

TOSHIBA**SG800R24, SG800U24, SG800W24, SG800EX24**

TOSHIBA GATE TURN-OFF THYRISTOR

SG800R24, SG800U24, SG800W24, SG800EX24

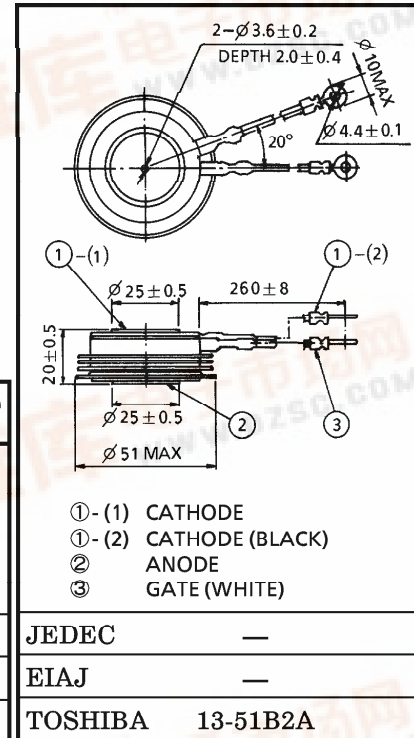
CHOPPER, INVERTER APPLICATION

Unit in mm

- Repetitive Peak Off-State Voltage : $V_{DRM}=1300, 1600, 1800, 2500V$
- R.M.S On-State Current : $I_T(RMS)=360A$
- Peak Turn-Off Current : $I_{TGQM}=800A$
- Critical Rate of Rise of On-State Current : $di/dt=200A/\mu s$
- Critical Rate of Rise of Off-State Voltage : $dv/dt=1000V/\mu s$

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage (Note 1)	SG800R24	V_{DRM}	1300	V
	SG800U24		1600	
	SG800W24		1800	
	SG800EX24		2500	
Repetitive Peak Reverse Voltage		V_{RRM}	15	V
Peak Turn-Off Current (Note 2)		I_{TGQM}	800	A
R.M.S On-State Current (Note 3)		$I_T(RMS)$	360	A
Peak One Cycle Surge On-State Current (Non-Repetitive, 10ms-Width Half Sine Waveform)		I_{TSM}	4000	A
Critical Rate of Rise of On-State Current (Note 4)		di/dt	200	A / μs
Peak Forward Gate Current		I_{FGM}	30	A
Average Forward Gate Power Dissipation		$P_{FG}(AV)$	6	W
Average Reverse Gate Power Dissipation		$P_{RG}(AV)$	20	W
R.M.S Gate Current		$I_G(RMS)$	35	A
Peak Reverse Gate Voltage (at Static)		V_{RGM}	15	V
Operating Junction Temperature Range		T_j	-40~125	°C
Storage Temperature Range		T_{stg}	-40~150	°C
Mounting Force		—	6.9±0.69	kN



JEDEC —

EIAJ —

TOSHIBA 13-51B2A

Weight : 160g

Note 1. $R_{GK}=20\Omega$ Note 2. $V_{DM}=2/3$ Rated, $C_S=2\mu F$, $R_S=20\Omega$, $di_{GQ}/dt=20A/\mu s$, $V_{DSP}\leq 450V$,
 $L_S\leq 0.3\mu H$ Note 3. Half Sine Waveform, $T_f=80^\circ C$ Note 4. $V_D=1/2$ Rated, $I_G=12A$

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ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM} = \text{Rated}$, $R_{GK} = 20\Omega$, $T_j = 125^\circ\text{C}$	—	—	10	mA
Repetitive Peak Reverse Current	I_{RRM}	$V_{RRM} = \text{Rated}$, $T_j = 125^\circ\text{C}$	—	—	5	mA
Repetitive Peak Reverse Gate Current	I_{RGM}	$V_{RGM} = \text{Rated}$, $T_j = 125^\circ\text{C}$	—	—	5	mA
Peak On-State Voltage	V_{TM}	$I_{TM} = 800\text{A}$, $T_j = 125^\circ\text{C}$	—	—	2.8	V
Gate Trigger Voltage	V_{GT}	$V_D = 12\text{V}$, $R_L = 0.5\Omega$	$T_j = -40^\circ\text{C}$	—	1.5	V
			$T_j = 25^\circ\text{C}$	—	0.75	
Gate Trigger Current	I_{GT}		$T_j = -40^\circ\text{C}$	—	2.0	A
			$T_j = 25^\circ\text{C}$	—	0.7	
Turn-On Delay Time	t_d	$V_D = 1/2 \text{ Rated}$, $di/dt = 200\text{A}/\mu\text{s}$, $I_{TM} = 800\text{A}$, $I_G = 12\text{A}$, $t_r = 1\mu\text{s}$, $T_j = 25^\circ\text{C}$	—	—	2.0	μs
Turn-On Time	t_{gt}		—	—	6.0	μs
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM} = 2/3 \text{ Rated}$, $T_j = 125^\circ\text{C}$, $V_{GK} = -2\text{V}$, Exponential Rise	1000	—	—	$\text{V}/\mu\text{s}$
Storage Time	t_s	$I_T = 800\text{A}$, $V_D = 1/2 \text{ Rated}$, $V_{DM} = 2/3 \text{ Rated}$, $C_S = 2\mu\text{F}$, $R_S = 20\Omega$, $R = 20\Omega$, $diGQ/dt = 20\text{A}/\mu\text{s}$, $T_j = 125^\circ\text{C}$	—	—	14	μs
Gate Turn-Off Time	t_{gq}		—	—	16	μs
Tail Time	t_{tail}		—	—	76	μs
Gate Turn-Off Current	I_{GQ}		—	180	—	A
Thermal Resistance (Junction to Fin)	$R_{th(j-f)}$	DC	—	—	0.07	$^\circ\text{C}/\text{W}$

