IXYS
A Littelfuse Technology

Date: - 4th Feb 2019

Data Sheet Issue: - 1

Anode Shorted Gate Turn-Off Thyristor
Types G2000HF250

Absolute Maximum Ratings

	VOLTAGE RATINGS	MAXIMUM LIMITS	UNITS
V_{DRM}	Repetitive peak off-state voltage, (note 1)	2500	V
V_{RSM}	Non-repetitive peak off-state voltage, (note 1)	2500	V
$V_{DC\text{-}link}$	Maximum continuos DC-link voltage	1250	V
V_{RRM}	Repetitive peak reverse voltage	18	V
V_{RSM}	Non-repetitive peak reverse voltage	18	V

	RATINGS	MAXIMUM LIMITS	UNITS
I_{TGQ}	Peak turn-off current, (note 2)	2000	A
L_s	Snubber loop inductance, $I_{TM}=I_{TGQ}$, (note 2)	200	nH
$I_{T(AV)M}$	Mean on-state current, T_{sink}=55°C (note 3)	1030	A
$I_{T(RMS)}$	Nominal RMS on-state current, 25°C (note 3)	2050	A
I_{TSM}	Peak non-repetitive surge current t_p=10ms, (Note 4)	16	kA
I_{TSM2}	Peak non-repetitive surge current t_p=2ms, (Note 4)	28	kA
I^2t	I^2t capacity for fusing t_p=10ms	1.28×10^6	A^2s
di/dt_{cr}	Critical rate of rise of on-state current, (note 5)	500	A/µs
P_{FGM}	Peak forward gate power	120	W
P_{RGM}	Peak reverse gate power	12	kW
I_{FGM}	Peak forward gate current	60	A
V_{RGM}	Peak reverse gate voltage (note 6).	18	V
$T_{j\ op}$	Operating temperature range	-40 to +125	°C
T_{stg}	Storage temperature range	-40 to +125	°C

Notes:-
1) V_{GK}=-2Volts.
2) T_j=125°C, V_D=1250V, $V_{DM}\leq$2500V di_{GQ}/dt=30A/µs, I_{TGQ}=2500A and C_S=4µF.
3) Double-side cooled, single phase; 50Hz, 180° half-sinewave.
4) $T_{j(initial)}$=125°C, single phase, 180° sinewave, re-applied voltage $V_D=V_R\leq$10V.
5) I_T=2000A repetitive, I_{GM}=25A, di_{GM}/dt=20A/µs. For di/dt>500A/µs please consult the factory.
6) May exceed this value during turn-off avalanche period.

Characteristics

	Parameter	MIN	TYP	MAX	TEST CONDITIONS	UNITS
V_{TM}	Maximum peak on-state voltage	-	-	2.8	I_G=5A, I_T=2000A	V
I_L	Latching current	-	40	-	T_j=25°C	A
I_H	Holding current.	-	40	-	T_j=25°C	A
dv/dt_{cr}	Critical rate of rise of off-state voltage	1000	-	-	V_D=3000V, V_{GR}=-2V	V/µs
I_{DRM}	Peak off state current	-	-	60	Rated V_{DRM}, V_{GR}=-2V	mA
I_{RRM}	Peak reverse current	-	-	20	V_{RR}=18V	mA
I_{GKM}	Peak negative gate leakage current	-	-	20	V_{GR}=-18V	mA
V_{GT}	Gate trigger voltage	-	1.0	-	T_j=-40°C	V
		-	0.8	1.0	T_j=25°C V_D=25V, R_L=25mΩ	V
		-	0.6	-	T_j=125°C	V
I_{GT}	Gate trigger current	-	8	-	T_j=-40°C	A
		-	-	5	T_j=25°C V_D=25V, R_L=25mΩ	A
		0.05	-	1	T_j=125°C	A
t_d	Delay time	-	0.7	2	V_D=1250V, I_{TGQ}=2000A, di_T/dt=200A/µs, I_{GM}=30A, di_G/dt=20A/µs, C_S=4µF, R_s=5Ω	µs
t_{gt}	Turn-on time	-	3	5		µs
E_{on}	Turn-on energy	-	-	0.4		J
t_f	Fall time	-	1.5	-	V_{DM} =2500V, I_{TGQ}=2000A, di_{GQ}/dt=30A/µs, V_{GR}=-16V, C_S=4µF	µs
t_s	Storage time	-	-	26		µs
t_{gq}	Turn-off time	-	-	30		µs
I_{GQM}	Peak turn-off gate current	-	600	-		A
Q_{GQ}	Turn-off gate charge	-	8	-		mC
t_{tail}	Tail time	-	8.5	-		µs
E_{off}	Turn-off energy	-	-	2.5		J
R_{thJK}	Thermal resistance junction to sink	-	-	22	Double side cooled	K/kW
		-	-	48	Cathode side cooled	K/kW
		-	-	42	Anode side cooled	K/kW
F	Mounting force	21	-	26	(see note 2)	kN
W_t	Weight	-	0.8	-		kg

Notes:-
1) Unless otherwise indicated T_j=125°C.
2) For other clamping forces, consult factory.

Curves

Figure 1 - On-state characteristics of Limit device

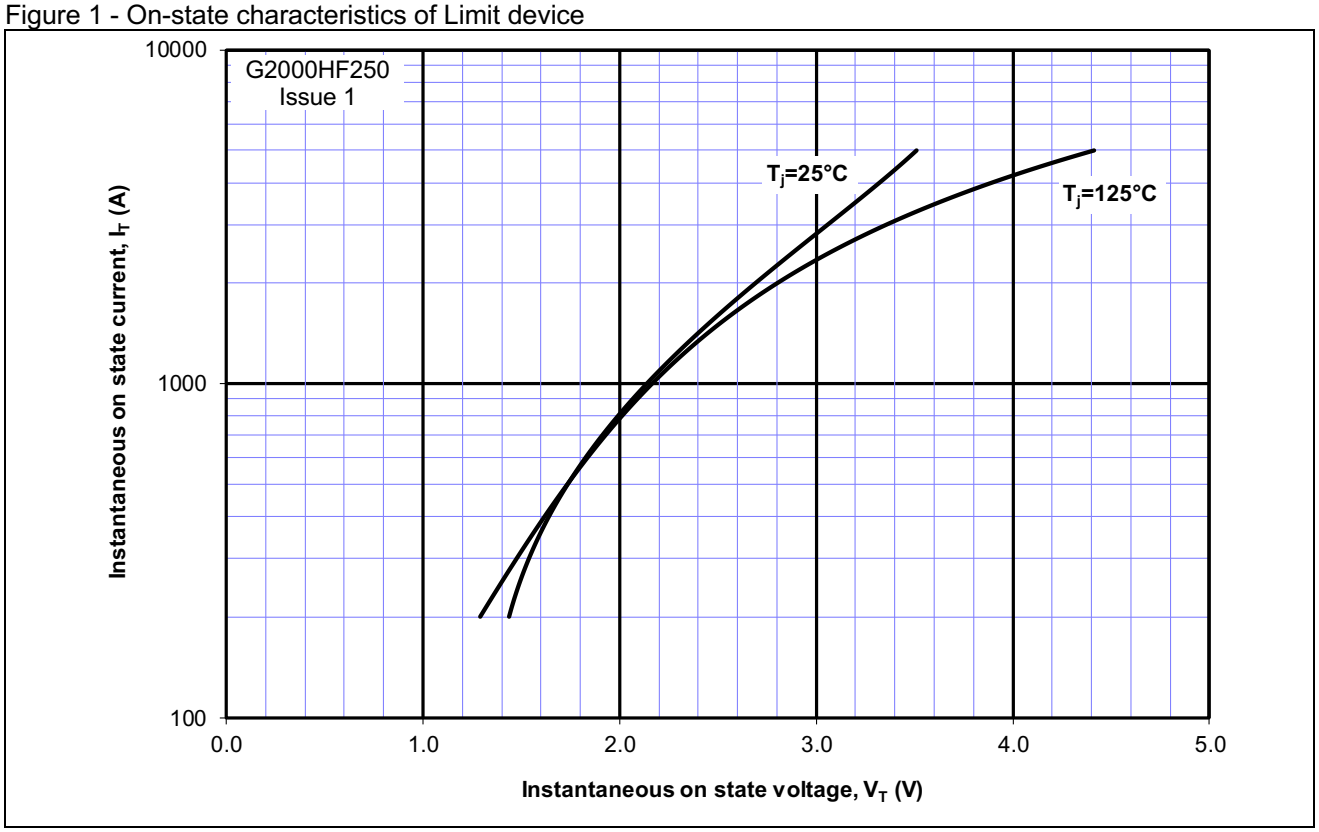
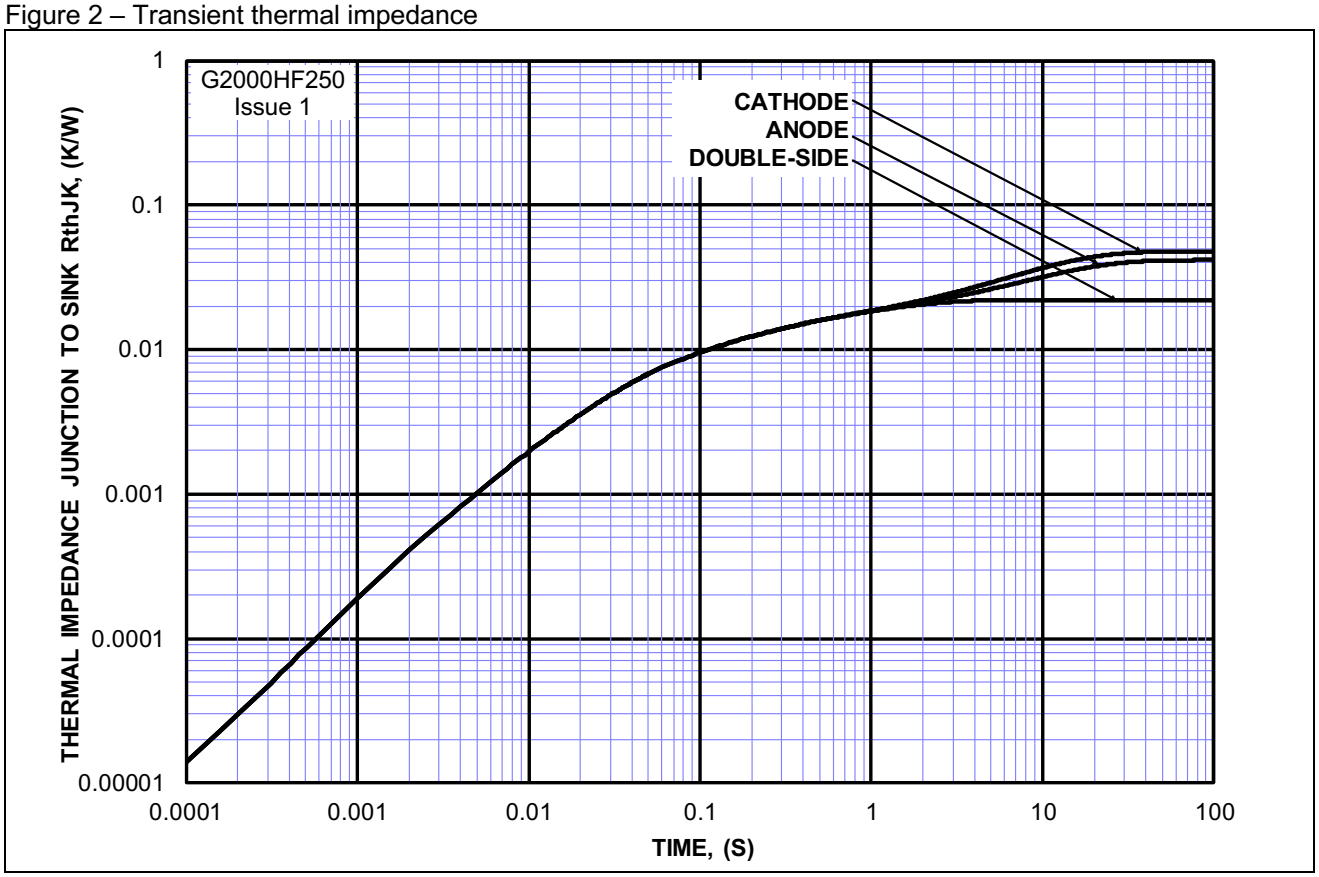
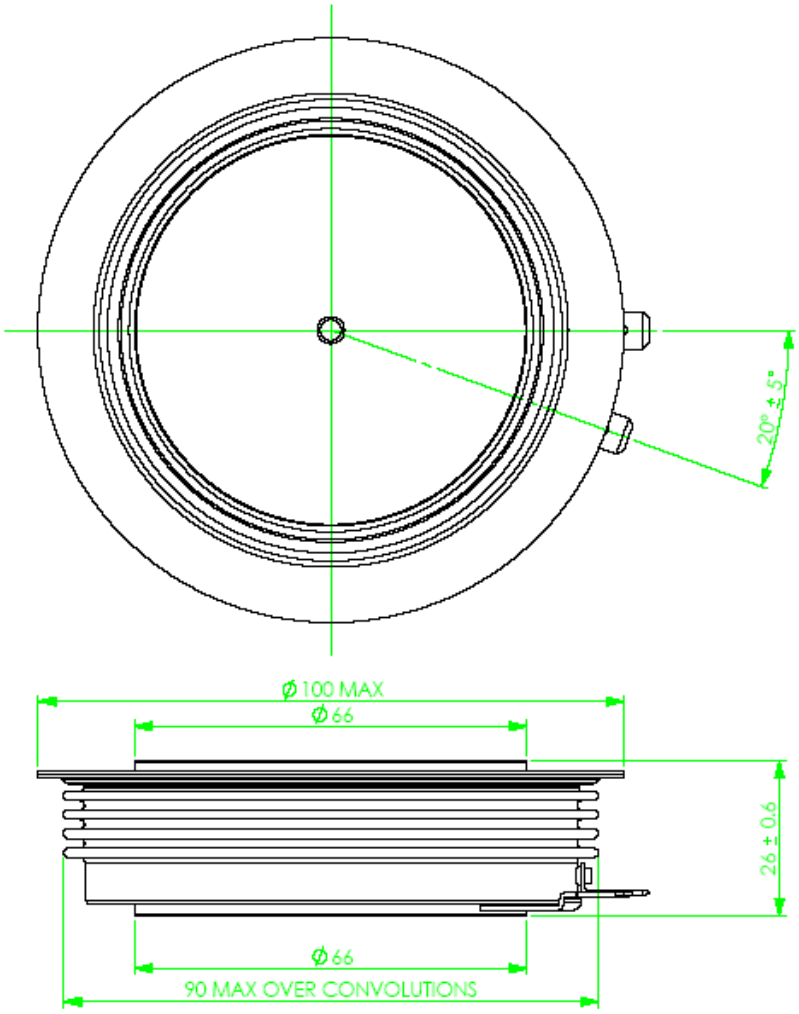


Figure 2 – Transient thermal impedance



Outline Drawing & Ordering Information



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ORDERING INFORMATION (Please quote 10-digit code as below)

G2000	HF	25	0
Fixed Type code	Outline code	Voltage code V_{DRM}/100	Fixed code

Order code - G2000HF250

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