

TENTATIVE

TOSHIBA GATE TURN-OFF THYRISTOR

SG800EX25

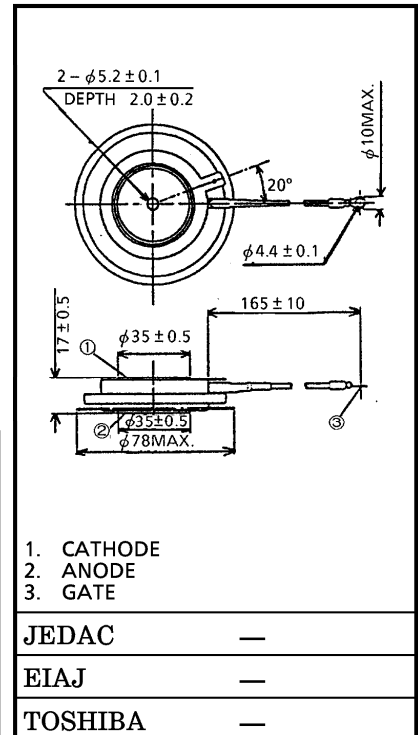
INVERTER APPLICATION

Unit in mm

- 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 : $di/dt=100A/\mu s$
- Critical Rate of Rise of Off-State Voltage : $dv/dt=350V/\mu s$

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



Weight : 260g

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

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

(Note 3) 50Hz Half Sine Waveform

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

(Note 5) Ambient Temperature of gate and cathode lead = $90^\circ C$

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