

Provisional Data

Anode Shorted Gate Turn-Off Thyristor Types G1000QC250

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
$V_{DC-link}$	Maximum continuous DC-link voltage	2800	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)	1000	A
L_s	Snubber loop inductance, $I_{TM}=I_{TGQ}$, (note 2)	300	nH
$I_{T(AV)M}$	Mean on-state current, $T_{sink}=55^{\circ}C$ (note 3)	615	A
$I_{T(RMS)}$	Nominal RMS on-state current, $25^{\circ}C$ (note 3)	1220	A
I_{TSM}	Peak non-repetitive surge current $t_p=10ms$, (Note 4)	8	kA
I_{TSM2}	Peak non-repetitive surge current $t_p=2ms$, (Note 4)	14	kA
I^2t	I^2t capacity for fusing $t_p=10ms$	320×10^3	A^2s
di/dt_{cr}	Critical rate of rise of on-state current, (note 5)	300	$A/\mu s$
P_{FGM}	Peak forward gate power	185	W
P_{RGM}	Peak reverse gate power	7	kW
I_{FGM}	Peak forward gate current	100	A
V_{RGM}	Peak reverse gate voltage (note 6).	18	V
t_{off}	Minimum permissible off-time (note 2)	80	μs
t_{on}	Minimum permissible on-time	20	μs
$T_{j op}$	Operating temperature range	-40 to +125	$^{\circ}C$
T_{stg}	Storage temperature range	-40 to +125	$^{\circ}C$

Notes:-

- 1) $V_{GK}=-2Volts$.
- 2) $T_j=125^{\circ}C$, $V_D=1250V$, $V_{DM} \leq 2500V$ $di_{GQ}/dt=30A/\mu s$, $I_{TGQ}=1000A$ and $C_S=1\mu F$.
- 3) Double-side-cooled, single phase; 50Hz, 180° half-sinewave.
- 4) $T_{j(terminal)}=125^{\circ}C$, single phase, 180° sinewave, re-applied voltage $V_D=V_R \leq 10V$.
- 5) For $di/dt > 300A/\mu s$ please consult the factory.
- 6) May exceed this value during turn-off avalanche period.

Characteristics

	Parameter	MIN	TYP	MAX	TEST CONDITIONS (note 1)	UNITS
V_{TM}	Maximum peak on-state voltage	-	2.1	2.5	$I_G=2A, I_T=1000A$	V
I_L	Latching current	-	10	-	$T_j=25^\circ C$	A
I_H	Holding current.	-	10	-	$T_j=25^\circ C$	A
dv/dt_{cr}	Critical rate of rise of off-state voltage	1000	-	-	$V_D=1250V, V_{GR}=-2V$	V/ μs
I_{DRM}	Peak off state current	-	-	30	Rated $V_{DRM}, V_{GR}=-2V$	mA
I_{RRM}	Peak reverse current	-	-	20	$V_{RR}=16V$	mA
I_{GKM}	Peak negative gate leakage current	-	-	20	$V_{GR}=-16V$	mA
V_{GT}	Gate trigger voltage	-	1.0	-	$T_j=-40^\circ C$	V
		-	0.8	-	$T_j=25^\circ C, V_D=25V, R_L=25m\Omega$	V
		-	0.6	-	$T_j=125^\circ C$	V
I_{GT}	Gate trigger current	-	1.6	3.5	$T_j=-40^\circ C$	A
		-	0.7	1.5	$T_j=25^\circ C, V_D=25V, R_L=25m\Omega$	A
		-	0.2	0.4	$T_j=125^\circ C$	A
t_d	Delay time	-	0.8	-	$V_D=1250V, I_{TQ}=1000A, di_T/dt=300A/\mu s, I_{GM}=30A, di_G/dt=30A/\mu s, C_S=1\mu F, R_S=5\Omega$	μs
t_{gt}	Turn-on time	-	2.8	4		μs
E_{on}	Turn-on Energy	-	-	1		J
t_f	Fall time	-	1.2	-	$V_D=1250V, I_{TQ}=1000A, di_{GQ}/dt=30A/\mu s, V_{GR}=-16V, C_S=1\mu F$	μs
t_s	Storage time	-	-	13		μs
t_{gq}	Turn-off time	-	-	15		μs
I_{GQ}	Peak turn-off gate current	-	300	-		A
Q_{GQ}	Turn-off gate charge	-	2	-		mC
t_{tail}	Tail time	-	15	-		μs
E_{off}	Turn-off energy	-	-	2.2		J
R_{thJK}	Thermal resistance junction to sink	-	-	0.038		Double side cooled
		-	-	0.061	Cathode side cooled	K/W
		-	-	0.101	Anode side cooled	K/W
F	Mounting force	13	-	17	(see note 2)	kN
W_t	Weight	-	325	-		g

Notes:-

- 1) Unless otherwise indicated $T_j=125^\circ C$.
- 2) For other clamping forces, consult factory.

Curves

Figure 1 - On-state characteristics of Limit device

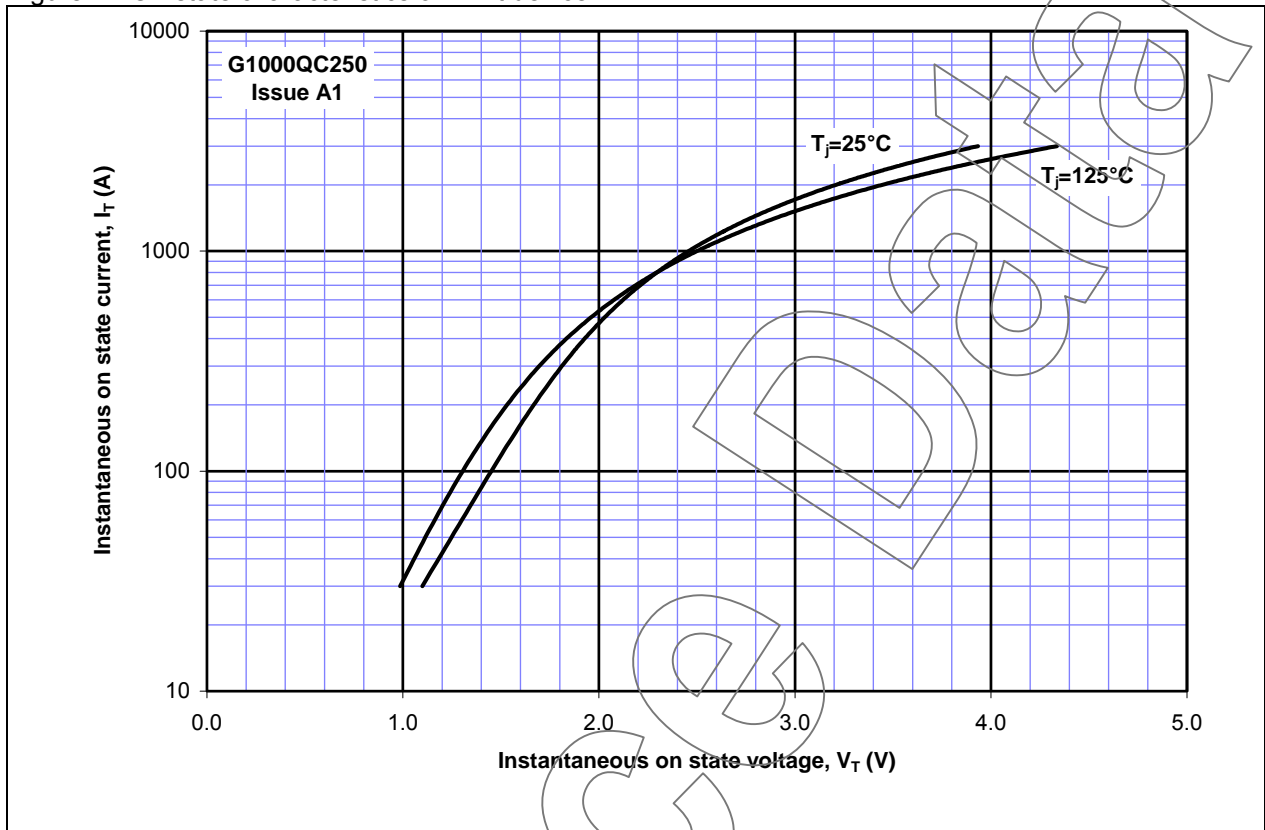
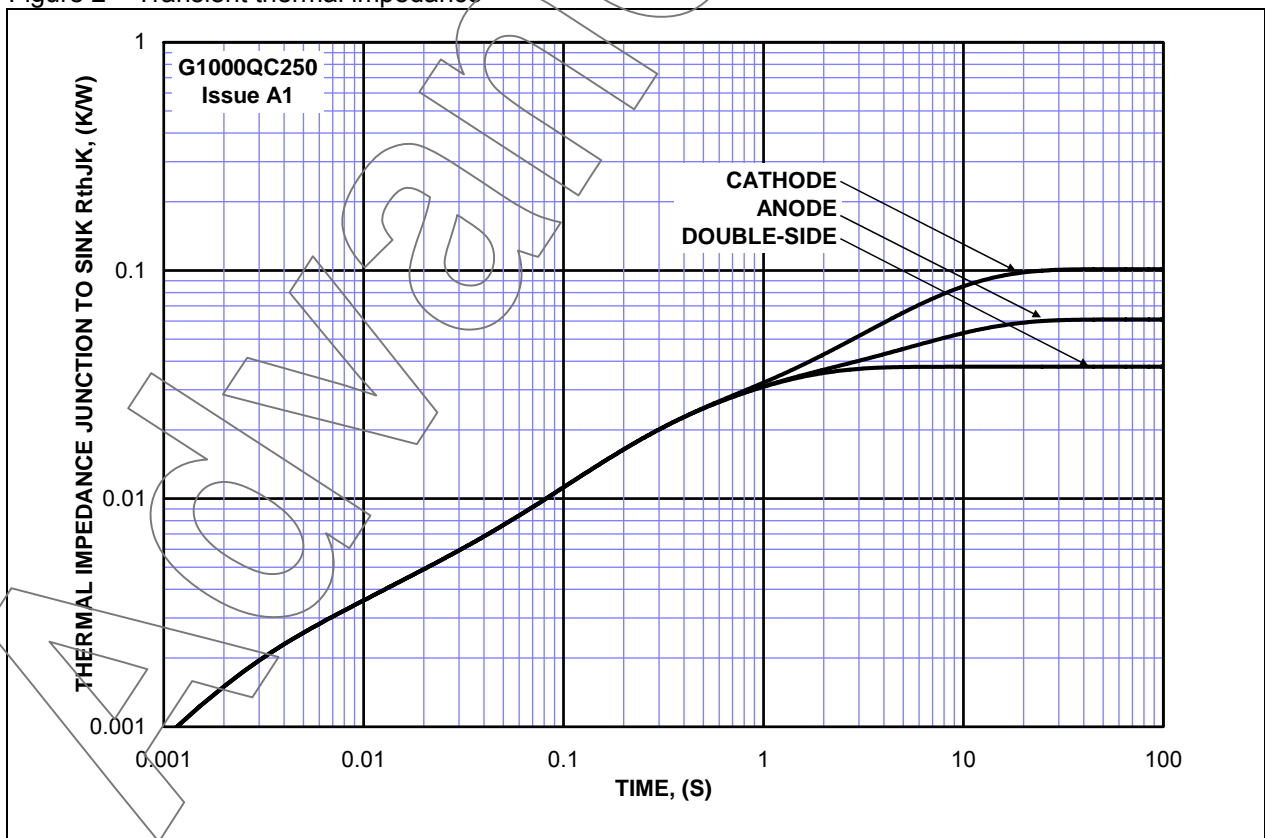
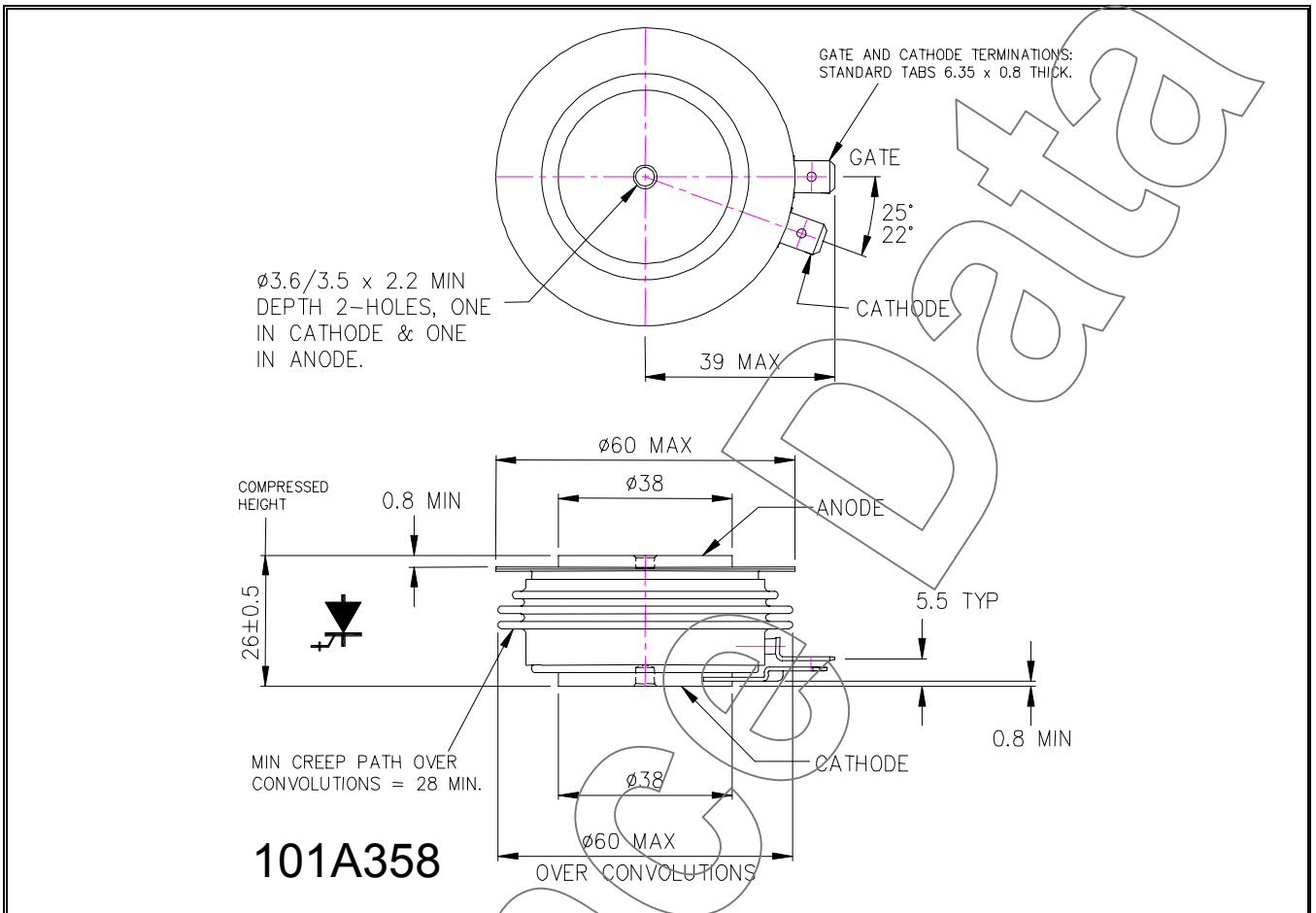


Figure 2 – Transient thermal impedance



Outline Drawing & Ordering Information



ORDERING INFORMATION (Please quote 10 digit code as below)

G1000 Fixed Type Code	QC Fixed Outline Code	25 Fixed Voltage Code $V_{DRM}/100$ 25	0 Fixed Code
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Typical order code: G1000QC250 – 2500V V_{DRM} 26mm clamp height capsule.

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