

GATE TURN-OFF THYRISTOR
SILICON DIFFUSED TYPE

SG2000EX21

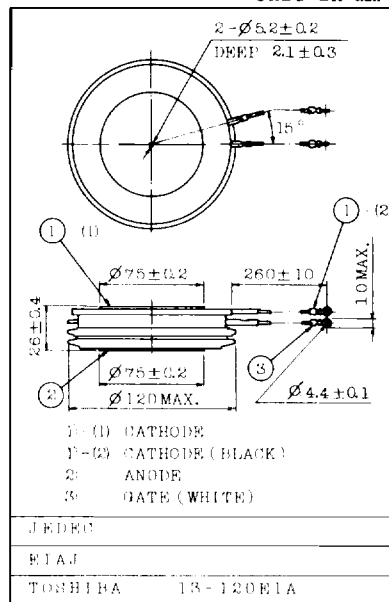
TENTATIVE

Unit in mm

CHOPPER, INVERTER APPLICATION.

FEATURES:

- . Repetitive Peak Off-State Voltage : $V_{DRM}=2500V$
- . Repetitive Peak Reverse Voltage : $V_{RRM}=500V$
- . R.M.S On-State Current : $I_T(RMS)=1000A$
- . Peak Turn-Off Current : $I_{TGQM}=2000A$
- . Critical Rate of Rise of On-State Current
: $di/dt=250A/\mu s$
- . Critical Rate of Rise of Off-State Voltage
: $dv/dt=500V/\mu s$
- . Flat Package



MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	2500	V
Repetitive Peak Reverse Voltage	V_{RRM}	500	V
Peak Turn-Off Current (Note 2)	I_{TGQM}	2000	A
R.M.S On-State Current	$I_T(RMS)$	1000	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	20000 (50Hz)	A
		22000 (60Hz)	
Critical Rate of Rise of On-State Current (Note 1)	di/dt	250	A/ μs
Peak Forward Gate Power Dissipation	P_{FGM}	50	W
Peak Reverse Gate Power Dissipation	P_{RGM}	15	kW
Average Forward Gate Power Dissipation	$P_G(AV)$	6	W
Peak Forward Gate Current	I_{FGM}	50	A
Peak Reverse Gate Voltage	V_{RGM}	15	V
Storage Temperature Range	T_{stg}	-40 ~ 115	°C
Operating Junction Temperature Range	T_j	-40 ~ 115	°C
Mounting Force	-	3300±200	kg

Note 1 : $V_D=1/2$ Rated, Gate Supply ($I_G=20A$, $t_r \leq 1\mu s$), $f=50Hz$

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}, V_{RRM} = \text{Rated}$	-	-	80	mA
Repetitive Peak Reverse Current	I_{RRM}	$R_{GK} = 10\Omega, T_j = 115^\circ\text{C}$	-	-	80	mA
Peak On-State Voltage	V_{TM}	$I_{TM} = 2000\text{A}, T_c = 25^\circ\text{C}$	-	-	2.5	V
Gate Trigger Voltage	V_{GT}	$V_D = 24\text{V}$ $T_c = -40^\circ\text{C}$	-	-	2.5	V
		$T_c = 25^\circ\text{C}$	-	0.7	1.5	
Gate Trigger Current	I_{GT}	$R_L = 0.5\Omega$ $T_c = -40^\circ\text{C}$	-	-	3.0	A
		$T_c = 25^\circ\text{C}$	-	0.8	1.5	
Gate Non-Trigger Voltage	V_{GD}	$V_D = 1/2 \text{ Rated}, T_c = 115^\circ\text{C}$	0.3	-	-	V
Gate Non-Trigger Current	I_{GD}		10	-	-	mA
Delay Time	t_d	$V_D = 1/2 \text{ Rated}, T_c = 25^\circ\text{C}$ Gate Supply	-	4	8	μs
Gate Turn-On Time	t_{gt}	$(I_G = 20\text{A}, t_r \leq 1\mu\text{s})$	-	-	15	
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM} = 2/3 \text{ Rated}, V_G = -4\text{V}$ $T_j = 115^\circ\text{C}, R_{GK} = 10\Omega$ Exponential Rise	500	-	-	V/ μs
Holding Current	I_H	$T_c = 25^\circ\text{C}, R_{GK} = 10\Omega$	-	40	-	A
Gate Turn-Off Voltage	V_{GQ}	$I_T = 2000\text{A}, V_{DRM} = 2/3 \text{ Rated}$	-	35	-	V
Gate Turn-Off Current	I_{GQ}	$dv/dt = 500\text{V}/\mu\text{s}, T_c = 110^\circ\text{C}$	-	400	-	A
Storage Time	t_s	$di_{RG}/dt = 40\text{A}/\mu\text{s}$ $I_T = 2000\text{A}, I_{RG} = 400\text{A}$	-	18	21	μs
Gate Turn-Off Time	t_{gq}	$dv/dt = 500\text{V}/\mu\text{s}, T_c = 110^\circ\text{C}$ $V_{DRM} = 2/3 \text{ Rated}$	-	-	23	μs
Thermal Resistance	$R_{th(j-f)}$	Junction to Fin	-	-	0.02	$^\circ\text{C}/\text{W}$

Note. 2

