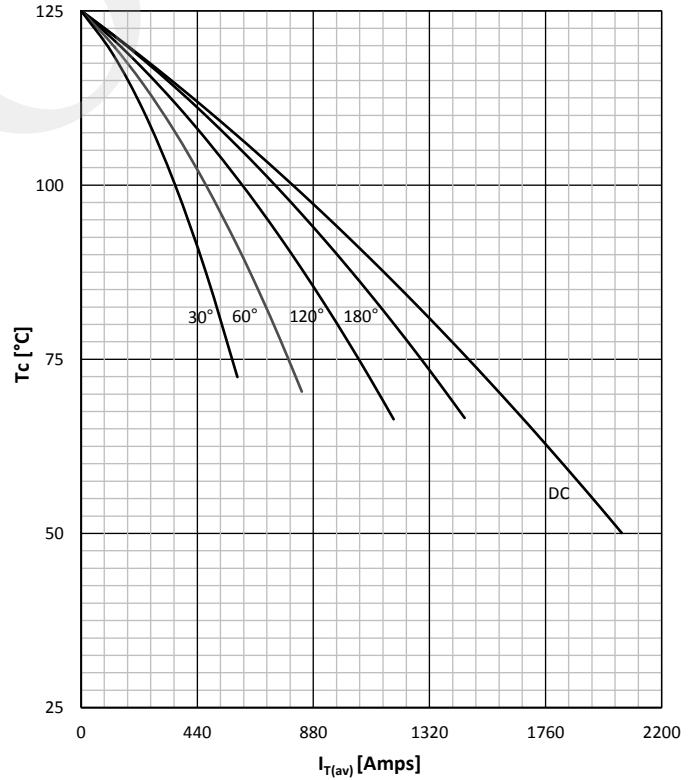
DISSIPATION CHARACTERISTICS

SQUARE WAVE



ON STATE CURRENT DERATING CURVE

SQUARE WAVE



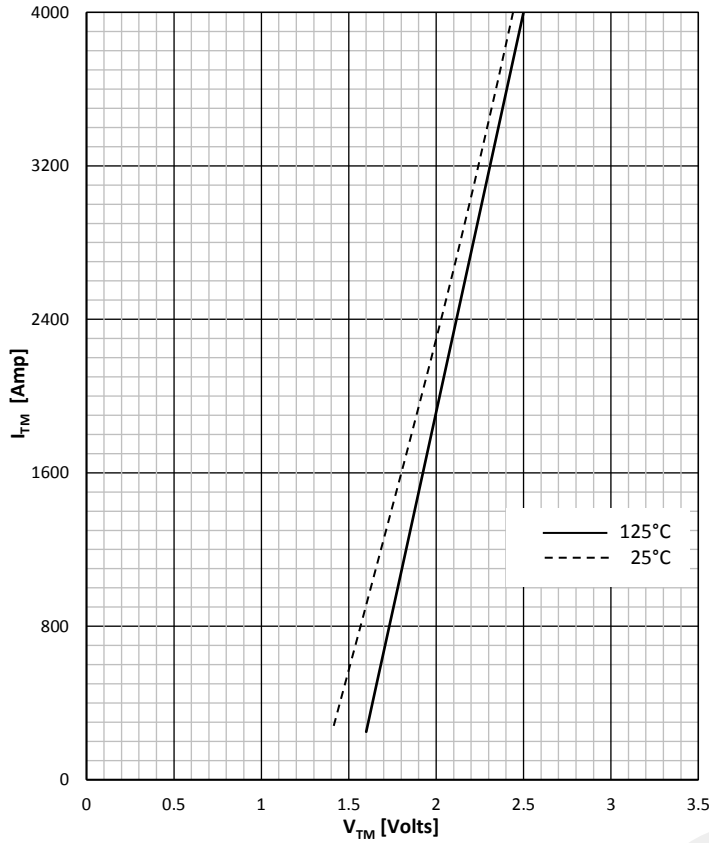
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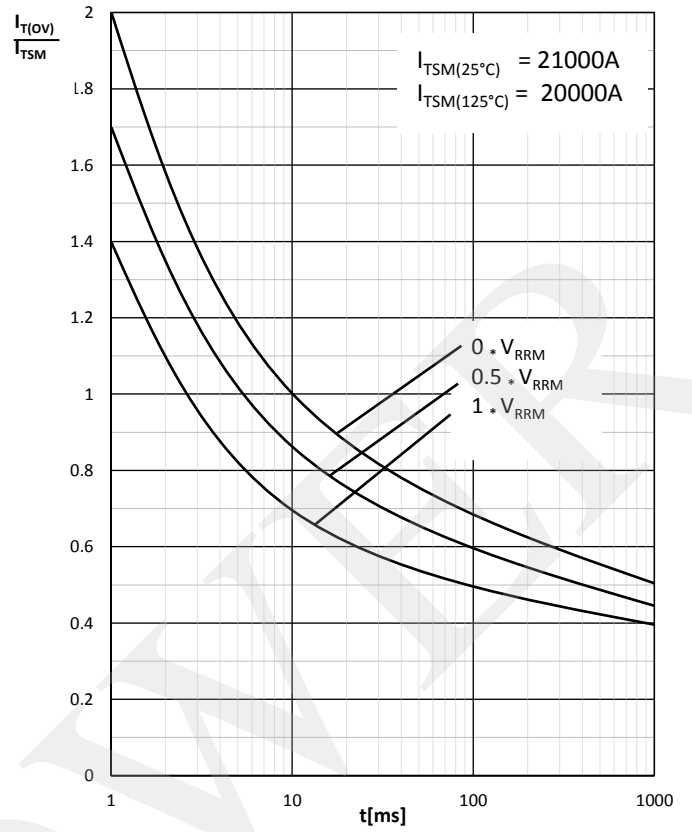
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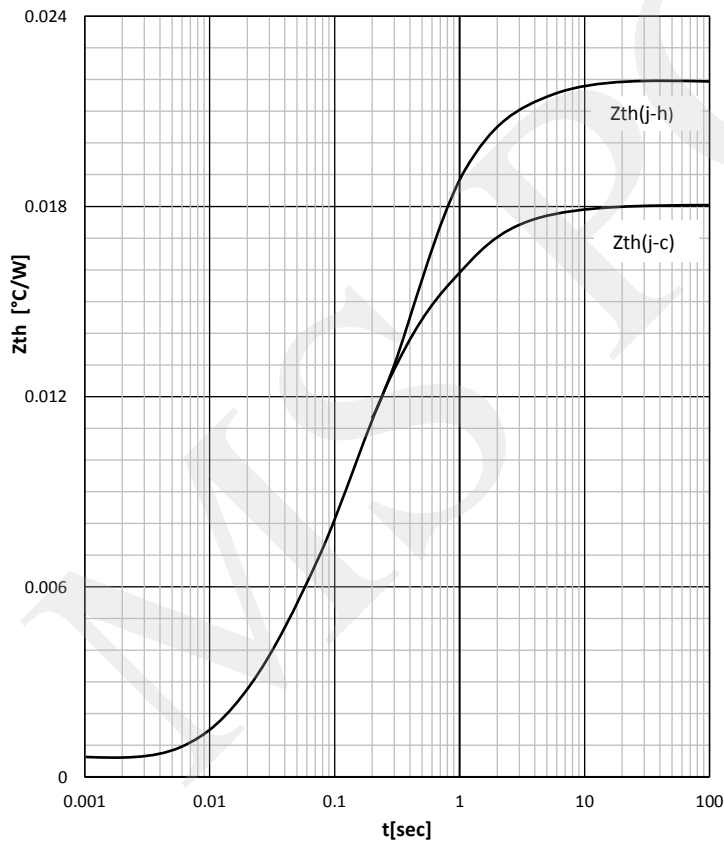
ON -STATE CHARACTERISTIC



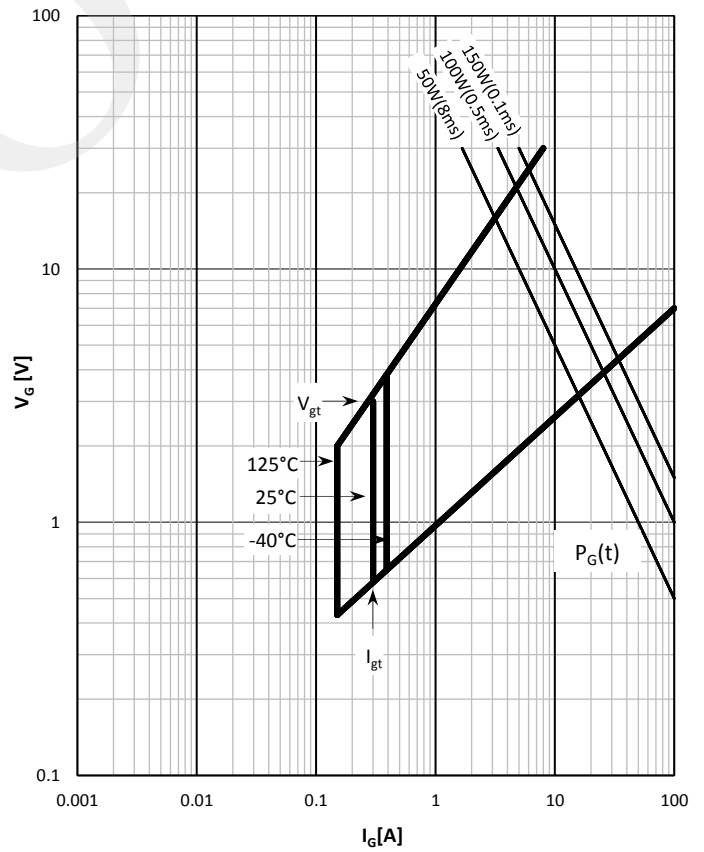
SURGE CHARACTERISTICS



TRANSIENT THERMAL IMPEDANCE, PER ARM



GATE TRIGGER CHARACTERISTICS



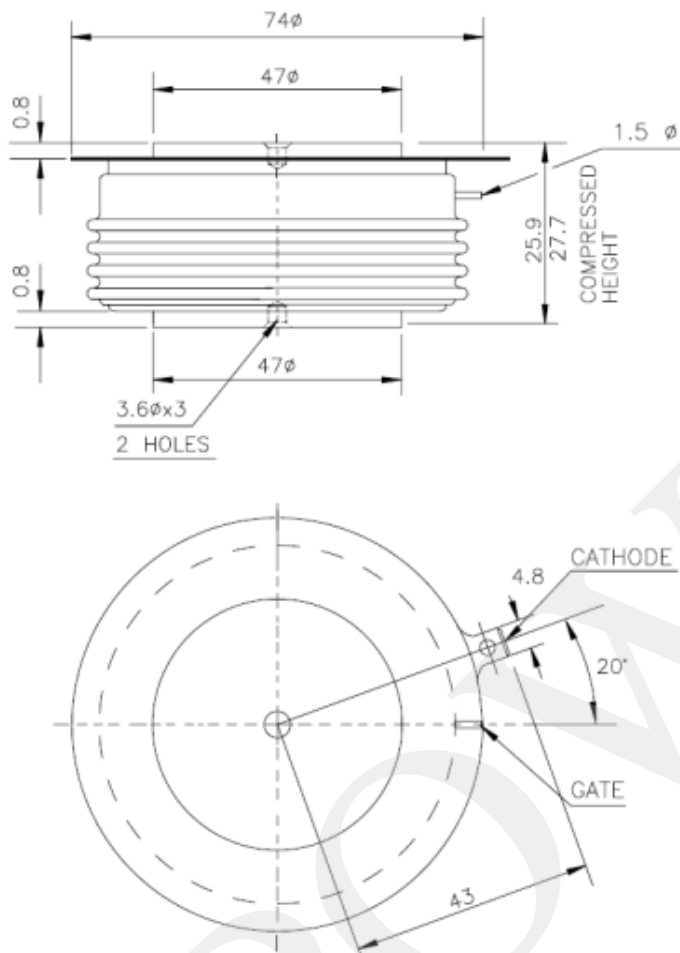
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