

TOSHIBA GATE TURN-OFF THYRISTOR

SG800GXH24

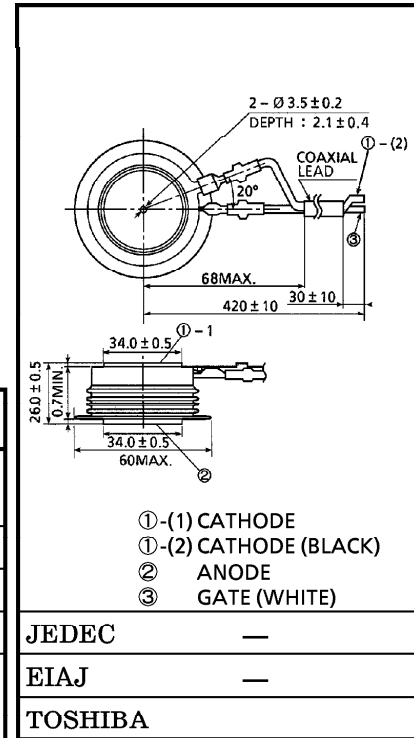
INVERTER APPLICATION

Unit in mm

- Repetitive Peak Off-State Voltage : $V_{DRM} = 4500V$
- R.M.S On-State Current : $I_T (RMS) = 300A$
- Peak Turn-Off Current : $I_{TGQM} = 800A$
- Critical Rate of Rise of On-State Current : $di / dt = 200A / \mu s$
- Critical Rate of Rise of Off-State Voltage : $dv / dt = 900V / \mu s$

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}	800	A
R.M.S On-State Current (Note 3)	$I_T (RMS)$	300	A
Peak One Cycle Surge On-State Current (non repetitive, 10ms width half sine waveform)	I_{TSM}	6000	A
Critical Rate of Rise of On-State Current (Note 4)	di / dt	200	A / μs
Peak Gate Current	I_{GM}	280	A
Average Gate Power Dissipation	$P_G (AV)$	55	W
R.M.S Gate Current (Note 5)	$I_G (RMS)$	35	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	—	11.8±1.2	kN



Weight : 320g

Note 1 $V_{GK} \leq -2V$

Note 2 $V_{DM} \leq 2/3V_{DRM}$, $C_S \geq 2\mu F$, $di_{GQ} / dt \geq 25A / \mu s$, $L_S \leq 0.2\mu H$ ($V_{DSP} \leq 500V$)

Note 3 50Hz Half Sine Waveform at $T_f \leq 85^\circ C$

Note 4 $V_D \leq 2250V$, $I_{GM} \geq 20A$ ($t_r \leq 1\mu s$)

Note 5 Ambient Temperature of coaxial gate-cathode lead $\leq 90^\circ C$

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ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=4500V$, $V_{GK}=-2V$, $T_j=125^\circ C$	—	—	40	mA	
Repetitive Peak Reverse Current	I_{RRM}	$V_{RRM}=16V$, $T_j=125^\circ C$	—	—	10	mA	
Repetitive Peak Reverse Gate Current	I_{RGM}	$V_{RGM}=16V$, $T_j=125^\circ C$	—	—	10	mA	
Peak On-State Voltage	V_{TM}	$I_{TM}=800A$, $T_j=125^\circ C$	—	—	3.3	V	
Gate Trigger Voltage	V_{GT}	$V_D=24V$, $R_L=0.1\Omega$	$T_j=-40^\circ C$	—	—	1.5	V
			$T_j=25^\circ C$	—	—	1.2	
Gate Trigger Current	I_{GT}		$T_j=-40^\circ C$	—	—	3	A
			$T_j=25^\circ C$	—	—	1	
Turn-On Delay Time	t_d	$V_D=2250V$, $I_{TM}=800A$, $di/dt=200A/\mu s$, $I_{GM}=18A$ ($t_r=1\mu s$), $T_j=25^\circ C$	—	—	2.0	μs	
Turn-On Time	t_{gt}		—	—	8.0	μs	
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM}=3000V$, $V_{GK}=-4V$, Exponential Rise, $T_j=125^\circ C$	900	—	—	$V/\mu s$	
Storage Time	t_s	$I_{TGQ}=800A$, $V_D=2250V$, $V_{DM}=2/3V_{DRM}$, $C_S=2\mu F$, $T_j=125^\circ C$, $di_{GQ}/dt=25A/\mu s$, Off Squeeze Current $\geq 500mA$	—	—	16	μs	
Gate Turn-Off Time	t_{gq}		—	—	18	μs	
Gate Turn-Off Current	I_{GQ}		—	300	—	A	
Tail Time	t_{tail}		—	—	125	μs	
Thermal Resistance (Junction to Fin)	$R_{th(j-f)}$	DC	—	—	0.045	$^\circ C/W$	

