TENTATIVE

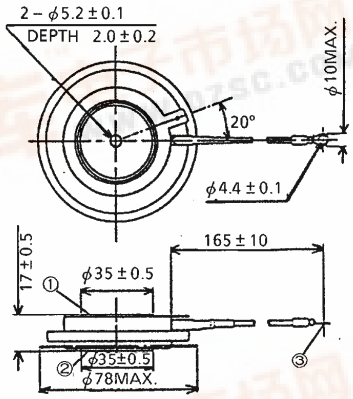
TOSHIBA GATE TURN-OFF THYRISTOR

SG800EX25

INVERTER APPLICATION

- Repetitive Peak Off-State Voltage : V_{DRM} = 2500V (Note 1)
- Repetitive Peak Reverse Voltage : V_{RRM} = 1250V
- R.M.S On-State Current : $I_{T(RMS)}$ = 400A
- Peak Turn-Off Current : I_{TGQM} = 800A
- Critical Rate of Rise of On-State Current : di / dt = 100A / μs
- Critical Rate of Rise of Off-State Voltage : dv / dt = 350V / μs

Unit in mm



1. CATHODE
2. ANODE
3. GATE

JEDAC	—
EIAJ	—
TOSHIBA	—

Weight : 260g

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage (Note 1)	V_{DRM}	2500	V
Repetitive Peak Reverse Voltage	V_{RRM}	1250	V
Peak Turn-Off Current (Note 2)	I_{TGQM}	800	A
R.M.S On-State Current (Note 3)	$I_{T(RMS)}$	400	A
Peak One Cycle Surge On-State Current (Non Repetitive, 10ms-Width Half Sine Waveform)	I_{TSM}	5000 (50Hz)	A
		5500 (60Hz)	
Critical Rate of Rise of On-State Current (Note 4)	di / dt	100	A / μs
Peak Forward Gate Current	I_{FGM}	10	A
Average Gate Forward Power Dissipation	$P_{FG(AV)}$	4	W
R.M.S Gate Current (Note 5)	$I_{G(RMS)}$	35	A
Peak Reverse Gate Voltage (At Static)	V_{RGM}	15	V
Operation Junction Temperature Range	T_j	−40~115	°C
Storage Temperature Range	T_{stg}	−40~115	°C
Mounting Force	—	11.8±1.2	kN

(Note 1) R_{GK} = 20Ω

(Note 2) V_D = 1250V, $V_{DM} \leqq 2/3 V_{DRM}$, $C_S \geqq 2\mu F$, $di_{GQ}/dt \geqq 30A/\mu s$, $V_{DSP} \leqq 600V$, $L_S \leqq 0.2\mu H$

(Note 3) 50Hz Half Sine Waveform

(Note 4) $V_D \leqq 1250V$, $I_{TM} \leqq 800A$, $I_G \geqq 5A$ ($t_r \leqq 1\mu s$), $f \leqq 50Hz$, $C_S \leqq 2\mu F$, $R_S \geqq 20\Omega$, $25°C \leqq T_j \leqq 115°C$

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

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ELECTRICAL CARACTERISTICS

CHARACTERISTICS	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM}=2500V$, $V_{GK}=-2V$ $T_j=115°C$		—	—	50	mA
Repetitive Peak Reverse Current	I_{RRM}	$V_{RRM}=1250V$ $T_j=115°C$		—	—	50	mA
Repetitive Peak Reverse Gate Current	I_{RGM}	$V_{RGM}=15V$ $T_j=115°C$		—	—	10	mA
Peak On-State Voltage	V_{TM}	$I_{TM}=600A$, $T_j=25°C$		—	—	2.5	V
Gate Trigger Voltage	V_{GT}	$V_D=24V$ $R_L=0.1\Omega$	$T_j=-40°C$	—	—	—	V
			$T_j=25°C$	—	0.65	2.0	V
Gate Trigger Current	I_{GT}		$T_j=-40°C$	—	400	—	mA
			$T_j=25°C$	—	120	350	mA
Turn-On Delay Time	t_d	$V_D=1250V$, $I_{TM}=800A$ $di/dt=100A/\mu s$		—	—	4.0	μs
Turn-On Time	t_{gt}	$I_{GM}=5A$ ($t_r=1\mu s$) $T_j=25°C$, non-snubber		—	—	10	μs
Critical Rate of Rise of Off-State Voltage	dv / dt	$V_{DRM}=2/3V_{DRM}$ $T_j=115°C$, $V_{GK}=-4V$ Exponential Rise		350	—	—	$V/\mu s$
Storage Time	t_s	$I_{TGQ}=600A$ $V_{DM}=2/3V_{DRM}$, $T_j=115°C$ ($V_D=1250V$), $C_S=2\mu F$ $di_{GQ}/dt=30A/\mu s$ Off squeeze current $\geqq$ 300mA		—	—	15	μs
Gate Turn-Off Time	t_{gq}			—	—	18	μs
Tail Time	t_{tail}			—	150	—	μs
Gate Turn-Off Current	I_{GQ}			—	180	—	A
Thermal Resistance	$R_{th\,(j\text{-}f)}$	Junction to fin		—	—	0.04	°C / W