

SM16GZ47, SM16JZ47, SM16GZ47A, SM16JZ47A

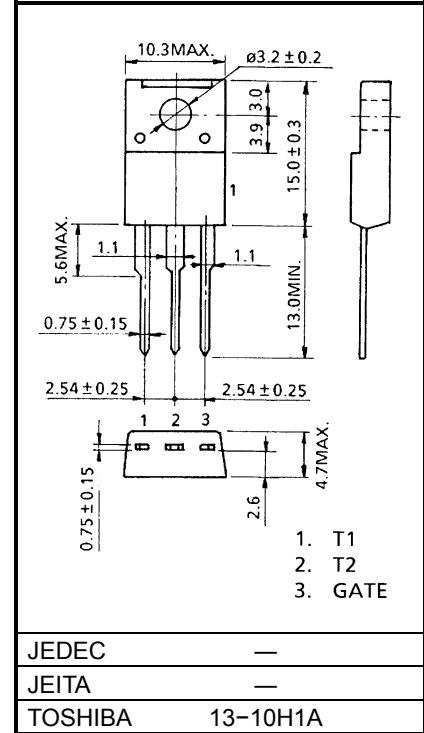
AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 400, 600V$
- R.M.S On-State Current : $I_T (RMS) = 16A$
- High Commutating (dv / dt)
- Isolation Voltage : $V_{ISOL} = 1500V AC$

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	SM16GZ47 SM16GZ47A	V_{DRM}	V
	SM16JZ47 SM16JZ47A		
R.M.S On-State Current (Full Sine Waveform $T_c = 73^\circ C$)	$I_T (RMS)$	16	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	150 (50Hz)	A
		165 (60Hz)	
$I^2 t$ Limit Value	$I^2 t$	112.5	$A^2 s$
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, $t = 1 \text{ min.}$)	V_{ISOL}	1500	V

Unit: mm



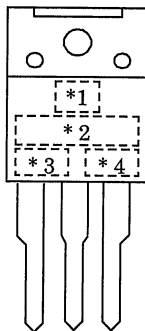
Weight: 1.7g

Note 1: di / dt Test condition
 $V_{DRM} = 0.5 \times \text{Rated}$
 $I_{TM} \leq 25A$
 $t_{gw} \geq 10\mu s$
 $t_{gr} \leq 250ns$
 $i_{GP} = I_{GT} \times 2.0$

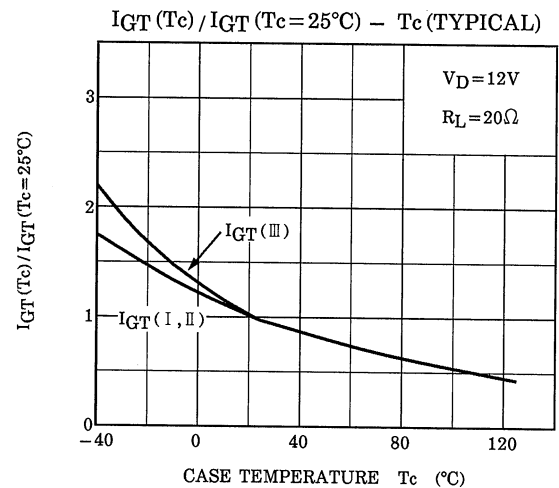
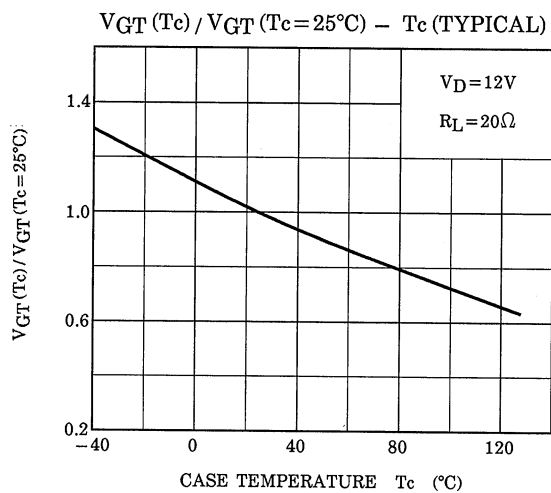
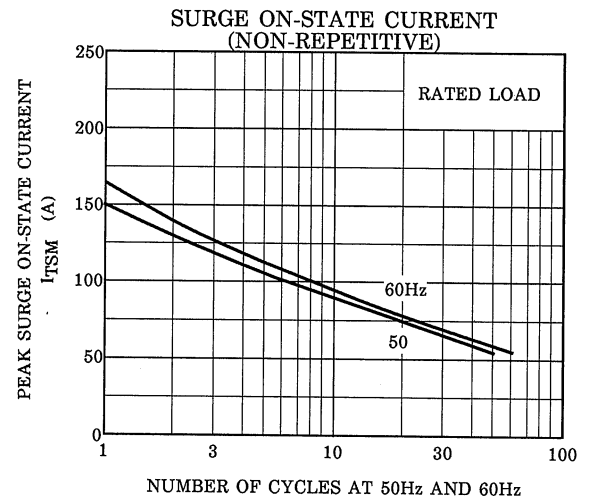
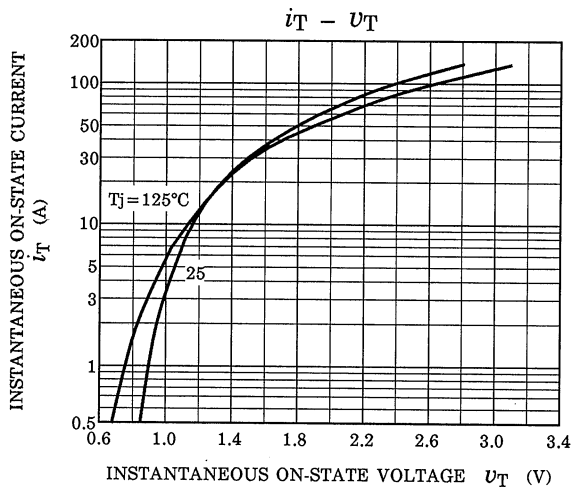
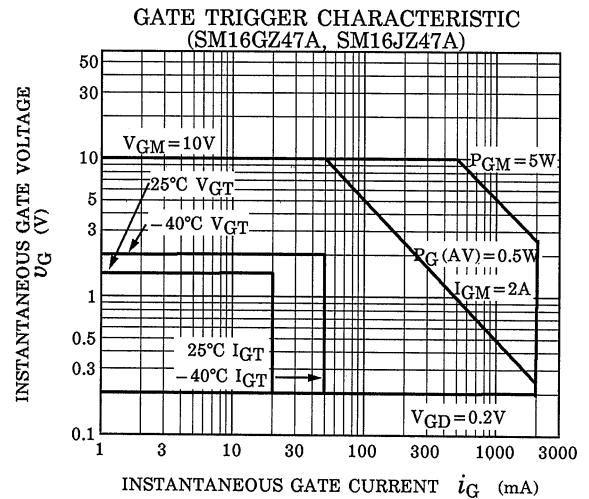
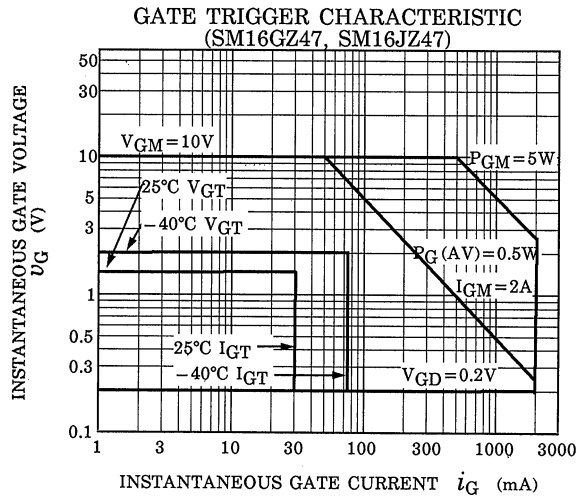
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

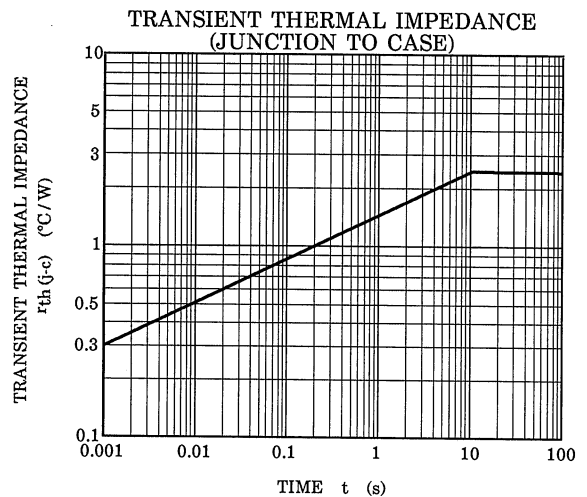
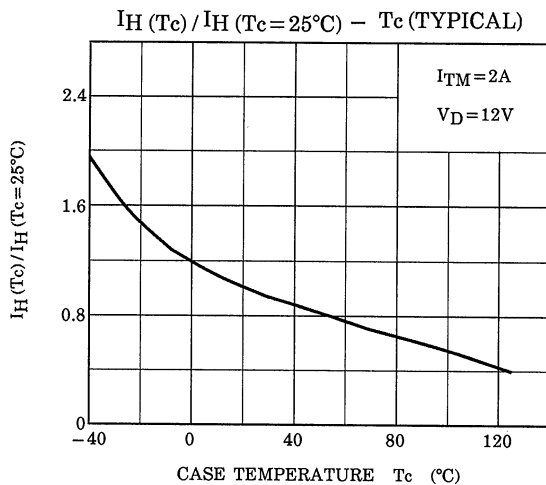
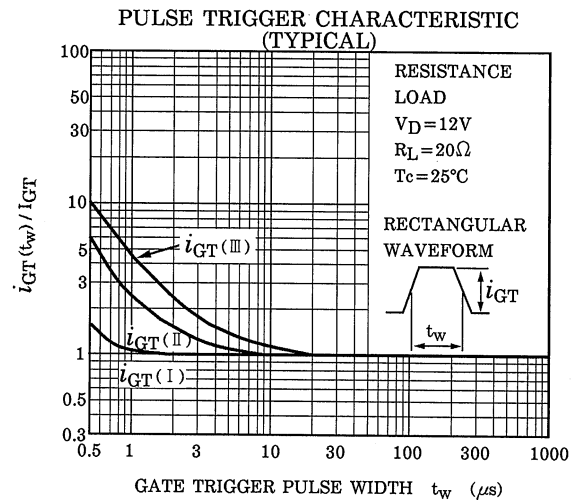
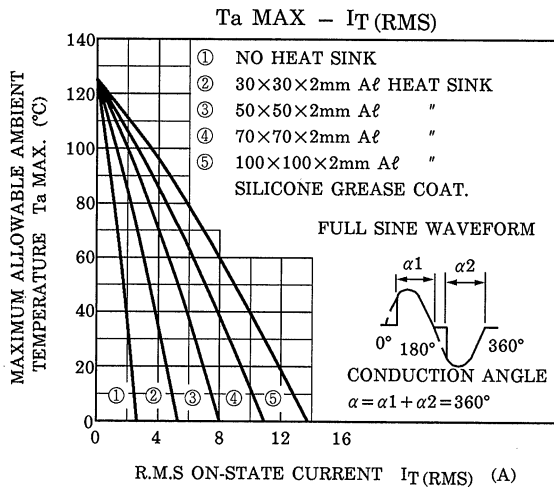
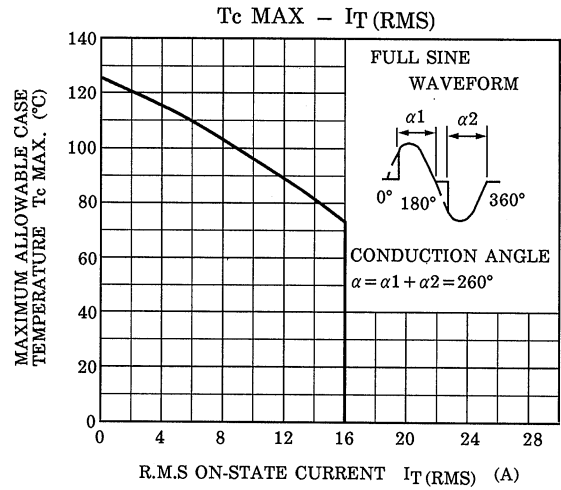
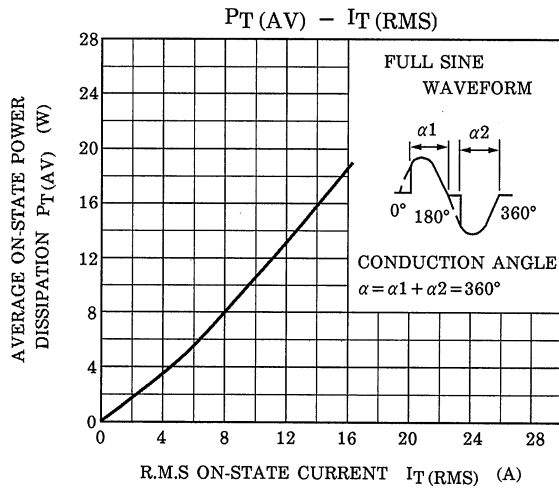
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I _{DRM}	V _{DRM} = Rated		—	—	20	μA	
Gate Trigger Voltage		I	V _{GT}	V _D = 12V, R _L = 20Ω	T2 (+) , Gate (+)	—	—	1.5	V
		II			T2 (+) , Gate (–)	—	—	1.5	
		III			T2 (–) , Gate (–)	—	—	1.5	
		IV			T2 (–) , Gate (+)	—	—	—	
Gate Trigger Current	SM16GZ47 SM16JZ47	I	I _{GT}	V _D = 12V, R _L = 20Ω	T2 (+) , Gate (+)	—	—	30	mA
		II			T2 (+) , Gate (–)	—	—	30	
		III			T2 (–) , Gate (–)	—	—	30	
		IV			T2 (–) , Gate (+)	—	—	—	
	SM16GZ47A SM16JZ47A	I			T2 (+) , Gate (+)	—	—	20	
		II			T2 (+) , Gate (–)	—	—	20	
		III			T2 (–) , Gate (–)	—	—	20	
		IV			T2 (–) , Gate (+)	—	—	—	
Peak On-State Voltage		V _{TM}	I _{TM} = 25A		—	—	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		—	—	2.5	°C / W	
Critical Rate of Rise of Off-State Voltage	SM16GZ47 SM16JZ47	dv / dt	V _{DRM} = Rated, T _j = 125°C Exponential Rise	—	300	—	V / μs		
	SM16GZ47A SM16JZ47A			—	200	—			
Critical Rate of Rise of Off-State Voltage at Commutation	SM16GZ47 SM16JZ47	(dv / dt) c	V _{DRM} = 400V, T _j = 125°C (di / dt) c = – 8.7A / ms	10	—	—	V / μs		
	SM16GZ47A SM16JZ47A			4	—	—			

MARKING



* NUMBER	SYMBOL		MARK
* 1	Toshiba Product Mark		
* 2	TYPE	SM16GZ47, SM16GZ47A	M16GZ47
		SM16JZ47, SM16JZ47A	M16JZ47
* 3	SM16GZ47A, SM16JZ47A		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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