

HIGH-SPEED THYRISTOR

TOSHIBA (DISCRETE/OPTO)

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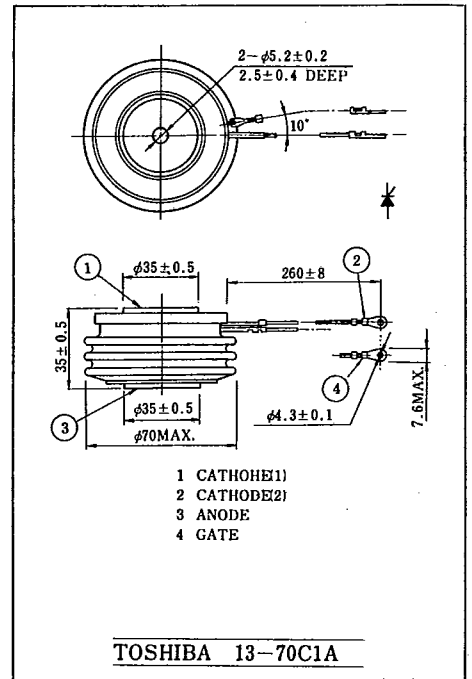
SH400R25B

1300V 400A

Unit in mm

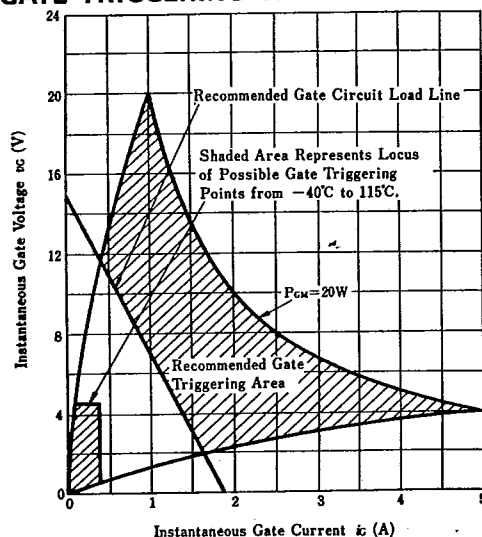
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SH400L25B	800	V
	SH400N25B	1000	
	SH400R25B	1300	
Non-Repetitive Peak Reverse Voltage (Non-Rep <5ms)	SH400L25B	950	V
	SH400N25B	1150	
	SH400R25B	1400	
R.M.S. On-State Current	$I_{T(RMS)}$	630	A
Average On-State Current	$I_{T(AV)}$	400	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	8000(60Hz)	A
		7200(50Hz)	
I^2t Limit Value	I^2t	200×10^3	A ² s
Critical Rate of Rise of On-State Current (Note1)	di/dt	200	A/ μ s
Peak Gate Power Dissipation	P_{GM}	20	W
Average Gate Power Dissipation	$P_{G(AV)}$	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	-40~115	°C
Storage Temperature Range	T_{stg}	-40~115	°C
Mounting Force Required		1500 $\pm$ 150	kg

Note: V_D =Rated, $T_c=110^\circ\text{C}$, Gate Supply ($V_G=15\text{V}$, $R_G=8\Omega$, $tr \leq 1\mu\text{s}$)**ELECTRICAL CHARACTERISTICS**

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	MAX.	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I_{DRM} and I_{RRM}	$V_{DRM}=V_{RRM}$ =Rated $T_j=115^\circ\text{C}$	—	50	mA
Peak On-State Voltage	V_{TM}	$I_{TM}=1250\text{A}$, $T_c=25^\circ\text{C}$	—	2.2	V
Gate Trigger Voltage	V_{GT}	$V_D=6\text{V}$, $R_L=6\Omega$	$T_c=-40^\circ\text{C}$	—	4.5
			$T_c=25^\circ\text{C}$	—	3.5
			$T_c=-40^\circ\text{C}$	—	400
Gate Trigger Current	I_{GT}	$V_D=6\text{V}$, $R_L=6\Omega$	$T_c=25^\circ\text{C}$	—	260
Gate Non-Trigger Voltage	V_{GD}	$V_D=0.5\text{Rated}$, $T_c=115^\circ\text{C}$	0.2	—	V
Gate Non-Trigger Current	I_{GD}	$V_D=0.5\text{Rated}$, $T_c=115^\circ\text{C}$	5	—	mA
Turn-On Time	t_{gt}	$V_D=0.5\text{Rated}$, $T_c=25^\circ\text{C}$	—	6	μs
Delay Time	t_d	Gate Supply $V_G=15\text{V}$, $R_G=8\Omega$, $tr \leq 1\mu\text{s}$	—	4	μs
Turn-Off Time	t_q	$I_T=800\text{A}$, $V_R \geq 200\text{V}$ $dv/dt=20\text{V}/\mu\text{s}$, V_{DRM} (reapplied)=0.5Rated, $T_c=110^\circ\text{C}$	—	25	μs
Holding Current	I_H	$T_c=25^\circ\text{C}$, $R_L=6\Omega$	—	300	mA
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM}=0.5\text{Rated}$, $T_j=115^\circ\text{C}$, Gate open, Exponential rise	500	—	V/ μs
Thermal Resistance *	$R_{th(j-f)}$	DC	—	0.05	°C/W

* Junction to Fin

GATE TRIGGERING CHARACTERISTICS**ENERGY OF ON-STATE CURRENT PULSE W-SEC/PULSE (TYPICAL)**