

SH200(N,Q,R,U)21D

HIGH-SPEED THYRISTOR
SILICON DIFFUSED TYPE

HIGH SPEED APPLICATIONS.

FEATURES:

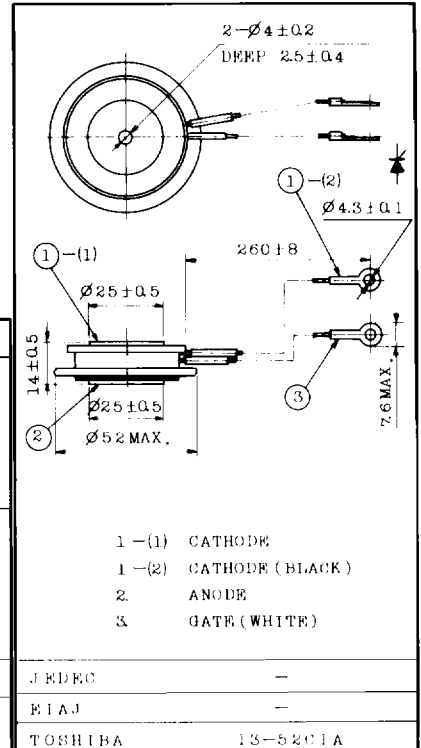
- Repetitive Peak Off-State Voltage : V_{DRM} } = 1000 ~ 1600V
- Repetitive Peak Reverse Voltage : V_{RRM}
- Average On-State Current : $I_T(AV)$ = 200A
- Turn-Off Time : t_q = 80 μ s (Max.)
- Critical Rate of Rise of On-State Current : di/dt = 200A/ μ s
- Critical Rate of Rise of Off-State Voltage : dv/dt = 200V/ μ s
- Flat Package

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SH200N21D	V_{DRM}	1000	V
	SH200Q21D		1200	
	SH200R21D	V_{RRM}	1300	
	SH200U21D		1600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j=0 \sim 125^\circ\text{C}$)	SH200N21D	V_{RSM}	1200	V
	SH200Q21D		1450	
	SH200R21D		1500	
	SH200U21D		1850	
R.M.S On-State Current		$I_T(RMS)$	314	A
Average On-State Current (Half Sine Waveform $T_c=80^\circ\text{C}$)		$I_T(AV)$	200	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	4000(50Hz)	A
			4400(60Hz)	
I^2t Limit Value		I^2t	80×10^3	A^2s
Critical Rate of Rise of On-State Current (Note 1)		di/dt	200	A/ μ s
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_{FGM}	16	V
Peak Reverse Gate Voltage		V_{RGM}	5	V
Junction Temperature		T_j	-40 ~ 125	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-40 ~ 125	$^\circ\text{C}$
Mounting Force (Note 2)		-	600 ~ 800	kg

Note 1 : V_D =Rated, $T_c=120^\circ\text{C}$, Gate Supply ($V_G=15V$, $R_G=8\Omega$, $t_r \leq 1\mu s$)
2 : Recommended 700 \pm 50kg

Unit in mm

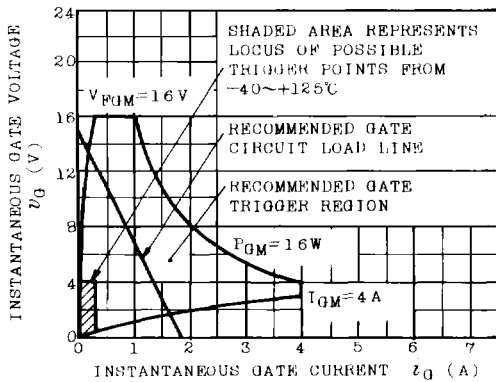


Weight : 82g

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	MAX.	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	$V_{DRM}=V_{RRM}=\text{Rated}$, $T_j=125^\circ\text{C}$	-	20	mA
Peak On-State Voltage	V_{TM}	$I_{TM}=630\text{A}$, $T_c=25^\circ\text{C}$	-	1.75	V
Gate Trigger Voltage	V_{GT}	$V_D=6\text{V}$, $R_L=6\Omega$	$T_c=-40^\circ\text{C}$	4	V
			$T_c=25^\circ\text{C}$	3	
Gate Trigger Current	I_{GT}		$T_c=-40^\circ\text{C}$	300	mA
			$T_c=25^\circ\text{C}$	150	
Gate Non-Trigger Voltage	V_{GD}	$V_D=0.5 \text{ Rated}$, $T_c=125^\circ\text{C}$	0.15	-	V
Gate Non-Trigger Current	I_{GD}		0.5	-	mA
Delay Time	t_d	$V_D=0.5 \text{ Rated}$, $T_c=25^\circ\text{C}$ Gate Supply ($V_G=15\text{V}$, $R_G=8\Omega$, $t_r \leq 1\mu\text{s}$)	-	4	μs
Gate Turn-On Time	t_{gt}		-	6	μs
Turn-Off Time	t_q	$I_{TM}=400\text{A}$, $V_R \geq 50\text{V}$, $dv/dt=20\text{V}/\mu\text{s}$, $T_c=120^\circ\text{C}$ $V_{DRM}=0.5 \text{ Rated}$	-	80	μs
Holding Current	I_H	$T_c=25^\circ\text{C}$, $R_L=6\Omega$	-	200	mA
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM}=\frac{2}{3} \text{ Rated}$, $T_j=125^\circ\text{C}$ Gate Open, Exponential Rise	200	-	V/ μs
Thermal Resistance	$R_{th(j-f)}$	Junction to Fin	-	0.1	$^\circ\text{C}/\text{W}$

GATE TRIGGER CHARACTERISTIC



$i_T - v_T$

