

TOSHIBA GATE TURN-OFF THYRISTOR LOW SNUBBER TYPE

# SG4000EX26

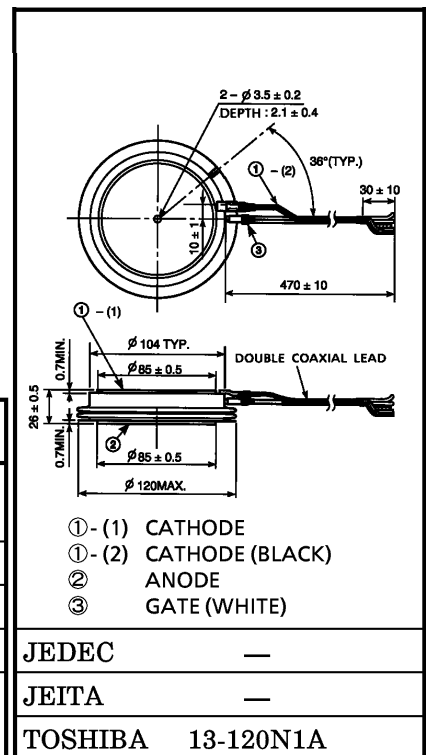
INVERTER APPLICATION

Unit in mm

- Repetitive Peak Off-State Voltage :  $V_{DRM}=2500V$  (Note 1)
- R.M.S On-State Current :  $I_T(RMS)=2000A$  ( $T_f=76^\circ C$ )
- Peak Turn-Off Current :  $I_{TGQM}=4000A$
- Critical Rate of Rise of On-State Current :  $di/dt=500A/\mu s$
- Critical Rate of Rise of Off-State Voltage :  $dv/dt=1000V/\mu s$

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage (Note 1)	$V_{DRM}$	2500	V
Repetitive Peak Reverse Voltage	$V_{RRM}$	16	V
Peak Turn-Off Current (Note 2)	$I_{TGQM}$	4000	A
R.M.S On-State Current (Note 3)	$I_T(RMS)$	2000	A
Peak One Cycle Surge On-State Current (Non Repetitive, 10ms-Width Half Sine Wave)	$I_{TSM}$	30000	A
Critical Rate of Rise of On-State Current (Note 4)	$di/dt$	500	A / $\mu s$
Peak Forward Gate Current	$I_{FGM}$	100	A
Average Forward Gate Power Dissipation	$P_{FG(AV)}$	50	W
Average Reverse Gate Power Dissipation	$P_{RG(AV)}$	300	W
R.M.S Gate Current (Note 5)	$I_G(RMS)$	84	A
Peak Reverse Gate Voltage (at Static)	$V_{RGM}$	16	V
Operating Junction Temperature Range	$T_j$	-40~125	$^\circ C$
Storage Temperature Range	$T_{stg}$	-40~150	$^\circ C$
Mounting Force	—	$38.2 \pm 5.9$	kN



Weight : 1700g

- Note 1  $V_{GK} = -2V$
- Note 2  $V_{DM} = 2500V$ ,  $C_S = 6\mu F$ ,  $R_S = 5\Omega$ ,  $di_{GQ}/dt = 50A/\mu s$ ,  $V_{DSP} \leq 1000V$ ,  $L_S \leq 0.15\mu H$
- Note 3 50Hz Half Sine Waveform at  $T_f = 76^\circ C$
- Note 4  $V_D = 1/2 V_{DRM}$ ,  $I_{GM} = 25A$
- Note 5 Ambient Temperature of coaxial gate-cathode lead =  $90^\circ C$

## ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-State Current	$I_{DRM}$	$V_{DRM} = \text{RATED}$ , $V_{GK} = -2V$ , $T_j = 125^\circ\text{C}$	—	—	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	$I_{RGM}$	$V_{RGM} = 16V$ , $T_j = 125^\circ\text{C}$	—	—	10	mA	
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 4000A$ , $T_j = 125^\circ\text{C}$	—	—	3.5	V	
Gate Trigger Voltage	$V_{GT}$	$V_D = 24V$ , $R_L = 0.1\Omega$	$T_j = -40^\circ\text{C}$	—	—	—	V
			$T_j = 25^\circ\text{C}$	—	—	1.50	
Gate Trigger Current	$I_{GT}$		$T_j = -40^\circ\text{C}$	—	—	—	A
			$T_j = 25^\circ\text{C}$	—	—	4.0	
Turn-On Delay Time	$t_d$	$V_D = 1/2V_{DRM}$ , $di/dt = 500A/\mu s$ ,	—	—	3	$\mu s$	
Turn-On Time	$t_{gt}$	$I_{GM} = 25A$ , $T_j = 25^\circ\text{C}$	—	—	10	$\mu s$	
Critical Rate of Rise of Off-State Voltage	$dv/dt$	$V_{DRM} = 2/3\text{RATED}$ , $T_j = 125^\circ\text{C}$ , $V_{GK} = -10V$	1000	—	—	$V/\mu s$	
Storage Time	$t_s$	$I_{TGQ} = 4000A$ , $V_{DM} = 2500V$ , $V_D = 1/2V_{DRM}$ , $di_{GQ}/dt = 50A/\mu s$ , $C_S = 6\mu F$ , $R_S = 5\Omega$ , $T_j = 125^\circ\text{C}$ , $L_S \leq 0.15\mu H$	—	—	30	$\mu s$	
Gate Turn-Off Time	$t_{gq}$		—	—	32	$\mu s$	
Tail Time	$t_{tail}$		—	—	150	$\mu s$	
Gate Turn-Off Current	$I_{GQ}$		—	850	—	A	
Thermal Resistance (Junction to Fin)	$R_{th(j-f)}$	DC	—	—	0.011	$^\circ\text{C}/W$	

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