

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM3GZ47, SM3JZ47

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage: $V_{DRM} = 400V, 600V$
- R.M.S On-State Current: $I_T (RMS) = 3A$
- High Commutating (dv / dt)
- Isolation Voltage: $V_{ISOL} = 1500V AC$

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage SM3GZ47	V_{DRM}	400	V
		600	
R.M.S On-State Current (Full Sine Waveform $T_c = 110^\circ C$)	$I_T (RMS)$	3	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	30 (50Hz)	A
		33 (60Hz)	
I^2t Limit Value ($t = 1\sim10ms$)	I^2t	4.5	A^2s
Critical Rate of Rise of On-State Current (Note 1)	di / dt	50	$A / \mu s$
Peak Gate Power Dissipation	P_{GM}	5	W
Average Gate Power Dissipation	$P_G (AV)$	0.5	W
Peak Gate Voltage	V_{GM}	10	V
Peak Gate Current	I_{GM}	2	A
Junction Temperature	T_j	-40~125	$^\circ C$
Storage Temperature Range	T_{stg}	-40~125	$^\circ C$
Isolation Voltage (AC, $t = 1min.$)	V_{ISOL}	1500	V

Note 1: di / dt test condition

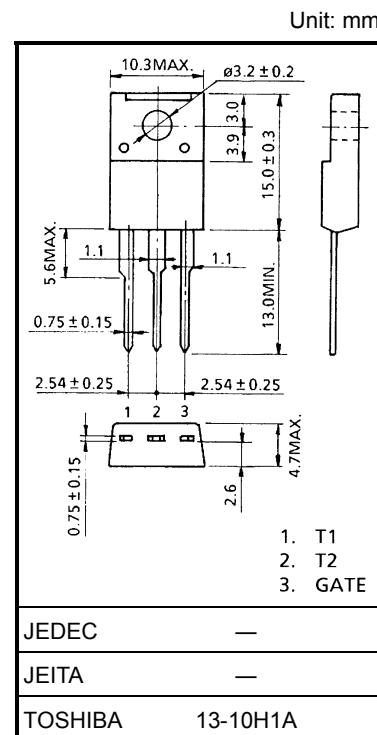
$$V_{DRM} = 0.5 \times \text{Rated}$$

$$I_{TM} \leq 4.5A$$

$$t_{gw} \geq 10\mu s$$

$$t_{gr} \leq 250ns$$

$$i_{gp} = I_{GT} \times 2.0$$

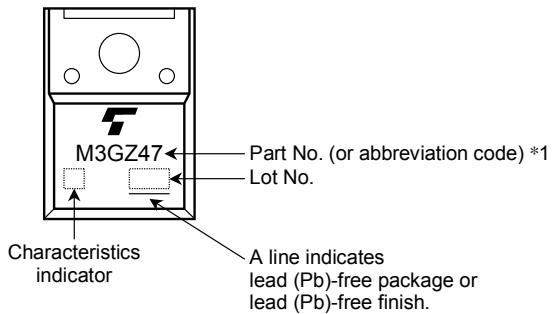


Weight: 1.7 g (typ.)

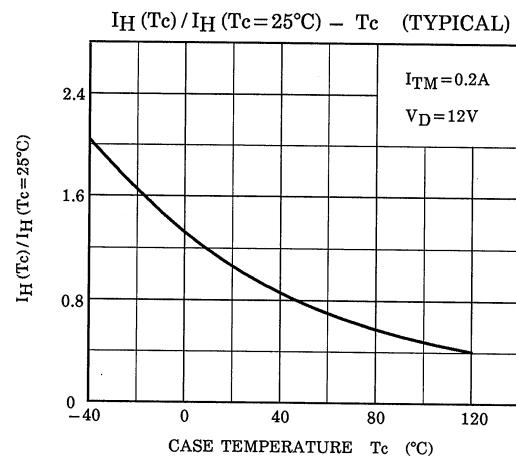
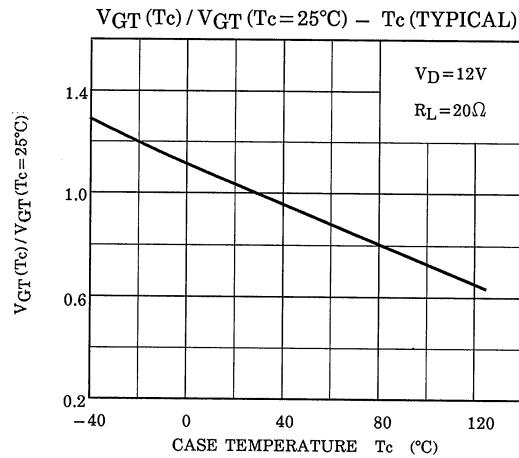
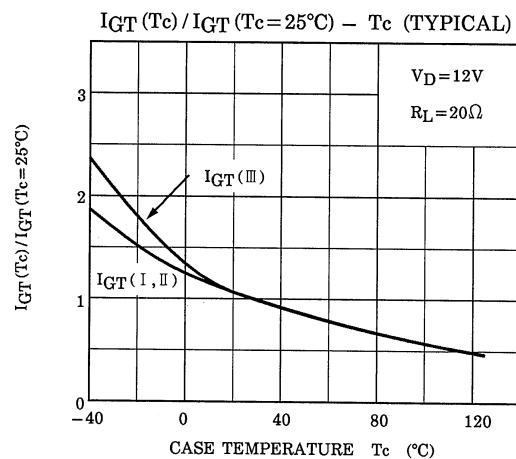
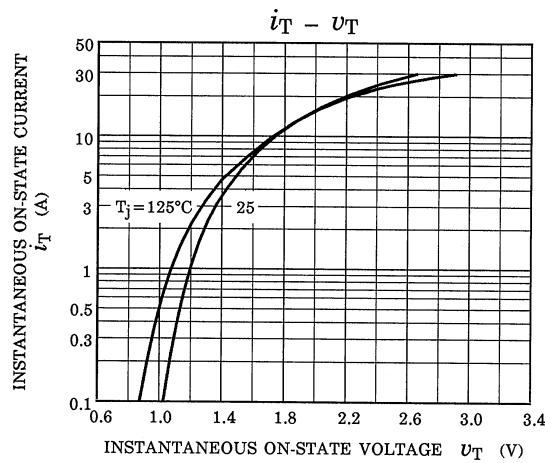
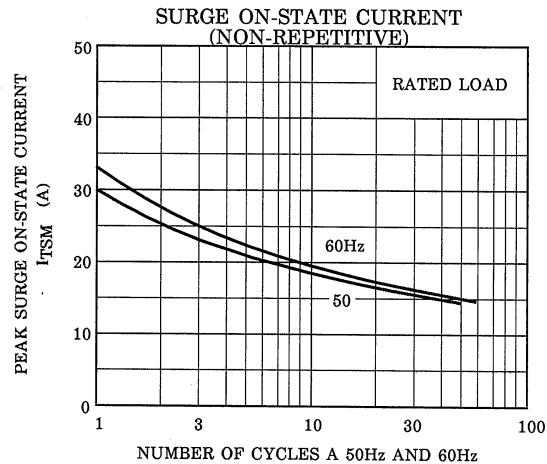
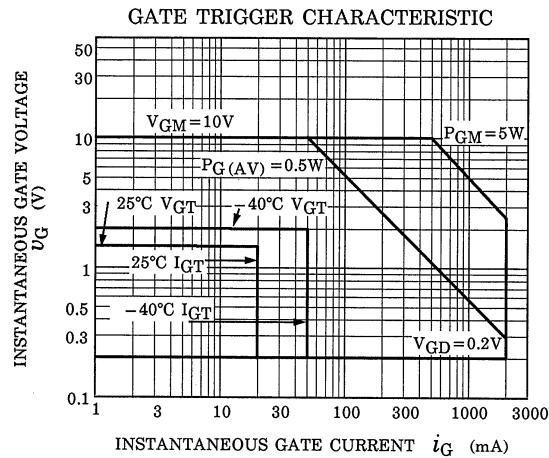
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

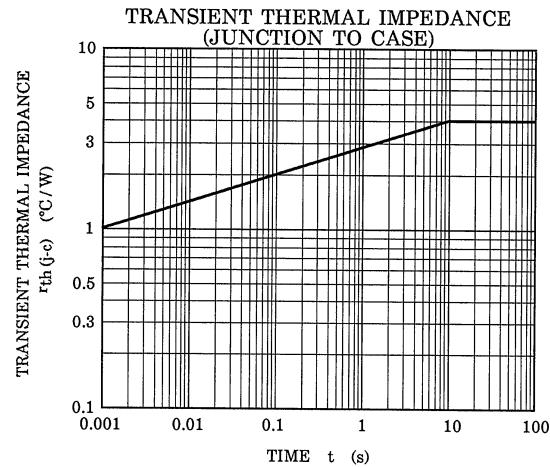
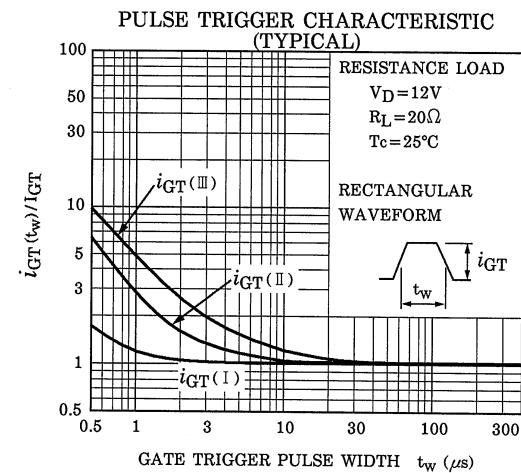
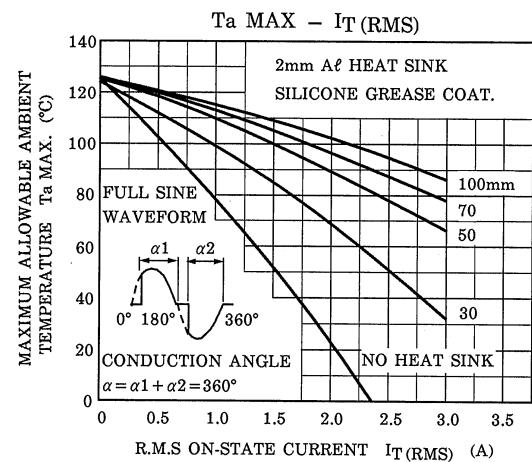
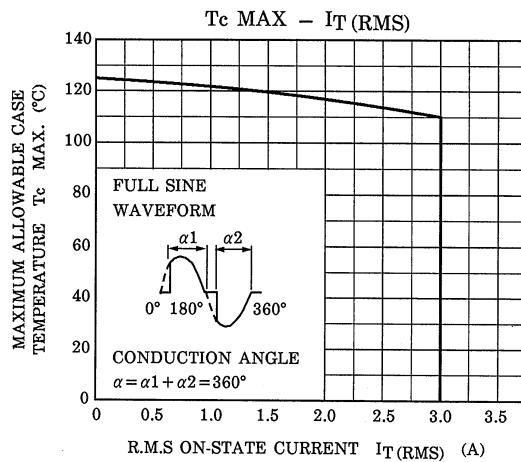
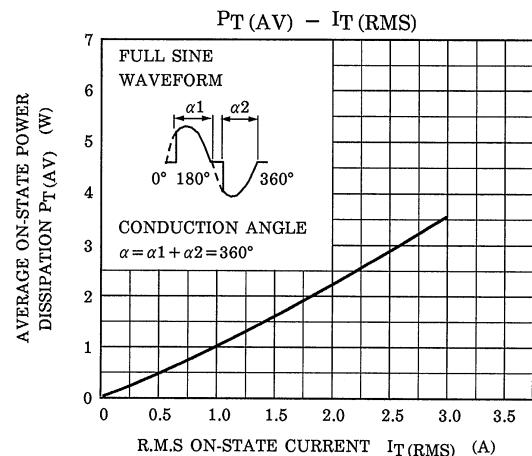
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current		I _{DRM}	V _{DRM} = Rated		—	—	20	µA
Gate Trigger Voltage	I	V _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (-)	—	—	1.5	
	III			T2 (-), Gate (-)	—	—	1.5	
	IV			T2 (-), Gate (+)	—	—	—	
Gate Trigger Current	I	I _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	20	mA
	II			T2 (+), Gate (-)	—	—	20	
	III			T2 (-), Gate (-)	—	—	20	
	IV			T2 (-), Gate (+)	—	—	—	
Peak On-State Voltage		V _{TM}	I _{TM} = 4.5A		—	—	1.5	V
Gate Non-Trigger Voltage		V _{GD}	V _D = Rated, T _c = 125°C		0.2	—	—	V
Holding Current		I _H	V _D = 12V, I _{TM} = 1A		—	—	30	mA
Thermal Resistance		R _{th} (j-c)	Junction to Case, AC		—	—	4.2	°C / W
Critical Rate of Rise of Off-State Voltage		dv / dt	V _{DRM} = Rated, T _j = 125°C Exponential Rise		—	300	—	V / µs
Critical Rate of Rise of Off-State Voltage at Commutation		(dv / dt) c	V _{DRM} = 400V, T _j = 125°C (di / dt) c = -2.0A / ms		10	—	—	V / µs

MARKING



*1	Part No. (or abbreviation code)	Part No.
	M3GZ47	SM3GZ47
M3JZ47		SM3JZ47





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