

TOSHIBA ALLOY-FREE REVERSE CONDUCTING THYRISTOR

SHR400EX25

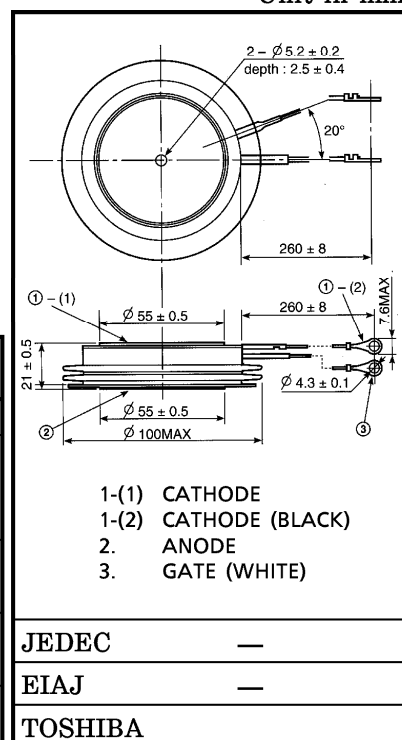
HIGH POWER CONTROL APPLICATIONS

Unit in mm

- Repetitive Peak Off-State Voltage : $V_{DRM}=2500V$
- R.M.S On-State Current : $I_T(RMS)=630A$
- Turn-Off Time : $t_q=40\mu s$ (Max.)
- Flat Package

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	2500	V
Non-Repetitive Peak Off-State Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 115^\circ\text{C}$)	V_{DSM}	2500	V
R.M.S On-State Current	$I_{\text{T}}(\text{RMS})$	630	A
R.M.S Reverse Current	$I_{\text{R}}(\text{RMS})$	235	
Average On-State Current	$I_{\text{T}}(\text{AV})$	400	A
Average Reverse Current	$I_{\text{R}}(\text{AV})$	150	
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	7000 (50Hz)	A
		7700 (60Hz)	
Peak One Cycle Surge Reverse Current (Non-Repetitive)	I_{RSM}	2500 (50Hz)	
		2750 (60Hz)	
I^2t Limit Value	I^2t	245×10^3 (On-Current)	A^2s
		31×10^3 (Reverse Current)	
Critical Rate of Rise of On-State Current	di / dt	200	$\text{A} / \mu\text{s}$
Peak Gate Power Dissipation	P_{GM}	20	W
Average Gate Power Dissipation	$P_{\text{G}}(\text{AV})$	4	W
Peak Forward Gate Current	I_{GM}	4	A
Peak Forward Gate Voltage	V_{FGM}	20	V
Peak Reverse Gate Voltage	V_{RGM}	5	V
Junction Temperature	T_j	$-40 \sim 115$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-40 \sim 115$	$^\circ\text{C}$
Mounting Force	—	19.6 ± 2	kN



Weight : 630g (Typ.)

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ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION		MIN.	MAX.	UNIT
Repetitive Peak Off-State Current	I _{DRM}	V _{DRM} =Rated, T _j =115°C		—	100	mA
Peak On-State Voltage	V _{TM}	I _{TM} =1250A, T _j =25°C		—	3.0	V
Peak Reverse Voltage	V _{RM}	I _{RM} =500A, T _j =25°C		—	2.3	
Gate Trigger Voltage	V _{GT}	V _D =12V, R _L =6Ω	T _j =−40°C	—	4.0	V
			T _j =25°C	0.5	3.0	
Gate Trigger Current	I _{GT}		T _j =−40°C	—	500	mA
			T _j =25°C	15	300	
Gate Non-Trigger Voltage	V _{GD}	V _D =0.5 Rated, T _j =115°C		0.2	—	V
Gate Non-Trigger Current	I _{GD}			5	—	mA
Delay Time	t _d	V _D =0.5 Rated, T _j =25°C, Gate Supply (V _G =15V, R _G =8Ω, t _r ≤1μs) di / dt=200A / μs		—	4	μs
Gate Turn-On Time	t _{gt}			—	6	μs
Turn-Off Time	t _q	I _{TM} =400A, I _R =10A V _{DRM} =0.5 Rated dv / dt=350V / μs, T _j =115°C		—	40	μs
Holding Current	I _H	T _j =25°C, R _L =6Ω		—	1000	mA
Critical Rate of Rise of Commutating OFF-State Voltage	dv / dt (C)	I _{TM} =2500A, I _{RM} =2500A, V _{DRM} =0.5 Rated, Pulse width=100μs, T _j =115°C		350	—	V / μs
Thermal Resistance (Junction to Case)	R _{th (j-f)}	DC		—	0.025	°C / W