

TENTATIVE

TOSHIBA GATE TURN-OFF THYRISTOR LOW SNUBBER TYPE

# SG2000GXH26

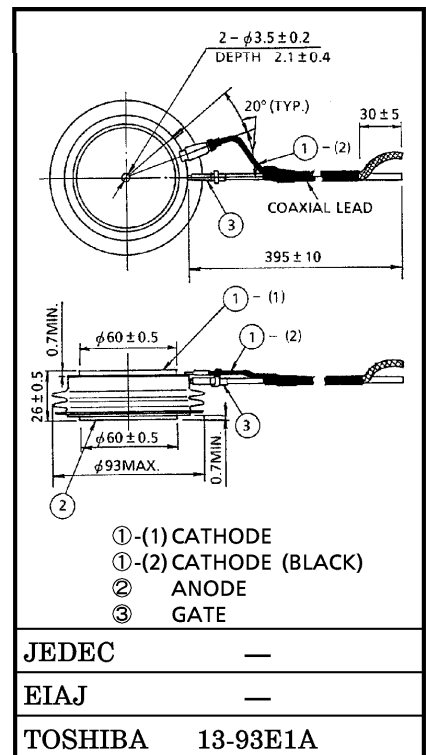
INVERTER APPLICATION

Unit in mm

- Repetitive Peak Off-State Voltage :  $V_{DRM} = 4500 \text{ V}$  (Note 1)
- R.M.S On-State Current :  $I_T(\text{RMS}) = 1000 \text{ A}$  ( $T_f = 76^\circ\text{C}$ )
- Peak Turn-Off Current :  $I_{TGQM} = 2000 \text{ A}$
- Critical Rate of Rise of On-State Current :  $di/dt = 500 \text{ A}/\mu\text{s}$
- Critical Rate of Rise of Off-State Voltage :  $dv/dt = 1000 \text{ V}/\mu\text{s}$

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-state Voltage (Note 1)	$V_{DRM}$	4500	V
Repetitive Peak Reverse Voltage	$V_{RRM}$	16	V
Peak Turn-Off Current (Note 2)	$I_{TGQM}$	2000	A
R.M.S On-State Current (Note 3)	$I_T(\text{RMS})$	1000	A
Peak One Cycle Surge On-State Current (non repetitive, 10 ms width half sine waveform)	$I_{TSM}$	16000	A
Critical Rate Of Rise Of On-State Current (Note 4)	$di/dt$	500	$\text{A}/\mu\text{s}$
Peak Forward Gate Current	$I_{FGM}$	100	A
Average Forward Gate Power Dissipation	$P_{FG(AV)}$	50	W
Average Reverse Gate Power Dissipation	$P_{RG(AV)}$	150	W
R.M.S Gate Current (Note 5)	$I_G(\text{RMS})$	42	A
Peak Reverse Gate Voltage (at Static)	$V_{RGM}$	16	V
Operating Junction Temperature Range	$T_j$	-40~125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40~150	$^\circ\text{C}$
Mounting Force	—	$19.6 \pm 2.0$	kN



Weight : 800 g

(Note 1) :  $V_{GK} = -2 \text{ V}$

(Note 2) :  $V_{DM} = 4000 \text{ V}$ ,  $C_S = 2 \mu\text{F}$ ,  $R_S = 5 \Omega$ ,  $di_{GQ}/dt = 35 \text{ A}/\mu\text{s}$ ,  $V_{DSP} \leq 800 \text{ V}$ ,  $L_S \leq 0.2 \mu\text{H}$

(Note 3) : 50 Hz Half Sine Waveform at  $T_f = 76^\circ\text{C}$

(Note 4) :  $V_D = 1/2 V_{DRM}$ ,  $I_{GM} = 25 \text{ A}$

(Note 5) : Ambient Temperature of coaxial gate-cathode lead =  $90^\circ\text{C}$

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## ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-state Current	$I_{DRM}$	$V_{DRM} = \text{RATED}$ , $V_{GK} = -2 \text{ V}$ , $T_j = 125^\circ\text{C}$	—	—	100	mA	
Repetitive Peak Reverse Current	$I_{RRM}$	$V_{RRM} = \text{RATED}$ , $T_j = 125^\circ\text{C}$	—	—	10	mA	
Repetitive Peak Reverse Gate Current	$I_{RGM}$	$V_{RGM} = 16 \text{ V}$ , $T_j = 125^\circ\text{C}$	—	—	10	mA	
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 2000 \text{ A}$ , $T_j = 125^\circ\text{C}$	—	—	3.60	V	
Gate Trigger Voltage	$V_{GT}$	$V_D = 24 \text{ V}$ , $R_L = 0.1 \Omega$	$T_j = -40^\circ\text{C}$	—	—	1.70	V
			$T_j = 25^\circ\text{C}$	—	—	1.20	V
Gate Trigger Current	$I_{GT}$		$T_j = -40^\circ\text{C}$	—	—	9.0	A
			$T_j = 25^\circ\text{C}$	—	—	3.0	A
Turn-On Delay Time	$t_d$	$V_D = 1/2 V_{DRM}$ , $di/dt = 500 \text{ A}/\mu\text{s}$ ,	—	—	3	$\mu\text{s}$	
Turn-On Time	$t_{gt}$	$I_{GM} = 25 \text{ A}$ , $I_T = 2000 \text{ A}$ , $T_j = 25^\circ\text{C}$	—	—	10	$\mu\text{s}$	
Critical Rate Of Rise Of Off-State Voltage	$dv/dt$	$V_{DRM} = 2/3 \text{ RATED}$ , $T_j = 125^\circ\text{C}$ , $V_{GK} = -2 \text{ V}$ , Exponential Rise	1000	—	—	$\text{V}/\mu\text{s}$	
Storage Time	$t_s$	$I_{TGQ} = 2000 \text{ A}$ , $V_{DM} = 4000 \text{ V}$ ,	—	—	23	$\mu\text{s}$	
Gate Turn-Off Time	$t_{gq}$	$R_S = 5 \Omega$ , $V_D = 1/2 V_{DRM}$ , $di_{GQ}/dt = 35 \text{ A}/\mu\text{s}$ ,	—	—	26	$\mu\text{s}$	
Tail Time	$t_{tail}$	$C_S = 2 \mu\text{F}$ , $V_{DSP} \leq 800 \text{ V}$ ,	—	100	—	$\mu\text{s}$	
Gate Turn-Off Current	$I_{GQ}$	$T_j = 125^\circ\text{C}$ , $L_S \leq 0.2 \mu\text{H}$	—	520	—	A	
Thermal Resistance (Junction to Fin)	$R_{th(j-f)}$	DC	—	—	0.018	$^\circ\text{C}/\text{W}$	

