

# SG1400EX21

## GATE TURN-OFF THYRISTOR SILICON DIFFUSED TYPE

CHOPPER, INVERTER APPLICATION.

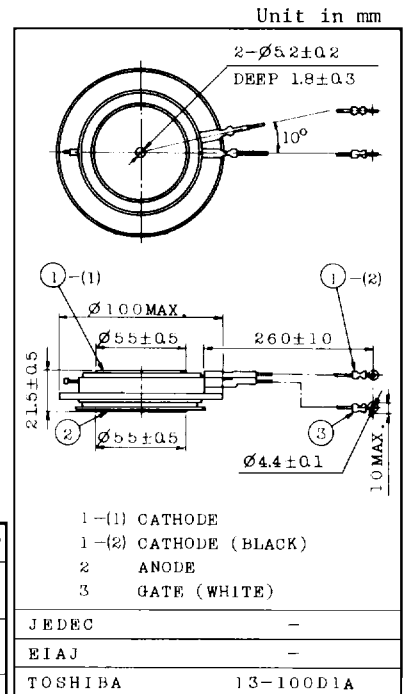
### FEATURES:

- Repetitive Peak Off-State Voltage :  $V_{DRM}=2500V$
- Repetitive Peak Reverse Voltage :  $V_{RRM}=500V$
- R.M.S On-State Current :  $I_T(RMS)=700A$
- Peak Turn-Off Current :  $I_{TGQM}=1400A$
- Critical Rate of Rise of On-State Current :  $di/dt=250A/\mu s$
- 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	$V_{DRM}$	2500	V
Repetitive Peak Reverse Voltage	$V_{RRM}$	500	V
Peak Turn-Off Current (Note 2)	$I_{TGQM}$	1400	A
R.M.S On-State Current	$I_T(RMS)$	700	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	$I_{TSM}$	14000(50Hz)	A
		15400(60Hz)	
Critical Rate of Rise of On-State Current (Note 1)	$di/dt$	250	A/ $\mu s$
Peak Forward Gate Power Dissipation	$P_{FGM}$	20	W
Peak Reverse Gate Power Dissipation	$P_{RGM}$	10	kW
Average Forward Gate Power Dissipation	$P_G(AV)$	4	W
Peak Forward Gate Current	$I_{FGM}$	20	A
Peak Reverse Gate Voltage	$V_{RGM}$	12	V
Storage Temperature Range	$T_{stg}$	-40 ~ 115	°C
Operating Junction Temperature Range	$T_j$	-40 ~ 115	°C
Mounting Force	-	2000±200	kg

Note 1 :  $V_D=1/2$  Rated, Gate Supply ( $I_G=20A$ ,  $t_r \leq 1\mu s$ ),  $f=50Hz$   
 Note 2 : Snubber  $C_S=2\mu F$ ,  $R_S=20\Omega$



Weight : 700g

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-State Current	$I_{DRM}$	$V_{DRM}, V_{RRM} = \text{Rated}$	-	-	50	mA	
Repetitive Peak Reverse Current	$I_{RRM}$	$R_{GK} = 20\Omega, T_j = 115^\circ\text{C}$	-	-	50	mA	
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 1400\text{A}, T_c = 25^\circ\text{C}$	-	-	2.62	V	
Gate Trigger Voltage	$V_{GT}$	$V_D = 12\text{V}$ $R_L = 0.5\Omega$	$T_c = -40^\circ\text{C}$	-	1.5	-	V
			$T_c = 25^\circ\text{C}$	-	0.7	1.5	
Gate Trigger Current	$I_{GT}$		$T_c = -40^\circ\text{C}$	-	5.0	-	A
			$T_c = 25^\circ\text{C}$	-	0.5	1.0	
Gate Non-Trigger Voltage	$V_{GD}$	$V_D = 1/2 \text{ Rated}, T_c = 115^\circ\text{C}$	0.3	-	-	V	
Gate Non-Trigger Current	$I_{GD}$		10	-	-	mA	
Delay Time	$t_d$	$V_D = 1/2 \text{ Rated}, T_c = 25^\circ\text{C}$ Gate Supply	-	-	6	$\mu\text{s}$	
Gate Turn-On Time	$t_{gt}$	$(I_G = 10\text{A}, t_r \leq 2\mu\text{s})$	-	-	12	$\mu\text{s}$	
Critical Rate of Rise of Off-State Voltage	$dv/dt$	$V_{DRM} = 2/3 \text{ Rated}$ $T_j = 115^\circ\text{C}, R_{GK} = 20\Omega$ $V_G = -4\text{V}$ Exponential Rise	500	-	-	$\text{V}/\mu\text{s}$	
Holding Current	$I_H$	$T_c = 25^\circ\text{C}, R_{GK} = 20\Omega, R_L = 0.5\Omega$	-	10	-	A	
Gate Turn-Off Voltage	$V_{GQ}$	$I_T = 1400\text{A}$	-	35	-	V	
Gate Turn-Off Current	$I_{GQ}$	$V_{DRM} = 2/3 \text{ Rated}$ $dv/dt = 200\text{V}/\mu\text{s}, T_c = 110^\circ\text{C}$	-	300	-	A	
Storage Time	$t_s$	$di_{RG}/dt = 30\text{A}/\mu\text{s}$ $I_T = 1400\text{A}, I_{RG} = 350\text{A}$	-	-	20	$\mu\text{s}$	
Gate Turn-Off Time	$t_{gq}$	$dv/dt = 200\text{V}/\mu\text{s}, T_c = 110^\circ\text{C}$ $V_{DRM} = 2/3 \text{ Rated}$	-	-	25	$\mu\text{s}$	
Thermal Resistance	$R_{th(j-f)}$	Junction to Fin	-	-	0.03	$^\circ\text{C}/\text{W}$	

