

SM8G45, SM8J45, SM8G45A, SM8J45A

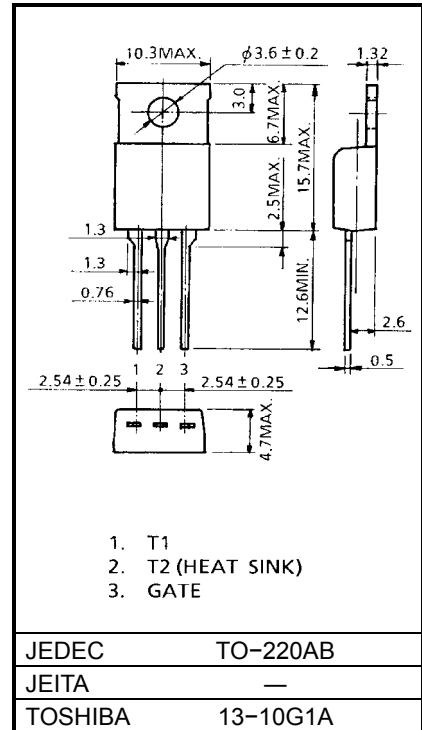
AC POWER CONTROL APPLICATIONS

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

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	SM8G45 SM8G45A	V_{DRM}	400	V
	SM8J45 SM8J45A		600	
R.M.S On-State Current (Full Sine Waveform $T_c = 105^{\circ}C$)		$I_T (RMS)$	8	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	80 (50Hz)	A
			88 (60Hz)	
I_T^2 Limit Value		I_T^2	32	$A^2 s$
Critical Rate of Rise of On-State Current		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	$^{\circ}C$

Unit: mm

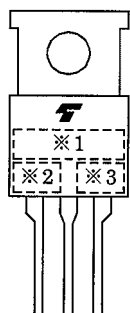


Weight: 2.0g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

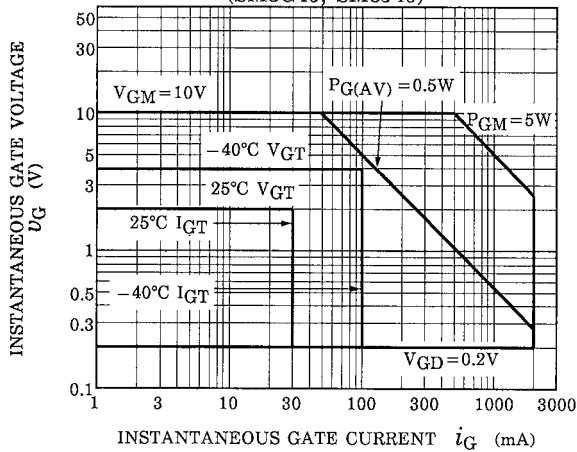
CHARACTERISTIC			SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current			I _{DRM}	V _{DRM} = Rated, T _j = 125°C		—	—	2	mA
Gate Trigger Voltage	SM8G45 SM8J45	I	V _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	2	V
		II			T2 (+), Gate (–)	—	—	2	
		III			T2 (–), Gate (–)	—	—	2	
		IV			T2 (–), Gate (+)	—	—	—	
	SM8G45A SM8J45A	I			T2 (+), Gate (+)	—	—	1.5	
		II			T2 (+), Gate (–)	—	—	1.5	
		III			T2 (–), Gate (–)	—	—	1.5	
		IV			T2 (–), Gate (+)	—	—	—	
Gate Trigger Current	SM8G45 SM8J45	I	I _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	30	mA
		II			T2 (+), Gate (–)	—	—	30	
		III			T2 (–), Gate (–)	—	—	30	
		IV			T2 (–), Gate (+)	—	—	—	
	SM8G45A SM8J45A	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		—	—	2.0	°C / W
Critical Rate of Rise of Off-State Voltage at Commutation	SM8G45 SM8J45	(dv / dt) c	V _{DRM} = 400V, (di / dt) c = –4.5A / ms T _j = 125°C	10	—	—	V / μs		
	SM8G45A SM8J45A			4	—	—			

MARKING

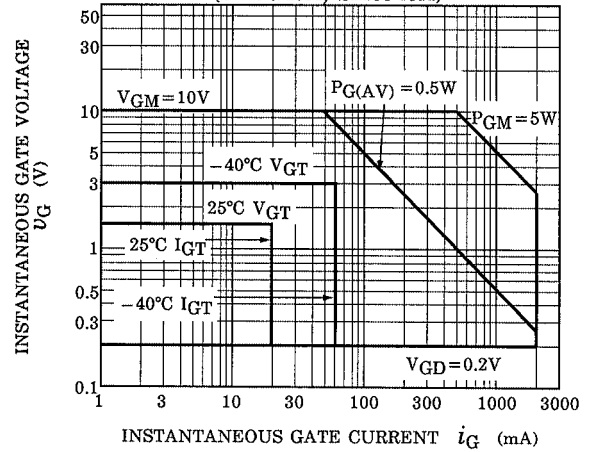


NUMBER	SYMBOL		MARK
* 1	TYPE	SM8G45, SM8G45A	M8G45
		SM8J45, SM8J45A	M8J45
* 2		SM8G45A, SM8J45A	A
* 3	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

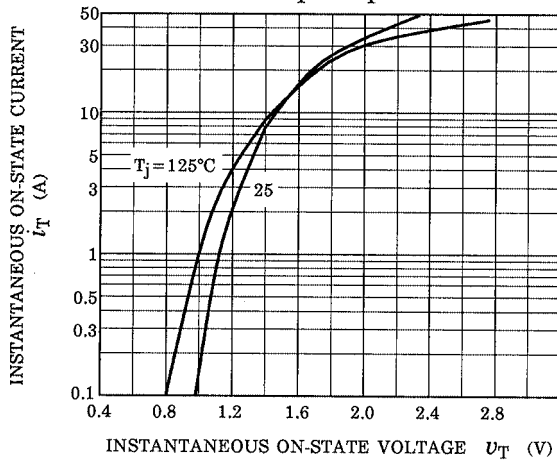
GATE TRIGGER CHARACTERISTIC
(SM8G45, SM8J45)



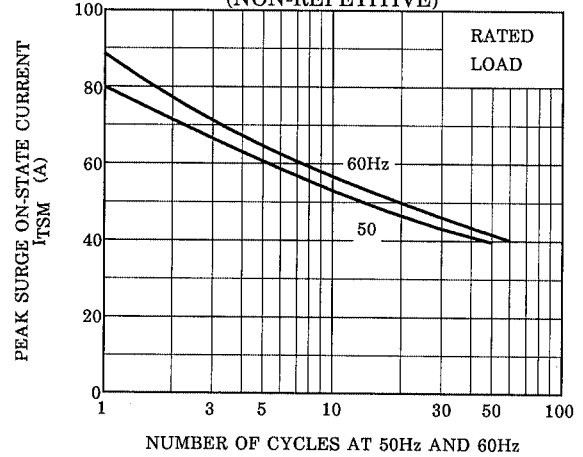
GATE TRIGGER CHARACTERISTIC
(SM8G45A, SM8J45A)



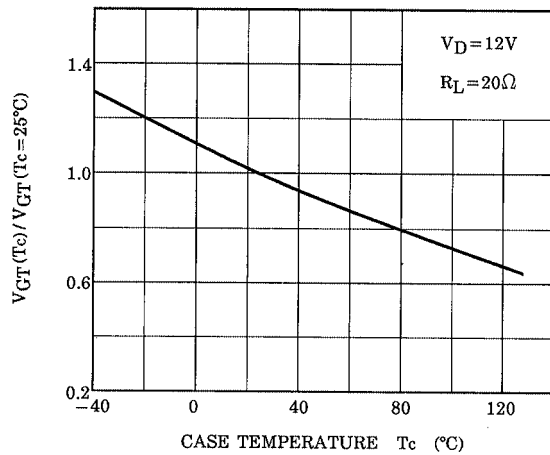
$i_T - v_T$



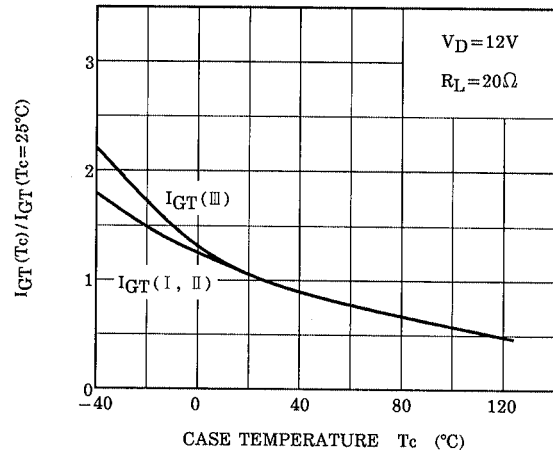
SURGE ON-STATE CURRENT
(NON-REPETITIVE)

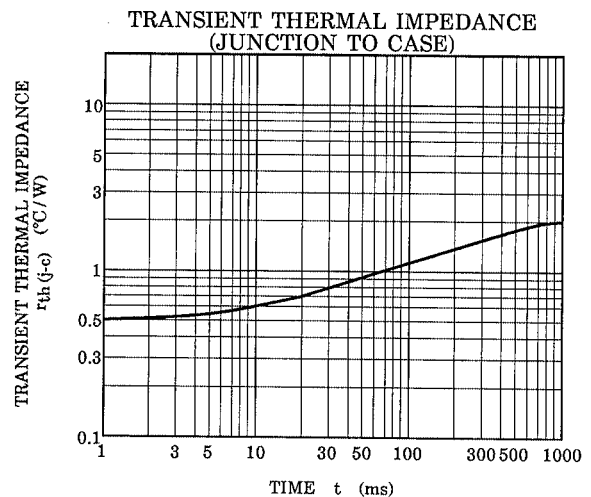
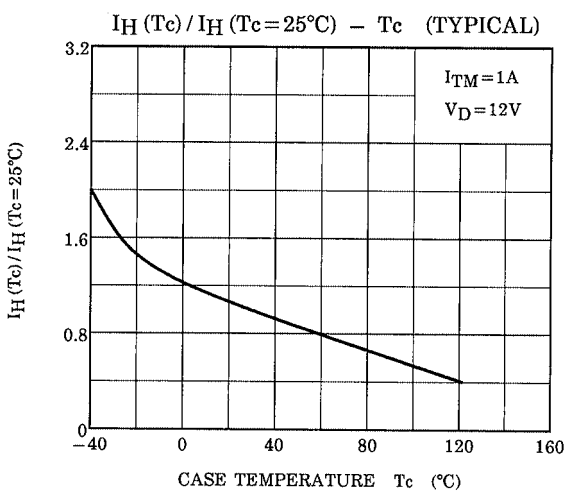
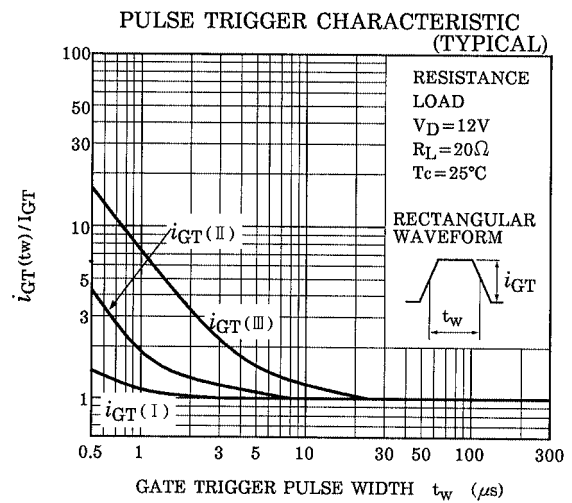
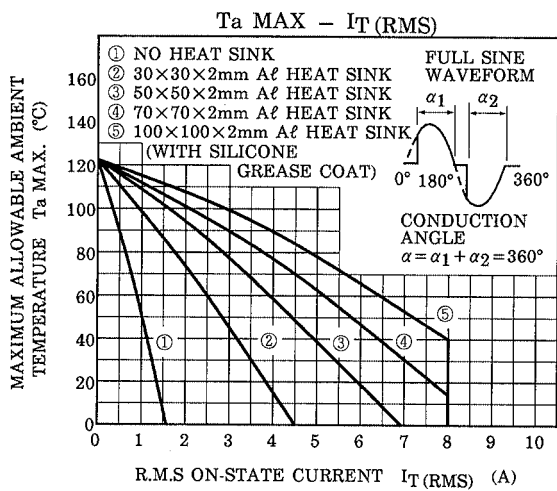
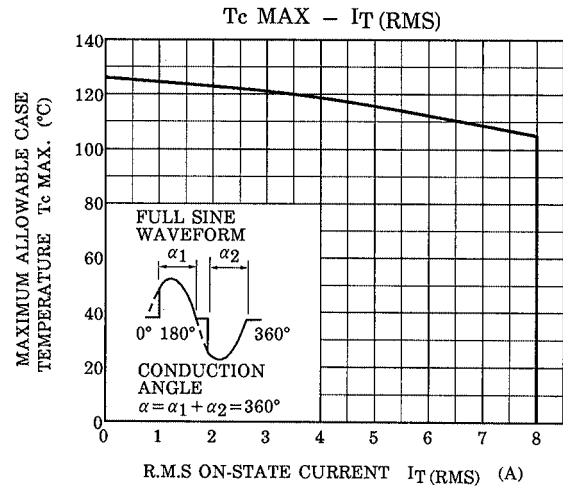
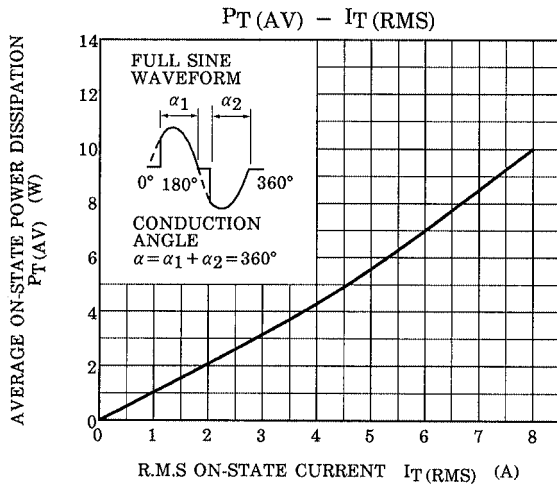


$V_{GT}(T_c) / V_{GT}(T_c = 25^\circ\text{C}) - T_c$ (TYPICAL)



$I_{GT}(T_c) / I_{GT}(T_c = 25^\circ\text{C}) - T_c$ (TYPICAL)





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