

TOSHIBA Thyristor Silicon Planar Type

S 6 A 1 3

Condenser Discharge Control Applications

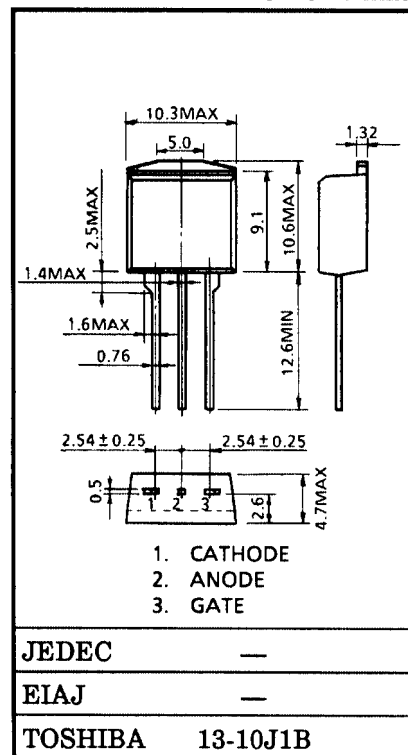
- FWD included between cathode and anode
- Critical rate of rise of ON-state current: $di/dt = 750 \text{ A}/\mu\text{s}$
- Repetitive peak surge ON-state current: $I_{TRM} = 500 \text{ A}$ ($t_w = 2 \mu\text{s}$)
- Repetitive peak OFF-state voltage: $V_{DRM} = 800 \text{ V}$
- Gate trigger current: $I_{GT} = 30 \text{ mA max.}$

Maximum Ratings

Characteristics	Symbol	Rating	Unit
Repetitive peak OFF-state voltage	V_{DRM}	800	V
Repetitive peak surge ON-state current (Note)	I_{TRM}	500	A
Repetitive peak surge forward current (Note)	I_{FRM}	500	A
Critical rate of rise of ON-state current (Note)	di/dt	750	$\text{A}/\mu\text{s}$
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	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-40~150	$^{\circ}\text{C}$

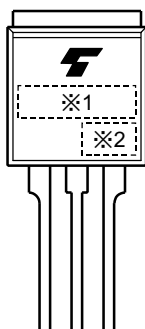
Note: $V_D \leq 0.8 \times \text{rated}$, $T_c = 85^{\circ}\text{C}$, $i_{gp} \geq 60 \text{ mA}$, $t_{gw} \geq 10 \mu\text{s}$, $t_{gr} \leq 150 \text{ ns}$

Unit in mm



Weight : 1.5g (Typ.)

Marking



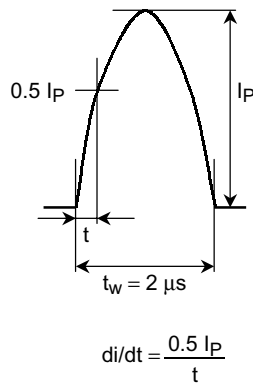
※1	MARK	S6A13	TYPE NAME	S6A13
※2	Lot Number □□ ← Month (starting from alphabet A) ↑ Year (last decimal digit of the current year)			

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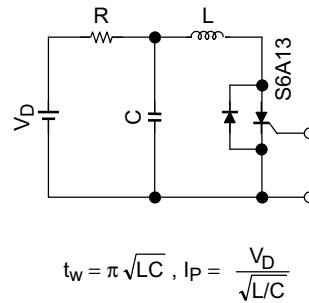
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Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Repetitive peak OFF-state current	I_{DRM}	$V_{DRM} = \text{Rated}$	—	—	10	μA
Peak ON-state voltage (thyristor)	V_{TM}	$I_{TM} = 25 \text{ A}$	—	—	1.5	V
Peak forward voltage (diode)	V_{FM}	$I_{FM} = 25 \text{ A}$	—	—	2.0	V
Gate trigger voltage	V_{GT}	$V_D = 6 \text{ V}, R_L = 10 \Omega$	—	—	1.0	V
Gate trigger current	I_{GT}		—	—	30	mA
Gate non-trigger voltage	V_{GD}	$V_D = \text{Rated}, T_c = 125^\circ\text{C}$	0.2	—	—	V
Critical rate of rise of OFF-state voltage	dv/dt	$V_{DRM} = \text{Rated}, T_c = 125^\circ\text{C}$ Exponential Rise	—	50	—	V/ μs
Holding current	I_H	$V_D = 6 \text{ V}, I_{TM} = 1 \text{ A}$	—	—	35	mA
Thermal resistance (junction to ambient)	$R_{th(j-a)}$	DC	—	—	70	$^\circ\text{C/W}$



Test Circuit Examples



Equivalent Circuit

