

TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

# SF300HX32

HIGH POWER CONTROL APPLICATIONS

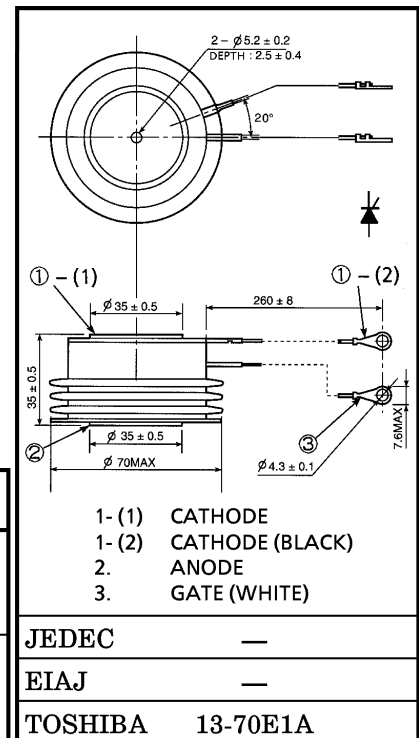
- Repetitive Peak Off-State Voltage :  $V_{DRM}$  } = 5000V
- Repetitive Peak Reverse Voltage :  $V_{RRM}$  }
- Average On-State Current :  $I_R(AV) = 300A$
- Turn-Off Time :  $t_q = 400\mu s$  (Max.)
- Critical Rate of Rise of On-State Current :  $di/dt = 100A/\mu s$
- Critical Rate of Rise of Off-State Voltage :  $dv/dt = 500V/\mu s$
- Flat Package

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	$V_{DRM}$ $V_{RRM}$	5000	V
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ C$ )	$V_{RSM}$	5000	V
R.M.S On-State Current	$I_T(RMS)$	470	A
Average On-State Current	$I_T(AV)$	300	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	$I_{TSM}$	6600 (50Hz) 7200 (60Hz)	A
$I^2t$ Limit Value	$I^2t$	$2.1 \times 10^5$	$A^2s$
Critical Rate of Rise of On-State Current (Note)	$di/dt$	100	$A/\mu s$
Peak Gate Power Dissipation	$P_{GM}$	20	W
Average Gate Power Dissipation	$P_G(AV)$	4	W
Peak Forward Gate Current	$I_{GM}$	4	A
Peak Forward Gate Voltage	$V_{FGM}$	20	V
Peak Reverse Gate Voltage	$V_{RGM}$	5	V
Junction Temperature	$T_j$	$-40 \sim 125$	$^\circ C$
Storage Temperature Range	$T_{stg}$	$-40 \sim 125$	$^\circ C$
Mounting Force	—	$14.7 \pm 1.5$	kN

Note :  $V_D = 2500V$ ,  $f = 50Hz$ ,  $T_j = 120^\circ C$ , Gate Supply ( $V_G = 15V$ ,  $R_G = 8\Omega$ ,  $t_r \leq 1\mu s$ )

Unit in mm



Weight : 480g

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ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	MAX.	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = 5000V$ , $T_j = 125^\circ C$	—	50	mA
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 1000A$ , $T_j = 25^\circ C$	—	2.35	V
Gate Trigger Voltage	$V_{GT}$	$V_D = 6V$ , $R_L = 6\Omega$	$T_j = -40^\circ C$	—	4.5
			$T_j = 25^\circ C$	0.6	2.5
Gate Trigger Current	$I_{GT}$	$V_D = 6V$ , $R_L = 6\Omega$	$T_j = -40^\circ C$	—	400
			$T_j = 25^\circ C$	15	250
Gate Non-Trigger Voltage	$V_{GD}$	$V_D = 2500V$ , $T_j = 125^\circ C$		0.2	—
Gate Non-Trigger Current	$I_{GD}$			5	—
Delay Time	$t_d$	$V_D = 2500V$ , $T_j = 25^\circ C$ Gate Supply	—	4	$\mu s$
Gate Turn-On Time	$t_{gt}$	$(V_G = 15V, R_G = 8\Omega, t_r \leq 1\mu s)$	—	6	$\mu s$
Turn-Off Time	$t_q$	$I_T = 600A$ , $V_R \geq 50V$ $dv/dt = 20V/\mu s$ , $T_j = 120^\circ C$ $V_{DRM} = 2500V$	—	400	$\mu s$
Holding Current	$I_H$	$T_j = 25^\circ C$ , $R_L = 6\Omega$	—	300	mA
Critical Rate of Rise of Off-State Voltage	$dv/dt$	$V_{DRM} = 3300V$ , $T_j = 125^\circ C$ Gate Open Exponential Rise	500	—	$V/\mu s$
Thermal Resistance	$R_{th(j-f)}$	Junction to Fin	—	0.05	$^\circ C/W$

