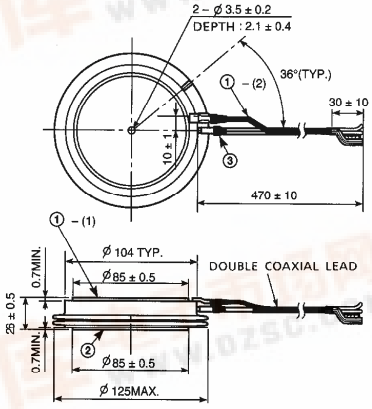
TOSHIBA GATE TURN-OFF THYRISTOR LOW SNUBBER TYPE

SG4000JX26

INVERTER APPLICATION

Unit in mm

- Repetitive Peak Off-State Voltage : V_{DRM} = 6000V (Note 1)
- R.M.S On-State Current : $I_{T(RMS)}$ = 1600A (T_f = 75°C)
- Peak Turn-Off Current : I_{TGQM} = 4000A
- Critical Rate of Rise of On-State Current : di / dt = 500A / μs
- Critical Rate of Rise of Off-State Voltage : dv / dt = 1250V / μs



①-(1) CATHODE
①-(2) CATHODE (Black)
② ANODE
③ GATE (White)

JEDEC	—
EIAJ	—
TOSHIBA	13-125B1A

Weight : 1700g

MAXIMUM RATING

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage (Note 1)	V_{DRM}	6000	V
Repetitive Peak Reverse Voltage	V_{RRM}	16	V
Peak Turn-Off Current (Note 2)	I_{TGQM}	4000	A
R.M.S On-State Current (Note 3)	$I_{T(RMS)}$	1600	A
Peak One Cycle Surge On-State Current (Non-Repetitive, 10ms Width Half Sine Waveform)	I_{TSM}	20000	A
Critical Rate of Rise of On-State Current (Note 4)	di / dt	500	A / μs
Peak Forward Gate Current	I_{FGM}	100	A
Average Forward Gate Power Dissipation	$P_{FG(AV)}$	100	W
Average Reverse Gate Power Dissipation	$P_{RG(AV)}$	300	W
Peak Reverse Gate Power Dissipation	P_{RGM}	30	kW
R.M.S Gate Current (Note 5)	$I_{G(RMS)}$	84	A
Peak Reverse Gate Voltage (at Static)	V_{RGM}	16	V
Operating Junction Temperature Range	T_j	−40~125	°C
Storage Temperature Range	T_{stg}	−40~150	°C
Mounting Force	—	38.2±5.9	kN

(Note 1) V_{GK} = −2V
(Note 2) V_{DM} = 5500V, C_S = 6μF, di_{GQ} / dt = 50A / μs, V_{DSP} (T_j = 25°C) ≦ 1400V, L_S ≦ 0.2μH
(Note 3) 50Hz Half Sine Waveform at T_f = 75°C
(Note 4) V_D = 1 / 2V_{DRM}, I_{TM} = 4000A, I_{GM} = 25A
(Note 5) Ambient Temperature of coaxial gate-cathode lead = 90°C

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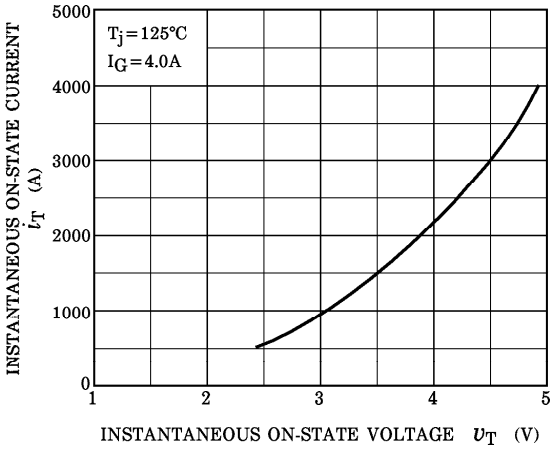
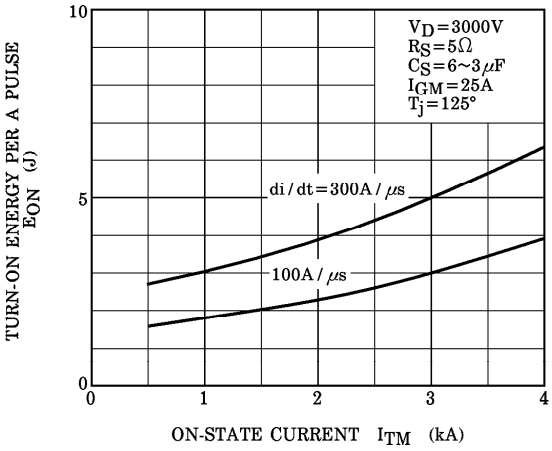
ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off State Current	I_{DRM}	V_{DRM} = Rated, V_{GK} = −2V, T_j = 125°C		—	—	150	mA
Repetitive Peak Reverse Current	I_{RRM}	V_{RRM} = Rated, T_j = 125°C		—	—	10	mA
Repetitive Peak Reverse Gate Current	I_{RGM}	V_{RGM} = 16V, T_j = 125°C		—	—	10	mA
Peak On-State Voltage	V_{TM}	I_{TM} = 3000A, T_j = 125°C		—	—	4.5	V
Gate Trigger Voltage	V_{GT}	V_D = 24V, R_L = 0.1Ω	T_j = −40°C	—	—	—	V
			T_j = 25°C	—	—	1.50	V
Gate Trigger Current	I_{GT}		T_j = −40°C	—	—	—	A
			T_j = 25°C	—	—	4.0	A
Turn-On Delay Time	t_d	V_D = 1 / 2V_{DRM}, I_{TM} = 4000A, di / dt = 500A / μs, I_{GM} = 25A, diG / dt = 20A / μs, T_j = 25°C		—	—	3	μs
Turn-On Time	t_{gt}			—	—	10	μs
Critical Rate of Rise of Off-State Voltage	dv / dt	V_{DRM} = 2 / 3RATED, T_j = 125°C, V_{GK} = −10V		1250	—	—	V / μs
Storage Time	t_s	I_{TGQ} = 4000A, V_{DM} = 5500V, V_D = 1 / 2V_{DRM}, di_{GQ} / dt = 50A / μs, C_S = 6μF, R_S = 5Ω, T_j = 125°C		—	—	30	μs
Gate Turn-Off Time	t_{gq}			—	—	32	μs
Tail Time	t_{tail}			—	—	150	μs
Gate Turn-Off Current	I_{GQ}			—	850	—	A
Thermal Resistance (Junction to Fin)	$R_{th\ (j\text{-}f)}$	DC		—	—	0.011	°C / W

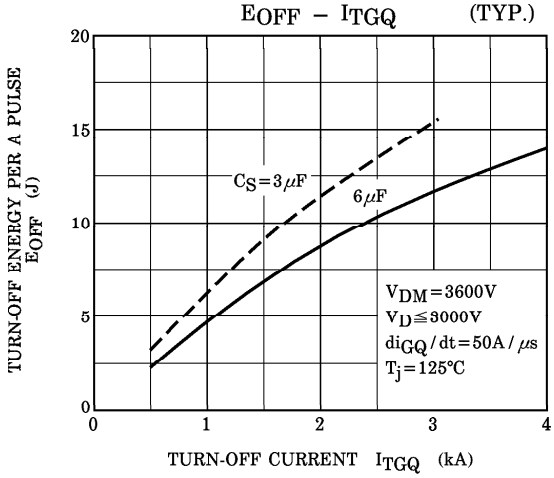
$i_T - v_T$ (MAX.)



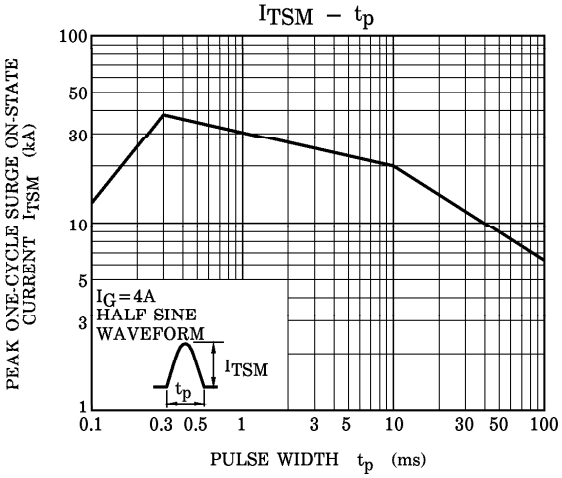
$E_{ON} - I_{TM}$ (TYP.)



$E_{OFF} - I_{TGQ}$ (TYP.)



$I_{TSM} - t_p$



$r_{th\,(j\text{-}f)} - t$ (MAX.)