

# SM6GZ47, SM6JZ47, SM6GZ47A, SM6JZ47A

## AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage:  $V_{DRM} = 400V, 600V$
- R.M.S On-State Current:  $I_T (RMS) = 6A$
- High Commutating ( $dv / dt$ )
- Isolation Voltage:  $V_{ISOL} = 1500V$  AC

## MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SM6GZ47 SM6GZ47A	400	V
	SM6JZ47 SM6JZ47A	600	
R.M.S On-State Current (Full Sine Waveform $T_c = 90^\circ C$ )	$I_T (RMS)$	6	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	$I_{TSM}$	60 (50Hz)	A
		66 (60Hz)	
$I^2 t$ Limit Value	$I^2 t$	18	$A^2 s$
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	$V_{FGM}$	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

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

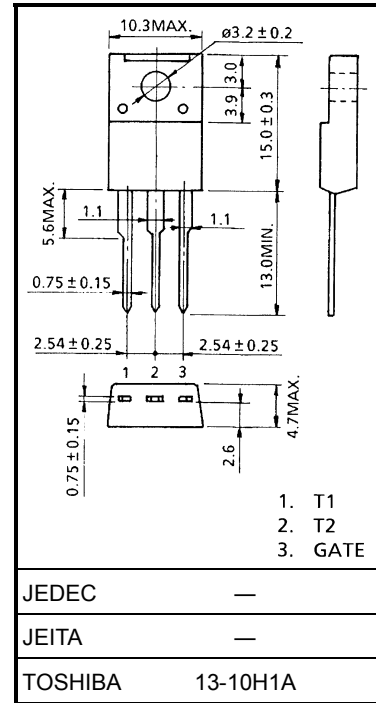
$$I_{TM} \leq 9A$$

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

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

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

Unit: mm

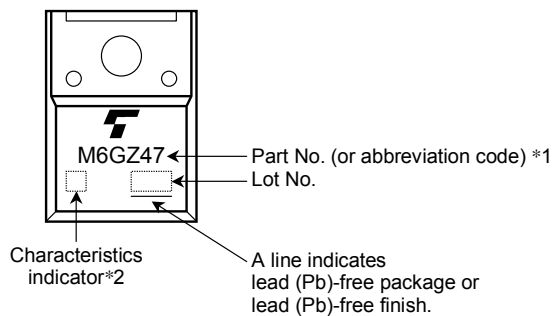


Weight: 1.7 g (typ.)

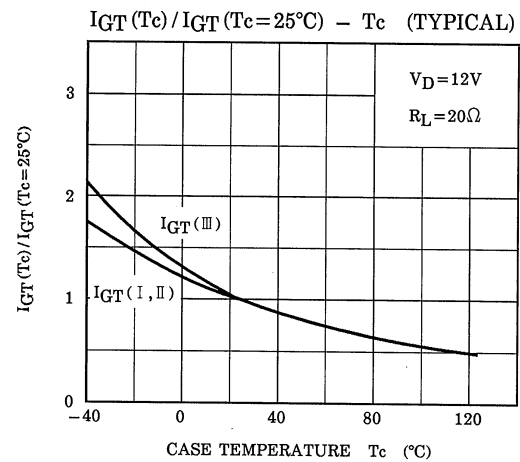
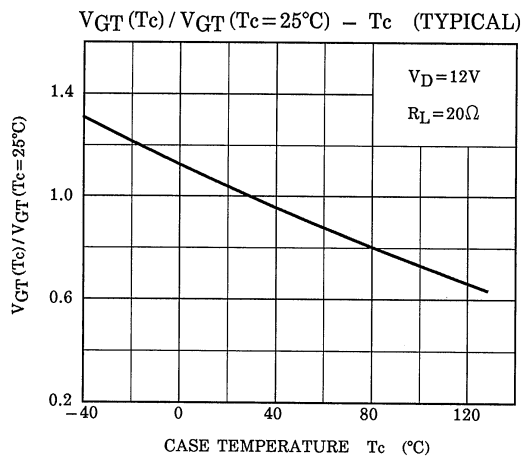
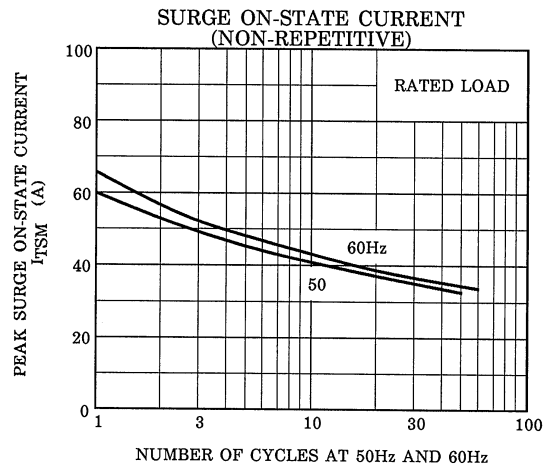
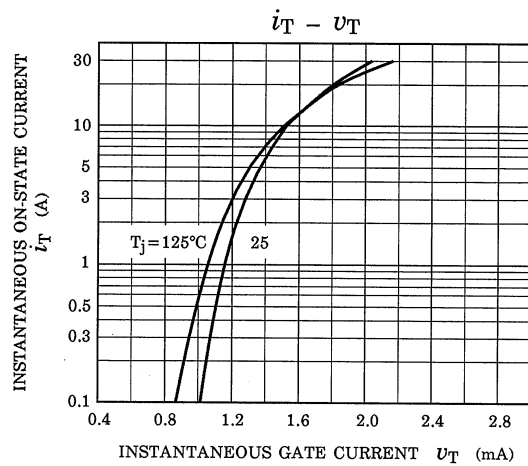
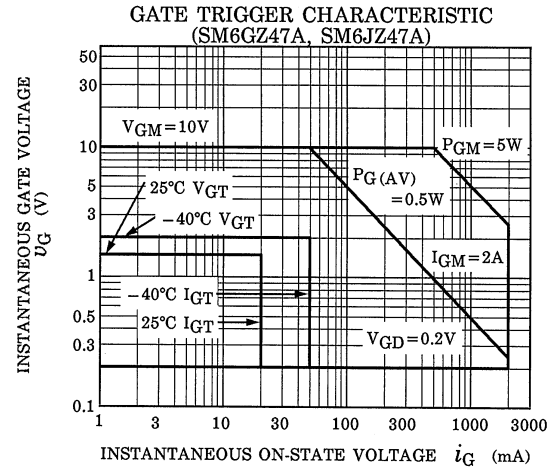
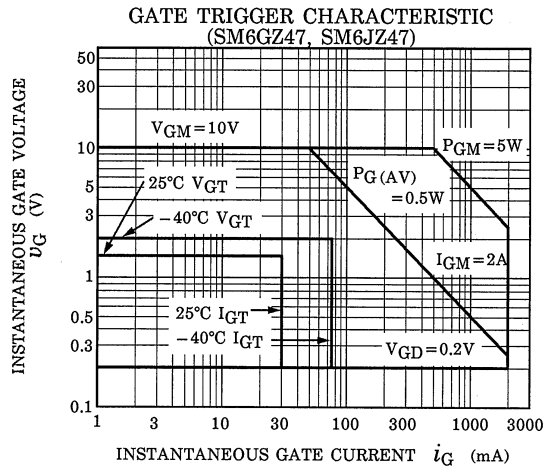
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

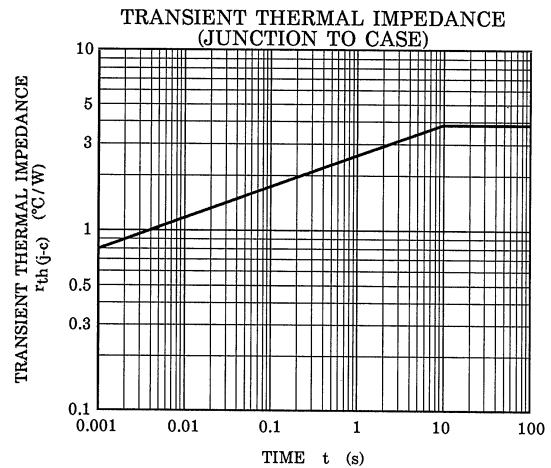
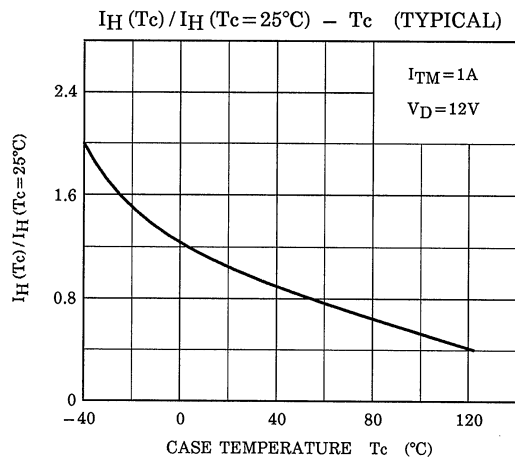
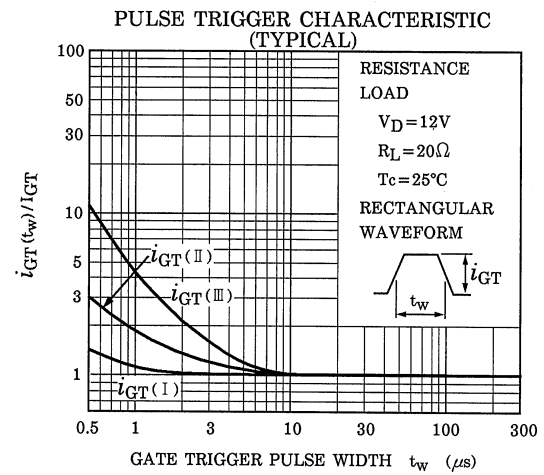
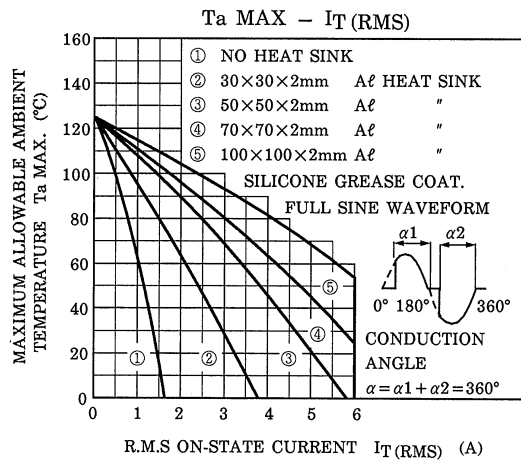
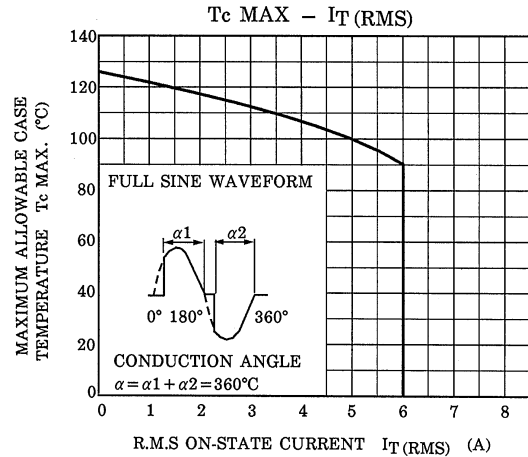
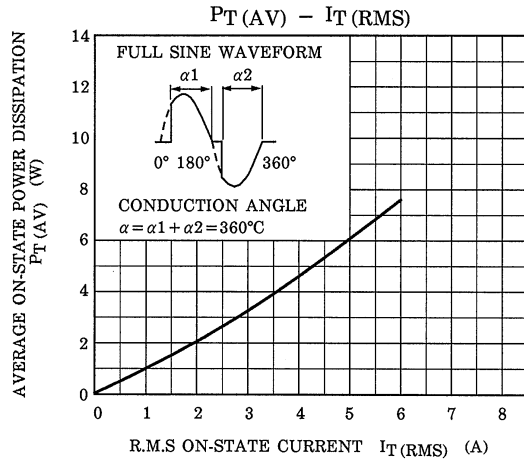
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I <sub>DRM</sub>	V <sub>DRM</sub> = Rated		—	—	20	μA	
Gate Trigger Voltage		I	V <sub>GT</sub>	V <sub>D</sub> = 12V R <sub>L</sub> = 20Ω	T2 (+), Gate (+)	—	—	1.5	V
		II			T2 (+), Gate (—)	—	—	1.5	
		III			T2 (—), Gate (—)	—	—	1.5	
		IV			T2 (—), Gate (+)	—	—	—	
Gate Trigger Current	SM6GZ47 SM6JZ47	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 (+)	—	—	—	
	SM6GZ47A SM6JZ47A	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> = 9A		—	—	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		—	—	3.8	°C / W	
Critical Rate of Rise of Off-State Voltage	SM6GZ47 SM6JZ47	dv / dt	V <sub>DRM</sub> = Rated, T <sub>j</sub> = 125°C Exponential Rise		—	300	—	V / μs	
	SM6GZ47A SM6JZ47A				—	200	—		
Critical Rate of Rise of Off-State Voltage at Commutation	SM6GZ47 SM6JZ47	(dv / dt) c	V <sub>DRM</sub> = 400V, T <sub>j</sub> = 125°C (di /dt) c = -3.3A / ms		10	—	—	V / μs	
	SM6GZ47A SM6JZ47A				4	—	—		

## MARKING



	Part No. (or abbreviation code)	Part No.
*1	M6GZ47	SM6GZ47, SM6GZ47A
	M6JZ47	SM6JZ47, SM6JZ47A
*2	Nothing	SM6GZ47, SM6JZ47
	A	SM6GZ47A, SM6JZ47A





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