

TOSHIBA GATE TURN-OFF THYRISTOR LOW SNUBBER TYPE

SG1000GXH26

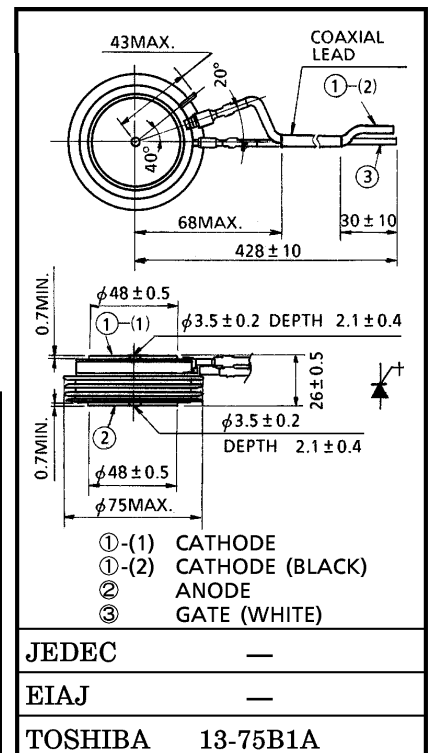
INVERTER APPLICATION

Unit in mm

- Repetitive Peak Off-State Voltage : $V_{DRM} = 4500\text{ V}$
- R.M.S. On-State Current : $I_T(\text{RMS}) = 500\text{ A}$
- Peak Turn-Off Current : $I_{TGQM} = 1000\text{ A}$
- Critical Rate of Rise of On-State Current : $di/dt = 600\text{ A}/\mu\text{s}$
- 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}	1000	A
R.M.S. On-State Current (Note 3)	$I_T(\text{RMS})$	500	A
Peak One Cycle Surge On-State Current (Non Repetitive, 10 ms-Width Half Sine Waveform)	I_{TSM}	8000	A
Critical Rate Of Rise Of On-State Current (Note 4)	di/dt	600	A / μs
Peak Gate Current	I_{GM}	450	A
Average Gate Power Dissipation	$P_G(\text{AV})$	80	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	°C
Storage Temperature Range	T_{stg}	-40~150	°C
Mounting Force	—	13.7 ± 1.4	kN



Weight : 520 g

- (Note 1) : $V_{GK} \leq -2\text{ V}$
- (Note 2) : $V_{DM} \leq 4000\text{ V}$, $C_S \geq 0.7\ \mu\text{F}$, $di_{GQ}/dt \geq 25\text{ A}/\mu\text{s}$, $L_S \leq 0.2\ \mu\text{H}$ ($V_{DSP} \leq 900\text{ V}$)
- (Note 3) : 50 Hz Half Sine Waveform at $T_f \leq 83^\circ\text{C}$
- (Note 4) : $V_D \leq 2250\text{ V}$, $I_{GM} \leq 20\text{ A}$ ($t_r \leq 1\ \mu\text{s}$)
- (Note 5) : Ambient Temperature of coaxial gate and cathode lead $\leq 90^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-state Current	I_{DRM}	$V_{DRM} = 4500\text{ V}$, $V_{GK} = -2\text{ V}$, $T_j = 125^\circ\text{C}$	—	—	40	mA	
Repetitive Peak Reverse Current	I_{RRM}	$V_{RRM} = 16\text{ V}$, $T_j = 125^\circ\text{C}$	—	—	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}	$I_{TM} = 1000\text{ A}$, $T_j = 125^\circ\text{C}$	—	—	4.0	V	
Gate Trigger Voltage	V_{GT}	$V_D = 24\text{ V}$, $R_L = 0.1\ \Omega$	$T_j = -40^\circ\text{C}$	—	—	1.7	V
			$T_j = 25^\circ\text{C}$	—	—	1.0	V
$T_j = -40^\circ\text{C}$	—		—	6.0	A		
$T_j = 25^\circ\text{C}$	—		—	2.0	A		
Turn-On Delay Time	t_d	$V_D = 2250\text{ V}$, $I_T = 1000\text{ A}$, $di/dt = 600\text{ A}/\mu\text{s}$,	—	—	3.0	μs	
Turn-On Time	t_{gt}	$I_{GM} = 20\text{ A}$ ($t_r = 1\ \mu\text{s}$), $T_j = 25^\circ\text{C}$	—	—	10.0	μs	
Critical Rate Of Rise Of Off-State Voltage	dv/dt	$V_{DRM} = 3000\text{ V}$, $V_{GK} = -2\text{ V}$, Exponential Rise, $T_j = 125^\circ\text{C}$	1000	—	—	$\text{V}/\mu\text{s}$	
Storage Time	t_s	$I_{TGQ} = 1000\text{ A}$, $V_D = 2250\text{ V}$,	—	—	17	μs	
Gate Turn-Off Time	t_{gq}	$V_{DM} = 4000\text{ V}$, $C_s = 0.7\ \mu\text{F}$, $T_j = 125^\circ\text{C}$,	—	—	19	μs	
Gate Turn-Off Current	I_{GQ}	$di_{GQ}/dt = 25\text{ A}/\mu\text{s}$,	—	350	—	A	
Tail Time	t_{tail}	Off Squeeze Current $\geq 500\text{ mA}$	—	—	40	μs	
Thermal Resistance (Junction to Fin)	$R_{th(j-f)}$	DC	—	—	0.028	$^\circ\text{C}/\text{W}$	

