

TENTATIVE
(UNDER DEVELOPMENT)

TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

SF1000GX24

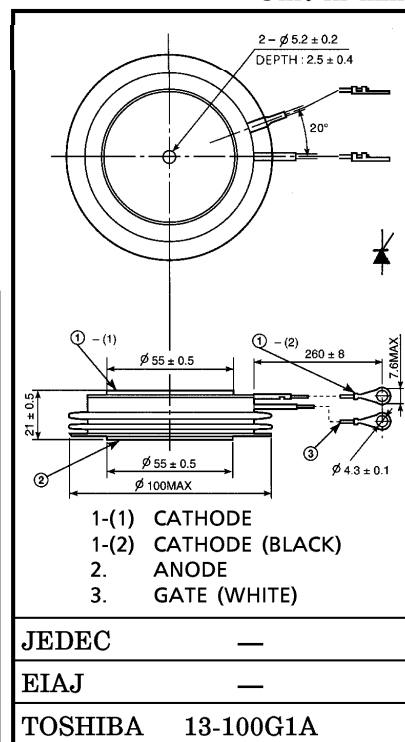
HIGH POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM}=4000V$
- Repetitive Peak Reverse Voltage : $V_{RRM}=4000V$
- Average On-State Current : $I_T(AV)=1000A$ ($T_f=79^\circ C$)

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	V_{DRM} V_{RRM}	4000	V
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j=0\sim 125^\circ C$)	V_{RSM}	4400	V
R.M.S On-State Current	$I_T(RMS)$	1570	A
Average On-State Current	$I_T(AV)$	1000	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	20000 (50Hz) 22000 (60Hz)	A
I^2t Limit Value	I^2t	200×10^4	A^2s
Critical Rate of Rise of On-State Current (Note)	di/dt	200	$A/\mu s$
Peak Gate Power Dissipation	P_{GM}	30	W
Average Gate Power Dissipation	$P_G(AV)$	4	W
Peak Forward Gate Current	I_{GM}	6	A
Peak Forward Gate Voltage	V_{FGM}	20	V
Peak Reverse Gate Voltage	V_{RGM}	5	V
Junction Temperature	T_j	$-40\sim 125$	$^\circ C$
Storage Temperature Range	T_{stg}	$-40\sim 125$	$^\circ C$
Mounting Force	—	29.4 ± 3.0	kN

Unit in mm



Weight : 630g

Note : $V_D=1/2$ Rated, $T_j=120^\circ C$, Gate Supply ($V_G=15V$, $R_G=8\Omega$, $t_r \leq 1\mu s$)

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ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	MAX.	UNIT	
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM} = \text{Rated}$ $T_j = 125^\circ\text{C}$	—	80	mA	
Peak On-State Voltage	V_{TM}	$I_{TM} = 3200\text{A}$, $T_j = 25^\circ\text{C}$	—	2.3	V	
Gate Trigger Voltage	V_{GT}	$V_D = 12\text{V}$, $R_L = 8\Omega$	$T_j = -40^\circ\text{C}$	—	4.5	V
			$T_j = 25^\circ\text{C}$	—	3.5	
Gate Trigger Current	I_{GT}		$T_j = -40^\circ\text{C}$	—	500	mA
			$T_j = 25^\circ\text{C}$	—	300	
Gate Non-Trigger Voltage	V_{GD}	$V_D = 1/2 \text{ Rated}$, $T_j = 125^\circ\text{C}$	0.2	—	V	
Gate Non-Trigger Current	I_{GD}		5	—	mA	
Delay Time	t_d	$V_D = 1/2 \text{ Rated}$, $T_j = 25^\circ\text{C}$ Gate Supply	—	5	μs	
Gate Turn-On Time	t_{gt}	($V_G = 15\text{V}$, $R_G = 8\Omega$, $t_r \leq 1\mu\text{s}$)	—	10	μs	
Turn-Off Time	t_q	$I_T = 1000\text{A}$, $V_R \geq 200\text{V}$, $dv/dt = 25\text{V}/\mu\text{s}$, $T_j = 125^\circ\text{C}$ $V_{DRM} = 1/2 \text{ Rated}$	—	400	μs	
Holding Current	I_H	$T_j = 25^\circ\text{C}$, $R_L = 6\Omega$	—	300	mA	
Critical Rate of Rise of Off-State Voltage	dv/dt	$I_T = 2/3 \text{ Rated}$, $T_j = 125^\circ\text{C}$ Gate Open, Exponential Rise	1000	—	$\text{V}/\mu\text{s}$	
Thermal Resistance (Junction to Case)	$R_{th(j-f)}$	DC	—	0.018	$^\circ\text{C}/\text{W}$	