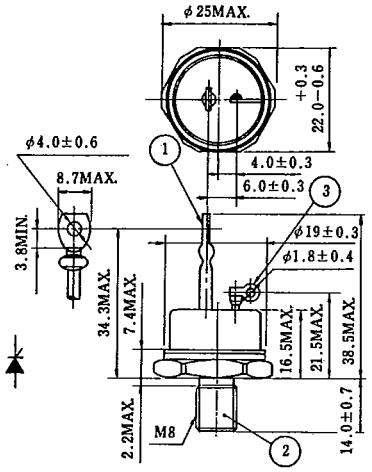
HIGH-SPEED THYRISTOR

SH50L13A 800V 50A

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SH50D13A	V_{DRM} and V_{RRM}	200	V
	SH50F13A		300	
	SH50G13A		400	
	SH50H13A		500	
	SH50J 13A		600	
	SH50L13A		800	
Non-Repetitive Peak Reverse Voltage (Non-Rep <5ms) T_j=0~125°C	SH50D13A	V_{RSM}	300	V
	SH50F13A		400	
	SH50G13A		500	
	SH50H13A		600	
	SH50J 13A		720	
	SH50L13A		960	
R.M.S On-State Current		$I_{T(RMS)}$	79	A
Average On-State Current (Half Sine Waveform Tc=35°C)		$I_{T(AV)}$	50	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	1000(50Hz)	A
			1100(60Hz)	
I²t Limit Value (t=1ms~10ms)		I^2t	5×10^3	A^2s
Critical Rate of Rise of On-State Current (Note1)		di/dt	100	A/μs
Peak Gate Power Dissipation		P_{GM}	5	W
Average Gate Power Dissipation		$P_{G(AV)}$	0.5	W
Peak Forward Gate Current		I_{GM}	2	A
Peak Forward Gate Voltage		V_{FGM}	10	V
Peak Reverse Gate Voltage		V_{RGM}	−5	V
Junction Temperature		T_j	−40~125	°C
Storage Temperature Range		T_{stg}	−40~125	°C
Stud Torque			50	kg cm

Nate : V_D=Rated, I_{TM}=100A, Tc=120°C, Gate Supply(V_G=10V, R_G=15Ω, $t_r \leq 1\mu s$)



1. CATHODE
2. ANODE
3. GATE

JEDEC	—
EIAJ	—
TOSHIBA	13−19A1A

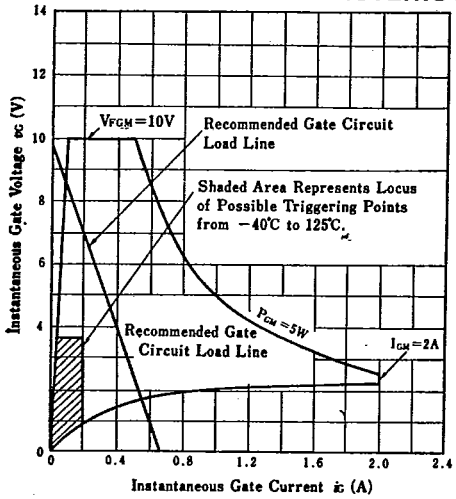
Mounting Kit NO AC56

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=125°C		—	15	mA
Peak On-State Voltage	V_{TM}	I_{TM}=150A, Tc=25°C		—	1.95	V
Gate Trigger Voltage	V_{GT}	V_D=6V, R_L=6Ω	Tc=−40°C	—	3.7	V
			Tc=25°C	—	3.0	
Gate Trigger Current	I_{GT}	V_D=6V, R_L=6Ω	Tc=−40°C	—	200	mA
			Tc=25°C	—	100	
Gate Non-Trigger Voltage	V_{GD}	V_D=Rated, Tc=125°C		0.15	—	V
Gate Non-Trigger Current	I_{GD}	V_D=Rated, Tc=125°C		1.0	—	mA
Tunr-On Time	t_{gt}	V_D=0.5Rated, Tc=25°C		—		μs
Delay Time	t_d	Gate Supply (V_G=10V, R_G=15Ω, t≦1μs)		—	4	
Turn-Off Time	t_q	I_T=100A, $V_R \geq 50V$ dv/dt=20V/μs, $V_{DRM(reapplied)}$=Rated, Tc=120°C		—	15	μs
Critical Rate of Rise of Off-State Voltage	dv/dt	V_{DRM}=Reted, T_j=125°C, Gate Open, Exponential Rise		200	—	V/μs
Holding Current	I_H	Tc=25°C, R_L=6Ω		—	150	mA
Thermal Resistance *	$R_{th(j-c)}$	DC		—	0.4	°C/W

* Junction to Case

GATE TRIGGERING CHARACTERISTICS



$T_{C\ MAX} - I_{T(AV)}$