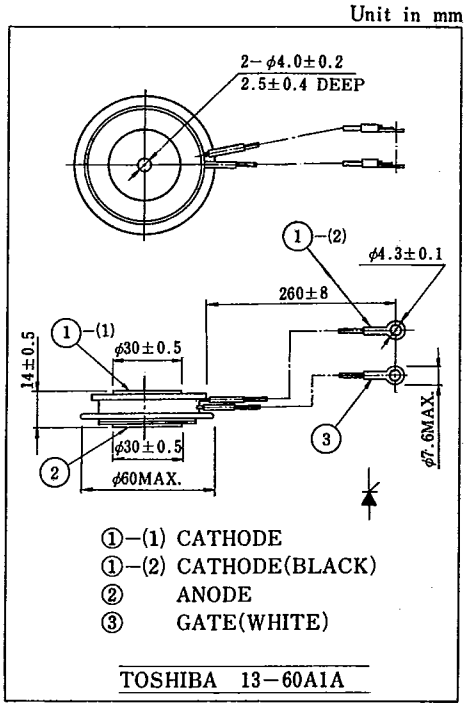
HIGH-SPEED THYRISTOR

SH400U21D 1600V 400A

Unit in mm



MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SH400N21D	V_{DRM} and V_{RRM}	1000	V
	SH400Q21D		1200	
	SH400R21D		1300	
	SH400U21D		1600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms) T_j=0~125°C	SH400N21D	V_{RSM}	1200	V
	SH400Q21D		1450	
	SH400R21D		1500	
	SH400U21D		1850	
R.M.S On-State Current		$I_{T(RMS)}$	628	A
Average On-State Current		$I_{T(AV)}$	400	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	7000(50Hz)	A
			7300(60Hz)	
I^2t Limit Value		I^2t	245×10^3	A^2s
Critical Rate of Rise of On-State Current		di/dt	200	A/μs
Peak Gate Power Dissipation		P_{GM}	16	W
Average Gate Power Dissipation		$P_{G(AV)}$	3	W
Peak Forward Gate Current		I_{GM}	4	A
Peak Forward Gate Voltage		V_{GM}	16	V
Peak Reverse Voltage		V_{GM}	− 5	V
Junction Temperature		T_j	−40~125	°C
Storage Temperature Range		T_{stg}	−40~125	°C
Mounting Force Required (Note 2)			900~1100	kg

Note 1 : V_D=0.5Rated, Tc=120°C, I_{TM}=800A, Gate Supply(V_G=15V, R_G=8Ω, tr≦1μs)

Note 2 : Recommended value; 1000±50kg

ELECTRIC CHARACTERISTICS

CHARACTERISTIC	SYMBOL	CONDITION		MIN.	MAX.	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I_{DRM} and I_{RRM}	$V_{DRM}=V_{PPM}$=Rated, T_j=125°C		−	20	mA
Peak On-State Voltage	V_{TM}	I_{TM}=1250A, Tc=25°C		−	1.80	V
Gate Trigger Voltage	V_{GT}	V_D=6V, R_L=6Ω	Tc=−40°C	−	4.5	V
			Tc=25°C	−	3.5	
Gate Trigger Current	I_{GT}		Tc=−40°C	−	400	mA
			Tc=25°C	−	280	
Gate Non-Trigger Voltage	V_{GD}	V_D=0.5Rated, Tc=125°C		0.15	−	V
Gate Non-Trigger Current	I_{GD}	V_D=0.5Rated, Tc=125°C		1.5	−	mA
Turn-On Time	t_{gt}	V_D=0.5Rated, Tc=25°C		−	4	μs
Delay Time	t_d	Gate Supply(V_G=15V, R_G=8Ω, tr≦1μs)		−	6	
Turn-Off Time	t_q	I_T=800A, V_R=50V, dv/dt=20V/μs, V_D=0.5Rated, Tc=125°C		−	80	μs
Critical Rate of Rise of Off-State Voltage	dv/dt	V_{DRM}=⅔Rated, Tj=125°C, Gate Open Exponential rise		200	−	V/μs
Holding Current	I_H	R_L=6Ω, Tc=25°C		−	300	mA
Thermal Resistance *	$R_{th(j-f)}$	DC		−	0.05	°C/W

* Junction to Fin

GATE TRIGGERING CHARACTERISTICS