

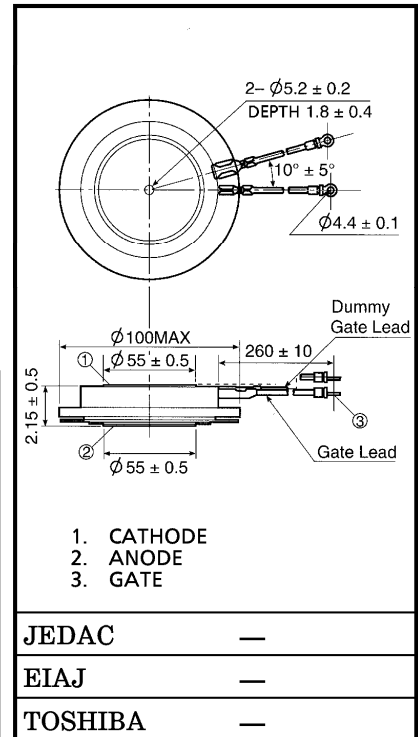
TENTATIVE

TOSHIBA GATE TURN-OFF THYRISTOR

SG1400EX25

- Repetitive Peak Off-State Voltage : $V_{DRM}=2500V$
(Note 1)
- Repetitive Peak Reverse Voltage : $V_{RRM}=500V$
- R.M.S On-State Current : $I_T(RMS)=700A$
- Peak Turn-Off Current : $I_{TGQM}=1400A$
- Critical Rate of Rise of On-State Current : $di/dt=250A/\mu s$
- Critical Rate of Rise of Off-State Voltage : $dv/dt=500V/\mu s$

Unit in mm



Weight : 700g

MAXIMUM RATINGS

CHARACTERISTICS	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage (Note 1)	V_{DRM}	2500	V
Repetitive Peak Reverse Voltage	V_{RRM}	500	V
Peak Turn-Off Current (Note 2)	I_{TGQM}	1400	A
R.M.S On-State Current (Note 3)	$I_T(RMS)$	700	A
Peak One Cycle Surge On-State Current (Non Repetitive, Half Sine Waveform)	I_{TSM}	14000 (50Hz)	A
Critical Rate of Rise of On-State Current (Note 4)	di/dt	250	A / μs
Peak Forward Gate Current	I_{FGM}	20	A
Average Forward Gate Power Dissipation	$P_{FG(AV)}$	4	W
R.M.S Gate Current (Note 5)	$I_G(RMS)$	42	A
Peak Reverse Gate Voltage (At Static)	V_{RGM}	15	V
Operating Junction Temperature Range	T_j	-40~115	°C
Storage Temperature Range	T_{stg}	-40~115	°C
Mounting Force	—	19.6±2.0	kN

(Note 1) $R_{GK} \leq 20\Omega$

(Note 2) $V_D = 1250V, V_{DM} \leq 1700V, C_S \geq 2\mu F, di_{GQ}/dt \geq 30A/\mu s, V_{DSP} \leq 600V, L_S \leq 0.2\mu H$
(TOSHIBA method)

(Note 3) 50Hz Half Sine Waveform

(Note 4) $V_D \leq 1250V, I_{TM} \leq 1400A, I_G \geq 20A (t_r \leq 1\mu s), f \leq 50Hz, C_S \leq 2\mu F, R_S \geq 10\Omega, 25^\circ C \leq T_j \leq 115^\circ C$

(Note 5) Ambient Temperature of gate and cathode leading wire = 90°C

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ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=2500V$, $V_{GK}=-2V$ $T_j=115^\circ C$	—	—	50	mA	
Repetitive Peak Reverse Current	I_{RRM}	$V_{RRM}=500V$ $T_j=115^\circ C$	—	—	50	mA	
Repetitive Peak Reverse Gate Current	I_{RGM}	$V_{RGM}=15V$ $T_j=115^\circ C$	—	—	100	mA	
Peak On-State Voltage	V_{TM}	$I_{TM}=1400A$, $T_j=25^\circ C$	—	—	2.62	V	
Gate Trigger Voltage	V_{GT}	$V_D=24V$	$T_j=-40^\circ C$	—	—	3.0	V
			$T_j=25^\circ C$	—	—	1.5	V
Gate Trigger Current	I_{GT}	$R_L=0.2\Omega$	$T_j=-40^\circ C$	—	—	—	A
			$T_j=25^\circ C$	—	—	1.5	A
Turn-On Delay Time	t_d	$V_D=1250V$, $I_{TM}=1400A$ $di/dt=250A/\mu s$	—	—	6.0	μs	
Turn-On Time	t_{gt}	$I_{GM}=20A$ ($t_r=1\mu s$), $T_j=25^\circ C$, non-snubber	—	—	12	μs	
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM}=1700V$ $T_j=115^\circ C$, $V_{GK}=-4V$ Exponential Rise	500	—	—	$V/\mu s$	
Storage Time	t_s	$I_{TGQ}=1400A$	—	—	20	μs	
Gate Turn-Off Time	t_{gq}	$V_{DM}=1700V$, $T_j=115^\circ C$	—	—	25	μs	
Tail Time	t_{tail}	$V_D=1250V$, $C_S=2\mu F$ $di_{GQ}/dt=30A/\mu s$	—	160	—	μs	
Turn-Off Gate Current	I_{GQ}	Off squeeze current $\geq 300mA$	—	350	—	A	
Thermal Resistance	$R_{th(j-f)}$	Junction to fin	—	—	0.03	$^\circ C/W$	