

# SM8GZ47, SM8JZ47, SM8GZ47A, SM8JZ47A

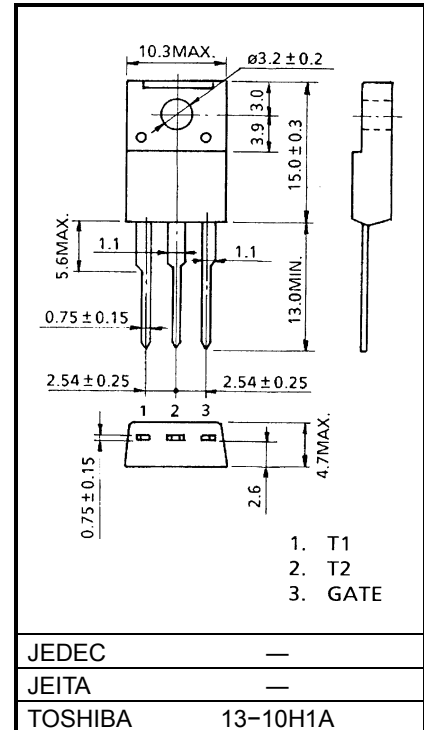
## AC POWER CONTROL APPLICATIONS

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

## 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	$A / \mu s$
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

Unit: mm



Weight: 1.7g

Note 1:  $di / dt$  Test Condition

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

$I_{TM} \leq 12A$

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

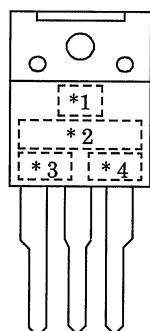
$t_{gr} \leq 250ns$

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

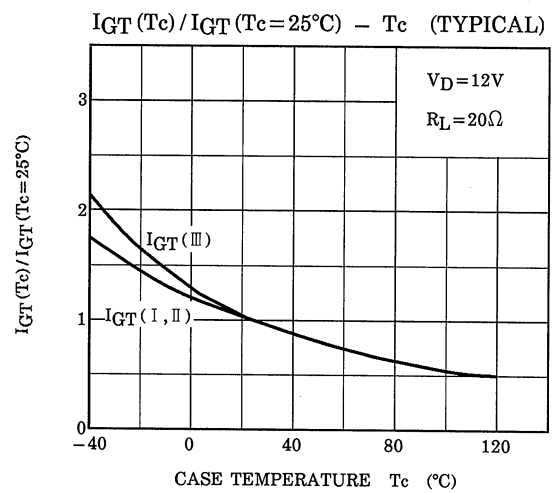
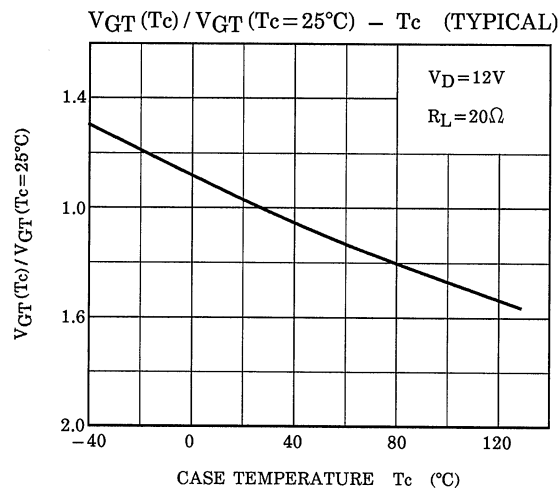
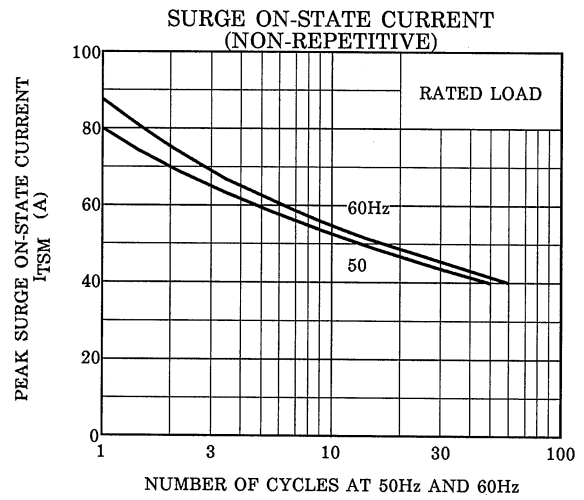
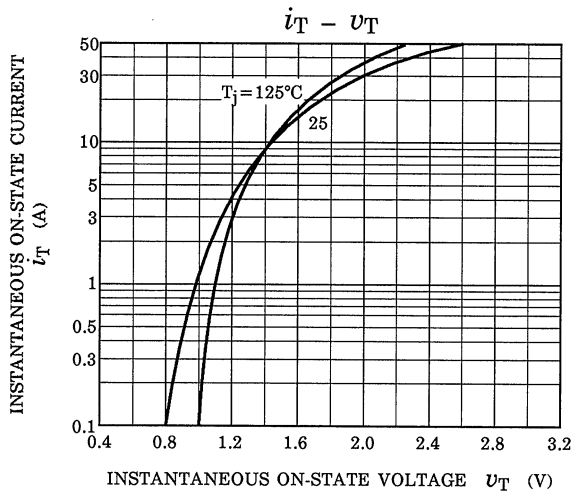
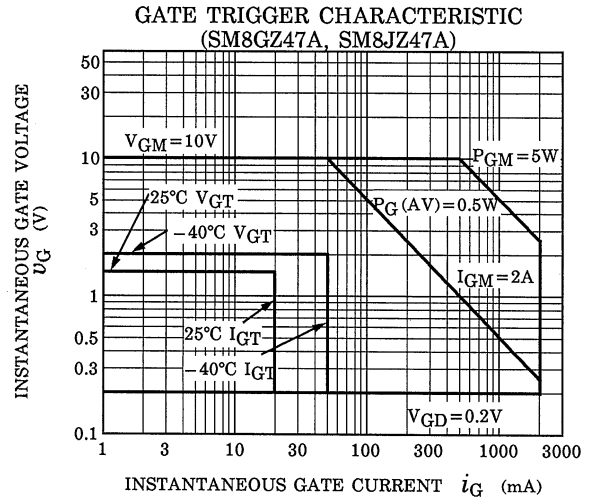
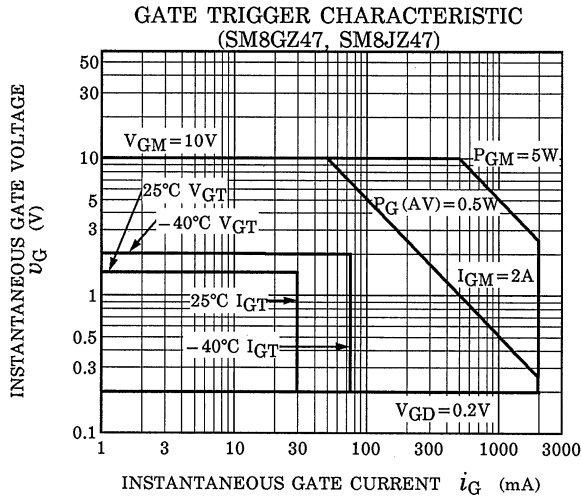
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

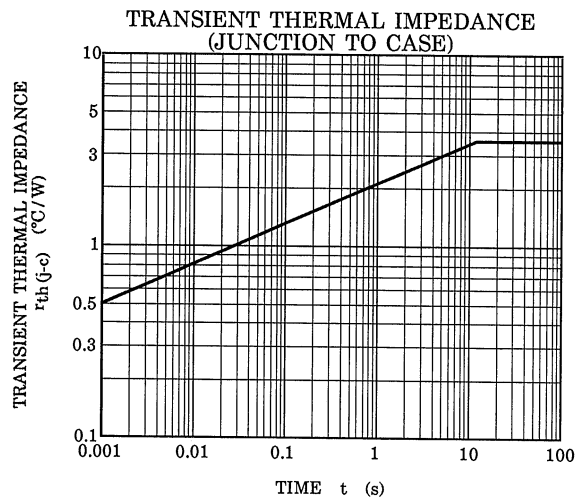
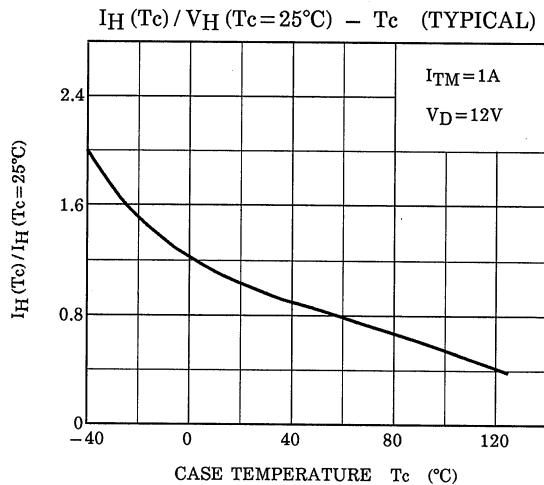
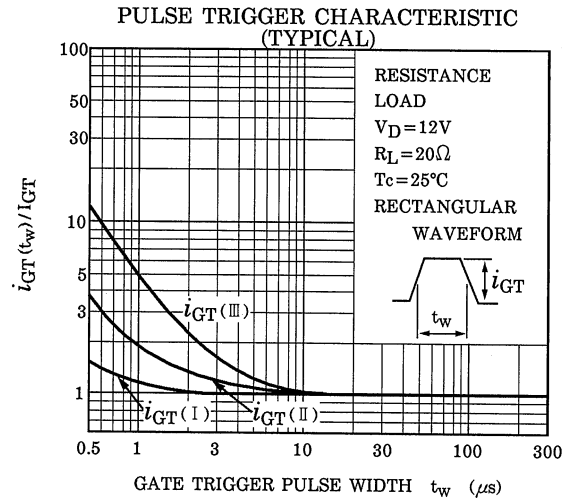
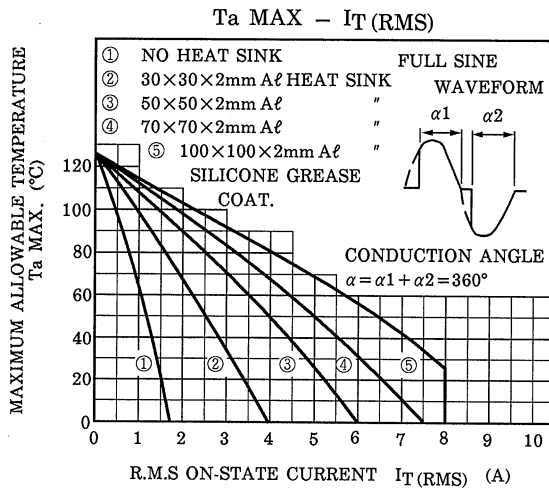
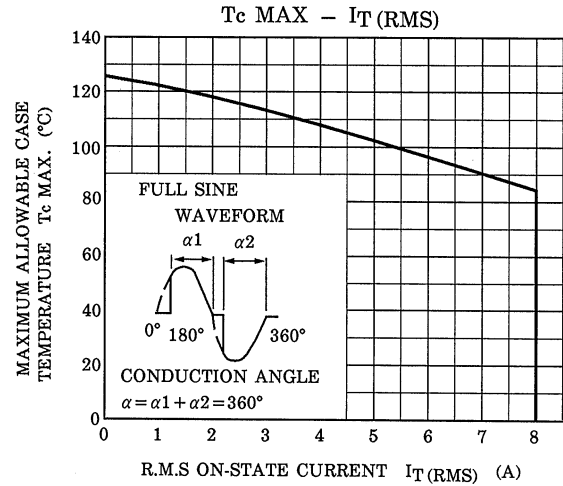
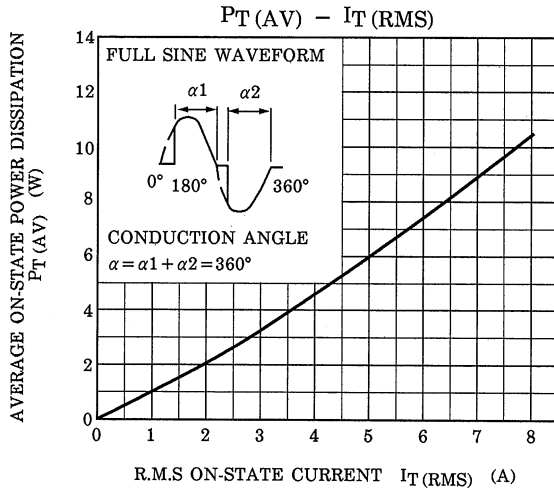
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I <sub>DRM</sub>	V <sub>DRM</sub> = Rated		—	—	20	μA	
Gate Trigger Voltage		I	V <sub>GT</sub>	V <sub>D</sub> = 12V R <sub>L</sub> = 20Ω	T2 (+), Gate (+)	—	—	1.5	V
		II			T2 (+), Gate (–)	—	—	1.5	
		III			T2 (–), Gate (–)	—	—	1.5	
		IV			T2 (–), Gate (+)	—	—	—	
Gate Trigger Current	SM8GZ47 SM8JZ47	I	I <sub>GT</sub>	V <sub>D</sub> = 12V R <sub>L</sub> = 20Ω	T2 (+), Gate (+)	—	—	30	mA
		II			T2 (+), Gate (–)	—	—	30	
		III			T2 (–), Gate (–)	—	—	30	
		IV			T2 (–), Gate (+)	—	—	—	
	SM8GZ47A SM8JZ47A	I			T2 (+), Gate (+)	—	—	20	
		II			T2 (+), Gate (–)	—	—	20	
		III			T2 (–), Gate (–)	—	—	20	
		IV			T2 (–), Gate (+)	—	—	—	
Peak On-State Voltage		V <sub>TM</sub>	I <sub>TM</sub> = 12A		—	—	1.5	V	
Gate Non-Trigger Voltage		V <sub>GD</sub>	V <sub>D</sub> = Rated, T <sub>c</sub> = 125°C		0.2	—	—	V	
Holding Current		I <sub>H</sub>	V <sub>D</sub> = 12V, I <sub>TM</sub> = 1A		—	—	50	mA	
Thermal Resistance		R <sub>th (j-c)</sub>	Junction to Case, AC		—	—	3.6	°C / W	
Critical Rate of Rise of Off-State Voltage	SM8GZ47 SM8JZ47	dv / dt	V <sub>DRM</sub> = Rated, T <sub>j</sub> = 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 <sub>DRM</sub> = 400V, T <sub>j</sub> = 125°C (di /dt) c = –4.5A / ms		10	—	—	V / μs	
	SM8GZ47A SM8JZ47A				4	—	—		

## MARKING



* NUMBER	SYMBOL		MARK
* 1	TOSHIBA PRODUCT MARK		
* 2	TYPE	SM8GZ47, SM8GZ47A	M8GZ47
		SM8JZ47, SM8JZ47A	M8JZ47
* 3	SM8GZ47A, SM8JZ47A		A
* 4	Lot Number  Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998





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