

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM16G45, SM16J45, SM16G45A, SM16J45A

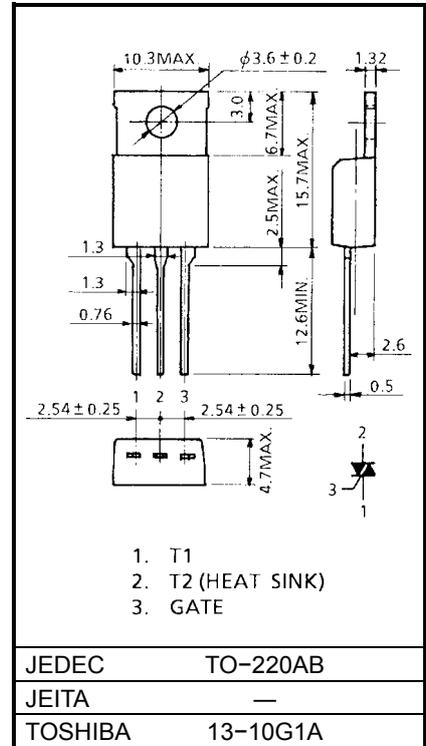
AC POWER CONTROL APPLICATIONS

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

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	SM16G45 SM16G45A	400	V
	SM16J45 SM16J45A	600	
R.M.S On-State Current (Full Sine Waveform $T_c = 100^\circ C$)	$I_T (RMS)$	16	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	150 (50Hz)	A
		165 (60Hz)	
I^2t Limit Value	I^2t	112.5	A^2s
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	$^\circ C$

Unit: mm

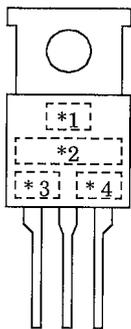


Weight: 2.0g

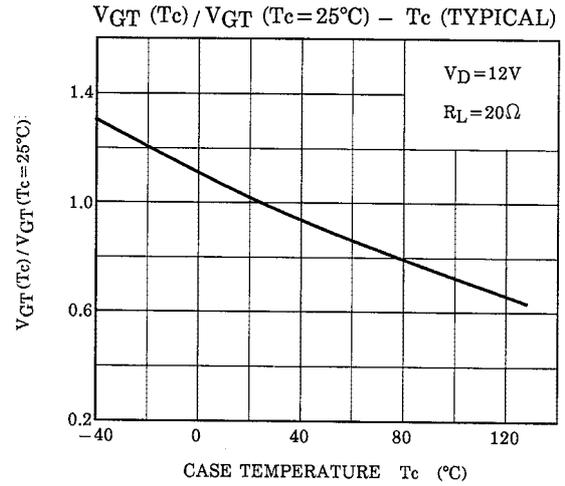
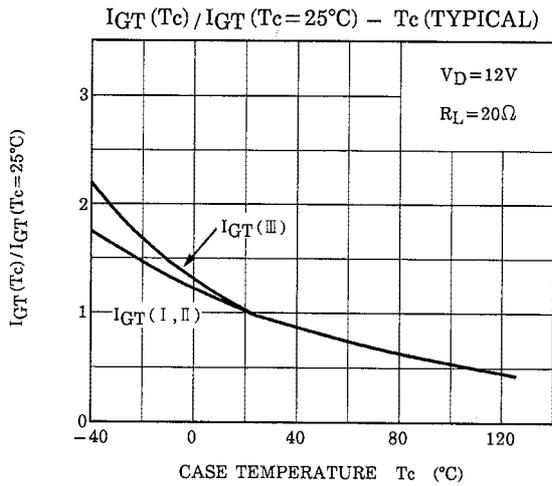
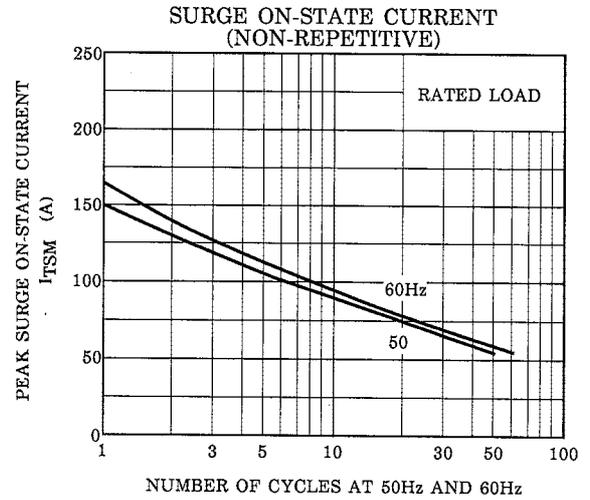
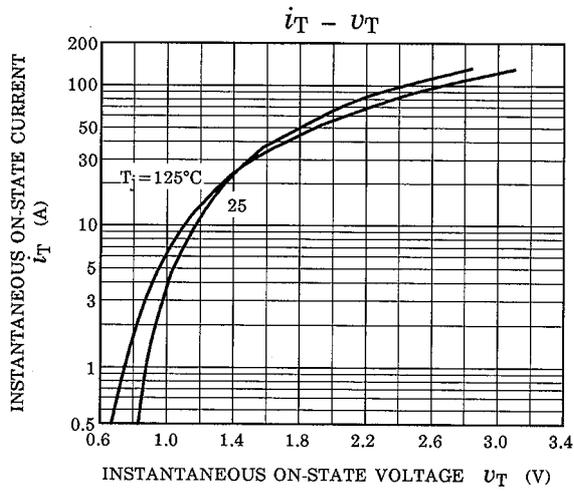
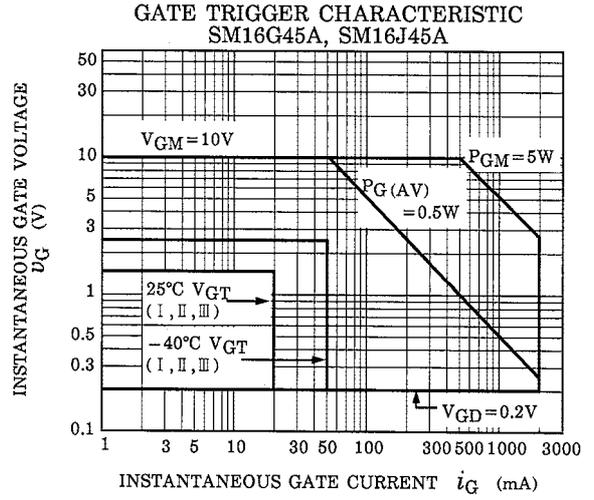
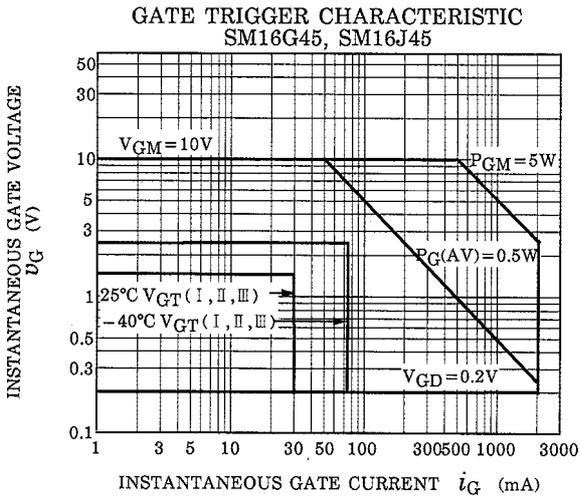
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

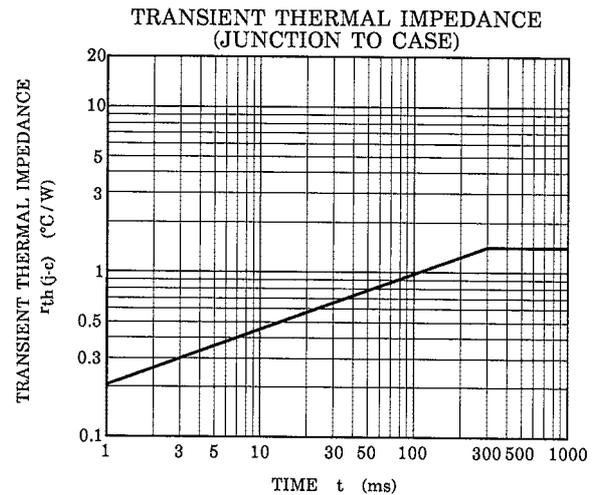
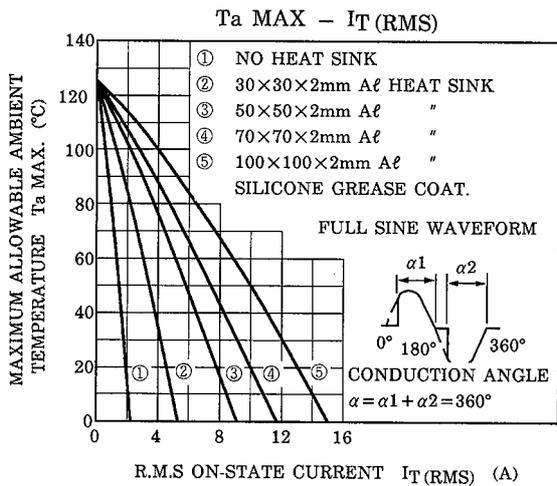
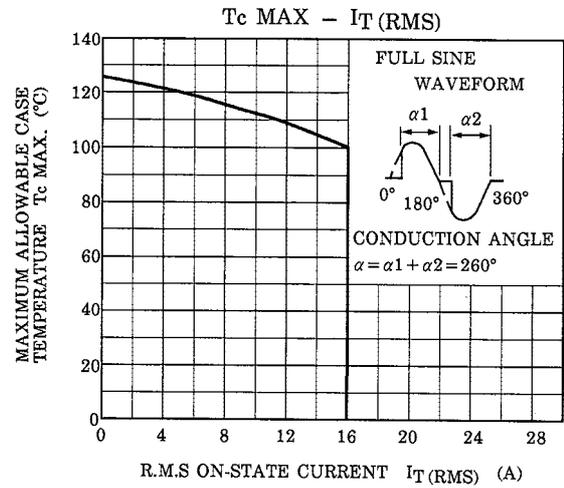
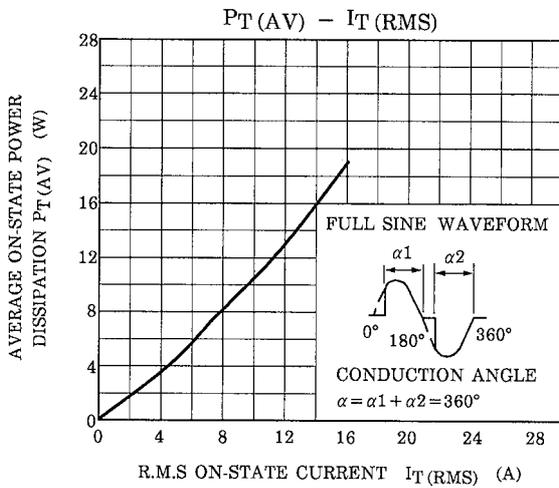
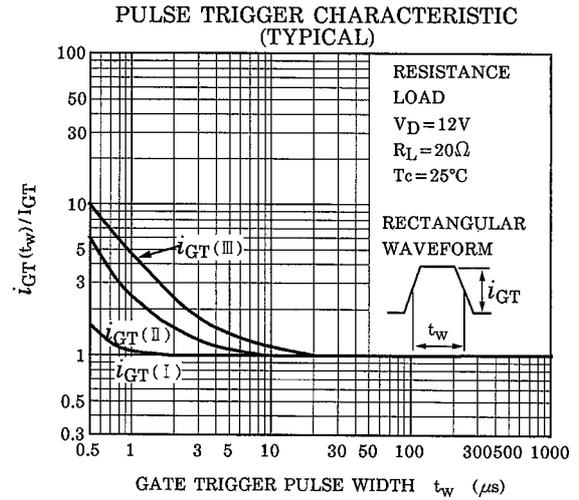
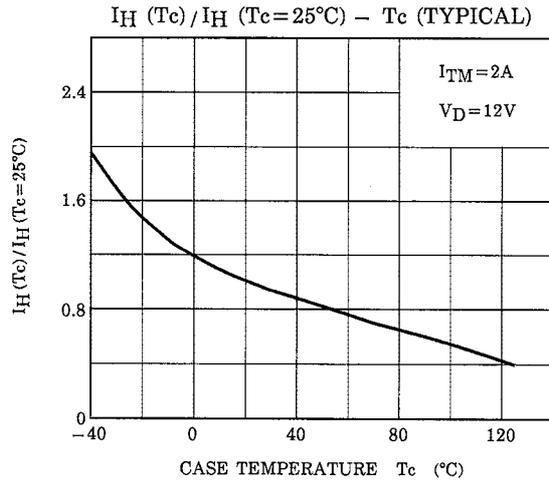
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I_{DRM}	$V_{DRM} = \text{Rated}$	—	—	20	μA	
Gate Trigger Voltage	I	V_{GT}	$V_D = 12\text{V}, R_L = 20\Omega$	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (-)	—	—	1.5	
	III			T2 (-), Gate (-)	—	—	1.5	
	IV			T2 (-), Gate (-)	—	—	—	
Gate Trigger Current	SM16G45 SM16J45	I_{GT}	$V_D = 12\text{V}, R_L = 20\Omega$	T2 (+), Gate (+)	—	—	30	mA
				T2 (+), Gate (-)	—	—	30	
				T2 (-), Gate (-)	—	—	30	
				T2 (-), Gate (+)	—	—	—	
	SM16G45A SM16J45A			T2 (+), Gate (+)	—	—	20	
				T2 (+), Gate (-)	—	—	20	
				T2 (-), Gate (-)	—	—	20	
				T2 (-), Gate (+)	—	—	—	
Peak On-State Voltage		V_{TM}	$I_{TM} = 25\text{A}$	—	—	1.5	V	
Gate Non-Trigger Voltage		V_{GD}	$V_D = \text{Rated}, T_c = 125^\circ\text{C}$	0.2	—	—	V	
Holding Current		I_H	$V_D = 12\text{V}, I_{TM} = 2\text{A}$	—	—	50	mA	
Critical Rate of Rise of Off-State Voltage at Commutation	SM16G45 SM16J45	$(dv / dt) c$	$V_D = 400\text{V}, (di / dt) c = -8.7\text{A} / \text{ms}, T_j = 125^\circ\text{C}$	10	—	—	V / μs	
	SM16G45A SM16J45A			4	—	—		
Thermal Resistance		$R_{th(j-c)}$	Junction to Case, AC	—	—	1.4	$^\circ\text{C} / \text{W}$	

MARKING



* NUMBER	SYMBOL	MARK
* 1	TOSHIBA PRODUCT MARK	
* 2	TYPE	SM16G45, SM16G45A
		SM16J45, SM16J45A
		SM16G45A, SM16J45A
* 3		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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