

SM8GZ47, SM8JZ47, SM8GZ47A, SM8JZ47A

AC POWER CONTROL APPLICATIONS

Unit: mm

- Repetitive Peak Off-State Voltage: $V_{DRM} = 400V, 600V$
- R.M.S On-State Current: $I_T (RMS) = 8A$
- High Commutating (dv / dt)
- Isolation Voltage: $V_{ISOL} = 1500V$ AC

ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	SM8GZ47 SM8GZ47A	400	V
	SM8JZ47 SM8JZ47A	600	
R.M.S On-State Current (Full Sine Waveform $T_c = 83^\circ C$)	$I_T (RMS)$	8	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	80 (50Hz)	A
		88 (60Hz)	
$I^2 t$ Limit Value	$I^2 t$	32	$A^2 s$
Critical Rate of Rise of On-State Current (Note 1)	di / dt	50	A / μs
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

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

$$I_{TM} \leq 12A$$

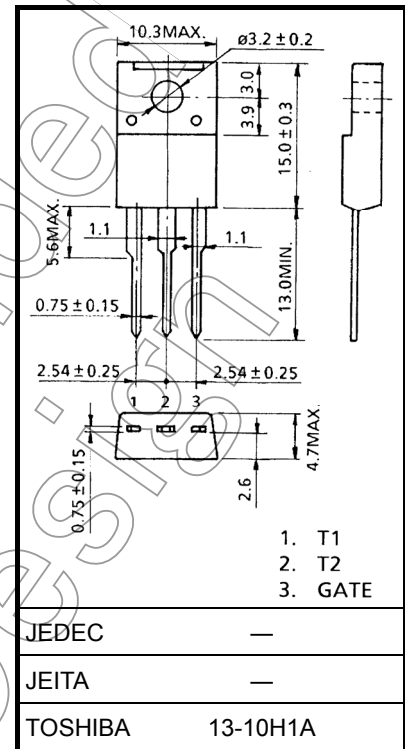
$$t_{gw} \geq 10\mu s$$

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

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

Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

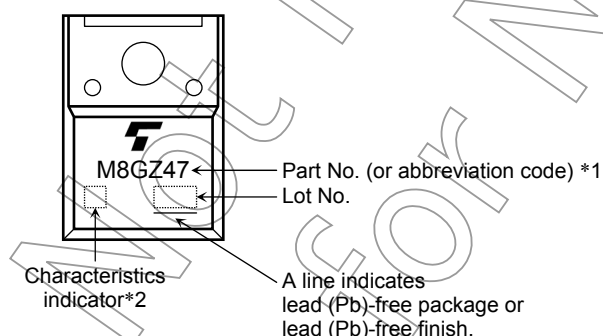


Weight: 1.7 g (typ.)

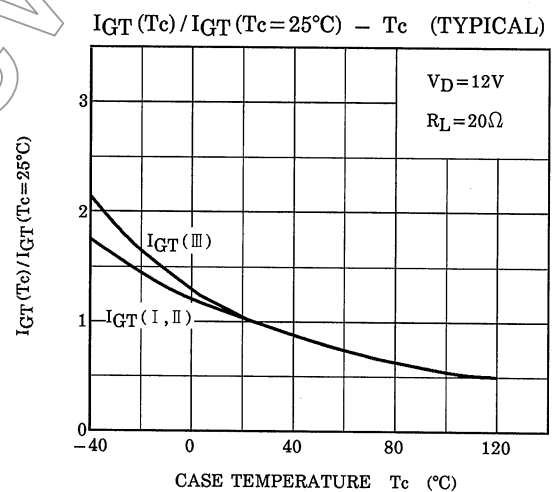
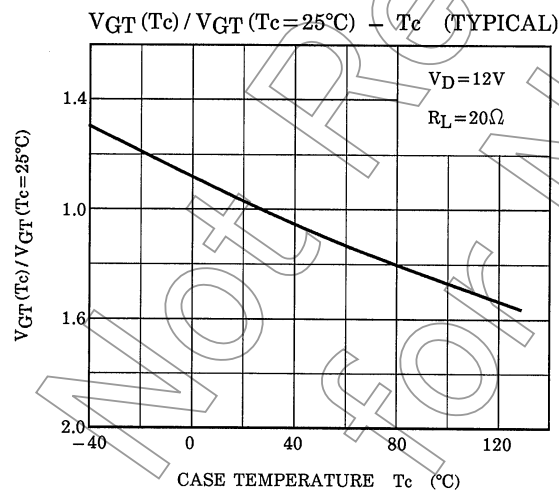
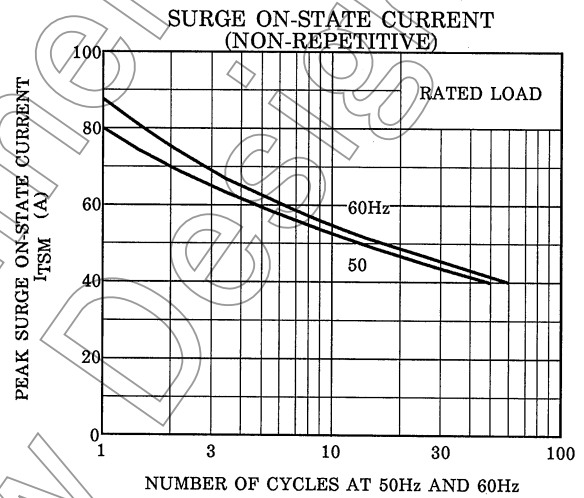
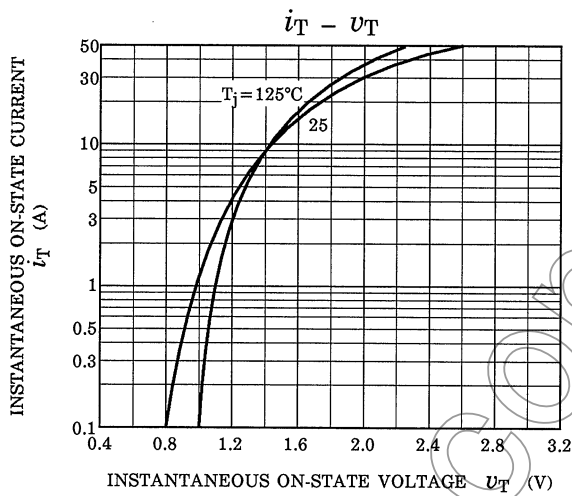
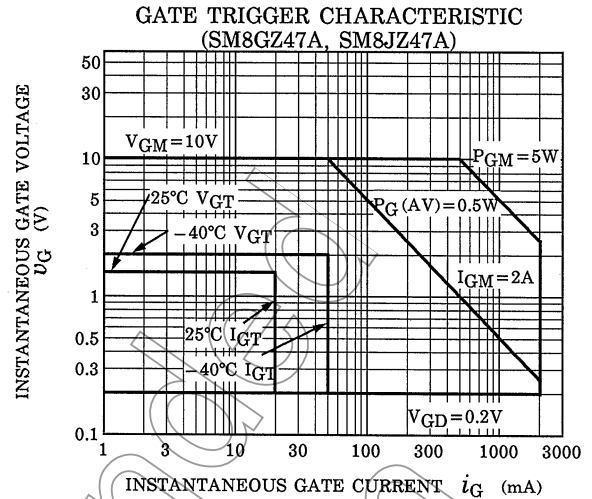
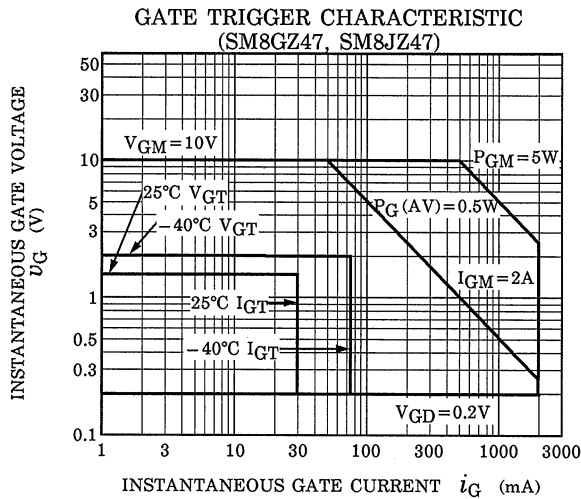
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

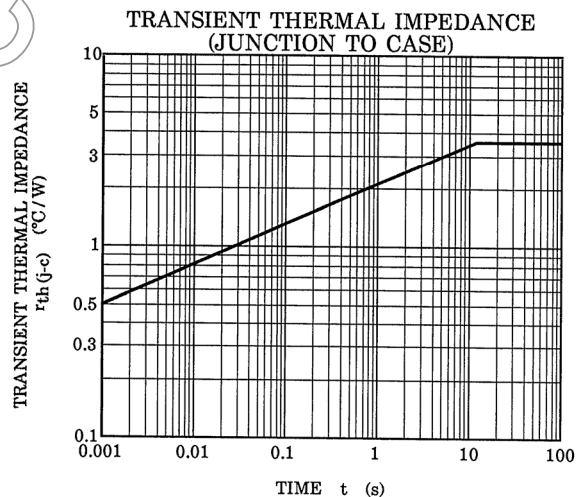
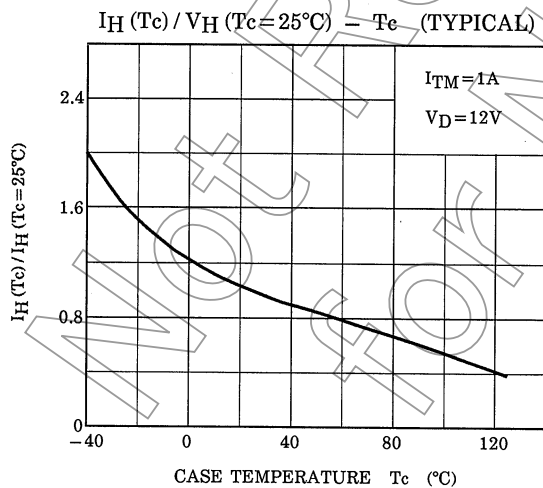
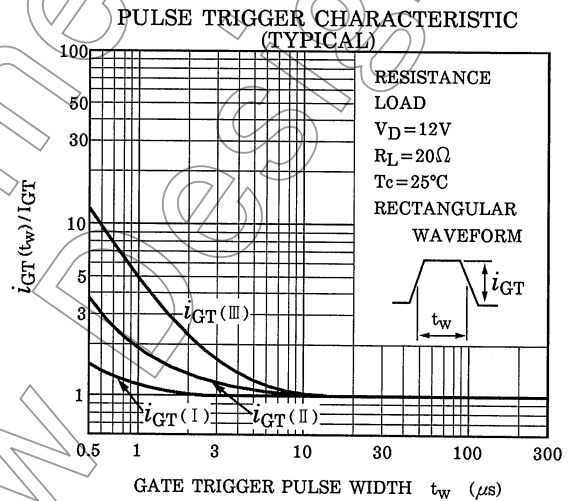
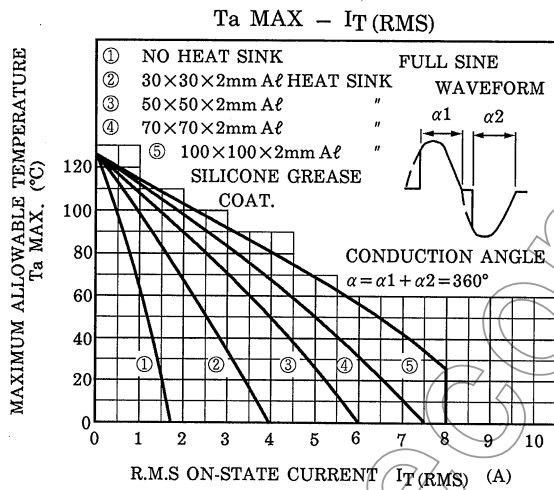
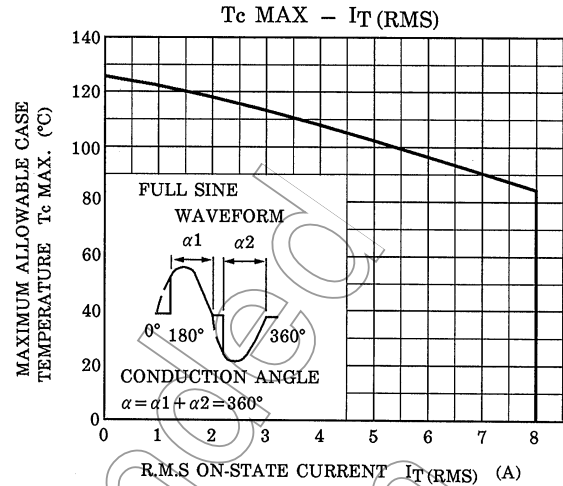
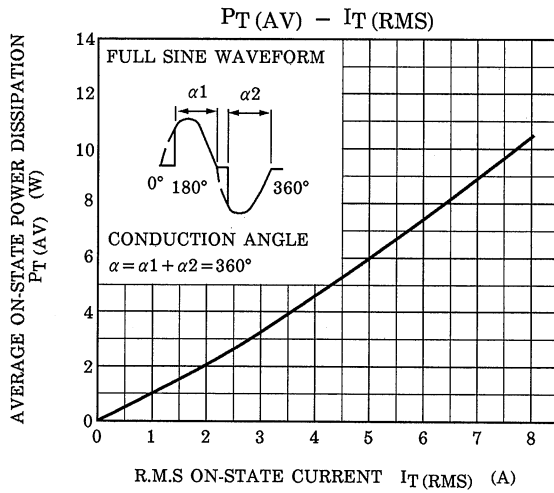
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I _{DRM}	V _{DRM} = Rated		—	—	20	μA	
Gate Trigger Voltage	I	V _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	1.5	V	
	II			T2 (+), Gate (—)	—	—	1.5		
	III			T2 (—), Gate (—)	—	—	1.5		
	IV			T2 (—), Gate (+)	—	—	—		
Gate Trigger Current	SM8GZ47 SM8JZ47	I _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	30	mA	
				T2 (+), Gate (—)	—	—	30		
				T2 (—), Gate (—)	—	—	30		
				T2 (—), Gate (+)	—	—	—		
	SM8GZ47A SM8JZ47A			I	T2 (+), Gate (+)	—	—		20
				II	T2 (+), Gate (—)	—	—		20
				III	T2 (—), Gate (—)	—	—		20
				IV	T2 (—), Gate (+)	—	—		—
Peak On-State Voltage		V _{TM}	I _{TM} = 12A	—	—	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	—	—	50	mA		
Thermal Resistance		R _{th (j-c)}	Junction to Case, AC		—	—	3.6	°C / W	
Critical Rate of Rise of Off-State Voltage	SM8GZ47 SM8JZ47	dv / dt	V _{DRM} = Rated, T _j = 125°C Exponential Rise		—	300	—	V / μs	
	SM8GZ47A SM8JZ47A				—	200	—		
Critical Rate of Rise of Off-State Voltage at Commutation	SM8GZ47 SM8JZ47	(dv / dt) c	V _{DRM} = 400V, T _j = 125°C (di / dt) c = -4.5A / ms		10	—	—	V / μs	
	SM8GZ47A SM8JZ47A				4	—	—		

MARKING



	Part No. (or abbreviation code)	Part No.
*1	M8GZ47	SM8GZ47, SM8GZ47A
	M8JZ47	SM8JZ47, SM8JZ47A
*2	Nothing	SM8GZ47, SM8JZ47
	A	SM8GZ47A, SM8JZ47A





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