

THYRISTOR
SILICON DIFFUSED TYPE

SF50(D,F,G,J,L,N,Q)13

MEDIUM POWER CONTROL APPLICATIONS.

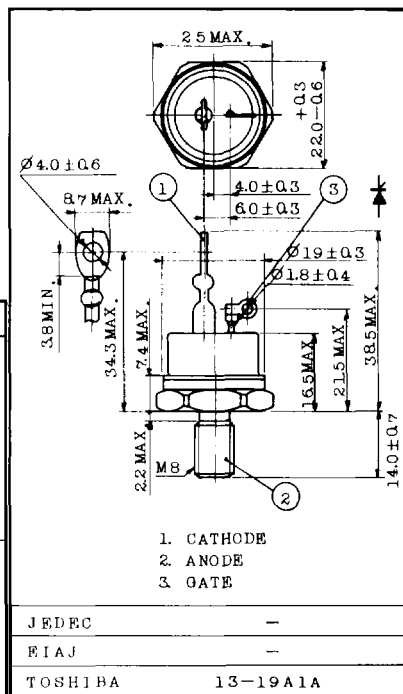
FEATURES:

- . Repetitive Peak Off-State Voltage : V_{DRM} } = 200 ~ 1200V
- . Repetitive Peak Reverse Voltage : V_{RRM} }
- . Average On-State Current : $I_T(AV)=50A$
- . R.M.S On-State Current : $I_T(RMS)=78.5A$
- . Critical Rate of Rise of On-State Current : $di/dt=100A/\mu s$
- . Critical Rate of Rise of Off-State Voltage : $dv/dt \geq 200V/\mu s$

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF50D13	200	V
	SF50F13	300	
	SF50G13	400	
	SF50J13	600	
	SF50L13	800	
	SF50N13	1000	
	SF50Q13	1200	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive <5ms, $T_j=0 \sim 125^\circ C$)	SF50D13	300	V
	SF50F13	400	
	SF50G13	500	
	SF50J13	720	
	SF50L13	960	
	SF50N13	1200	
Average On-State Current (Half Sine Waveform $T_c=81^\circ C$)	$I_T(AV)$	50	A
R.M.S On-State Current	$I_T(RMS)$	78.5	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	1000(50Hz)	A
		1100(60Hz)	
I^2t Limit Value ($t=1 \sim 10ms$)	I^2t	5000	A^2s
Critical Rate of Rise of On-State Current (Note 1)	di/dt	100	$A/\mu s$
Peak Gate Power Dissipation	P_{GM}	5	W
Average Gate Power Dissipation	$P_{G(AV)}$	0.5	W
Peak Forward Gate Voltage	V_{FGM}	10	V
Peak Reverse Gate Voltage	V_{RGM}	-5	V
Peak Forward Gate Current	I_{GM}	2	A
Junction Temperature	T_j	-40 ~ 125	$^\circ C$
Storage Temperature Range	T_{stg}	-40 ~ 125	$^\circ C$
Stud Torque (Note 2)	-	50	$kg \cdot cm$

Unit in mm



Mounting Kit No. AC56
Weight : 35g

Note 1 :

di/dt Test condition
 $V_D = \text{Rated} \times 1/2$
 $T_c = 120^\circ C$
Gate Supply :
($V_G = 10V, R_G = 20\Omega, t_{gr} \leq 1\mu s$)

Note 2 : Recommended Torque

40 $kg \cdot cm$

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	$V_{DRM}=V_{RRM}=\text{Rated}$, $T_j=125^\circ\text{C}$	-	-	10	mA
Peak On-State Voltage	V_{TM}	$I_{TM}=150\text{A}$	-	-	1.7	V
Gate Trigger Voltage	V_{GT}	$V_D=6\text{V}$, $R_L=6\Omega$	-	-	3	V
Gate Trigger Current	I_{GT}		-	-	100	mA
Gate Non-Trigger Voltage	V_{GD}	$V_D=\text{Rated} \times 1/2$, $T_c=125^\circ\text{C}$	0.15	-	-	V
Gate Non-Trigger Current	I_{GD}		2	-	-	mA
Delay Time	t_d	$V_D=\text{Rated} \times 1/2$, Gate Supply	-	-	4	μs
Gate Turn-On Time	t_{gt}	$(V_G=10\text{V}, R_G=20\Omega, t_{gr} \leq 1\mu\text{s})$	-	-	6	μs
Turn-Off Time	t_q	$V_D=\text{Rated} \times 1/2$, $I_{TM}=100\text{A}$ $V_R=50\text{V}$, $dv/dt=20\text{V}/\mu\text{s}$, $T_c=120^\circ\text{C}$	-	150	-	μs
Holding Current	I_H	$R_L=100\Omega$	-	-	120	mA
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM}=\text{Rated} \times 2/3$, $T_c=125^\circ\text{C}$ Exponential Rise	200	-	-	V/ μs
Thermal Resistance	$R_{th(j-c)}$	Junction to Case	-	-	0.4	$^\circ\text{C}/\text{W}$

