

SM12G45, SM12J45, SM12G45A, SM12J45A

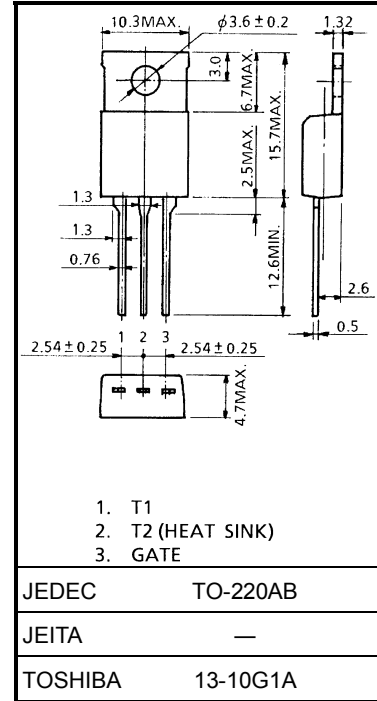
AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 400V, 600V$
- R.M.S On-State Current : $I_T (RMS) = 12A$
- High Commutating (dv / dt)

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	SM12G45 SM12G45A	400	V
	SM12J45 SM12J45A	600	
R.M.S On-State Current (Full Sine Waveform $T_c = 98^\circ C$)	$I_T (RMS)$	12	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	120 (50Hz)	A
		132 (60Hz)	
$I^2 t$ Limit Value ($t = 1 \sim 10ms$)	$I^2 t$	72	$A^2 s$
Critical Rate of Rise of On-State Current	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	$-40 \sim 125$	$^\circ C$
Storage Temperature Range	T_{stg}	$-40 \sim 125$	$^\circ C$

Unit: mm

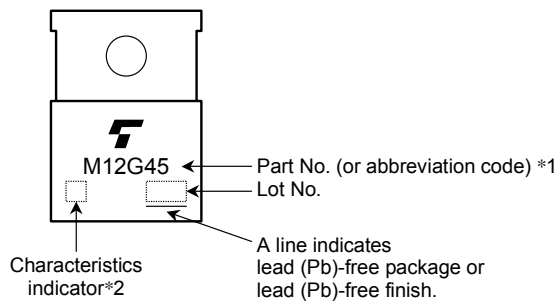


Weight: 2.0 g (typ.)

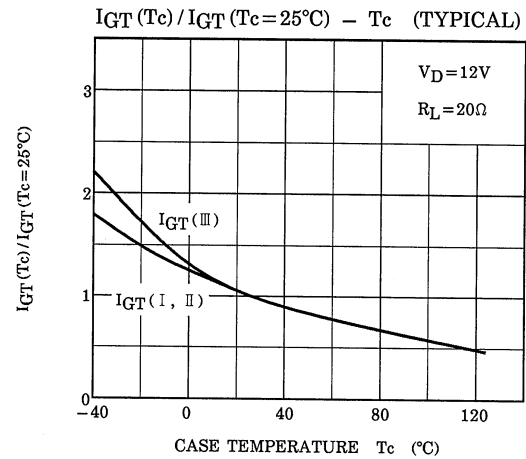
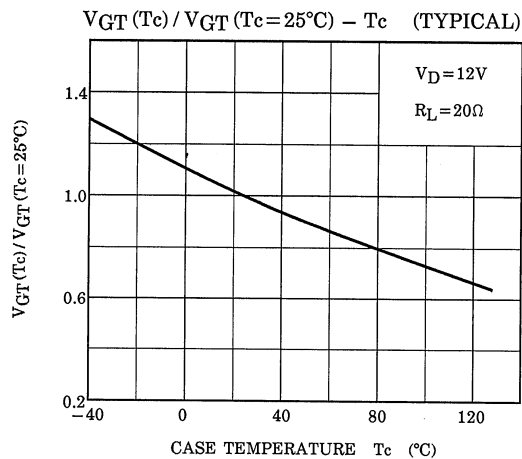
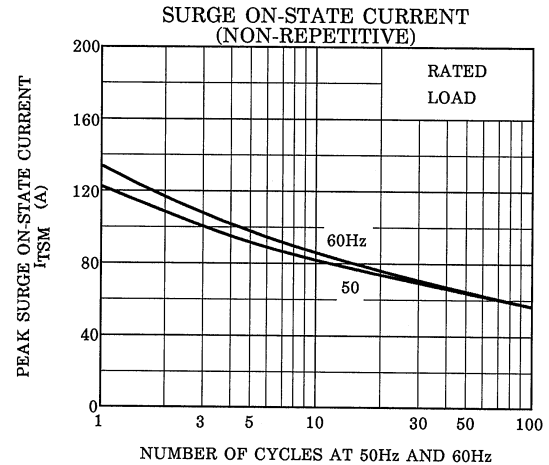
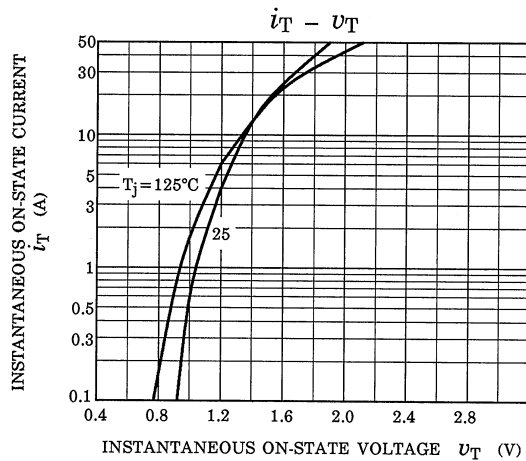
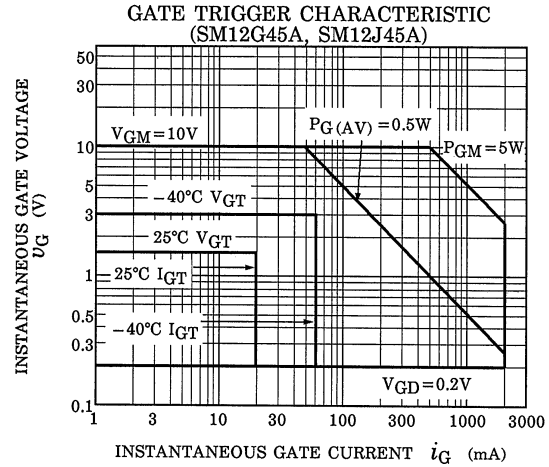
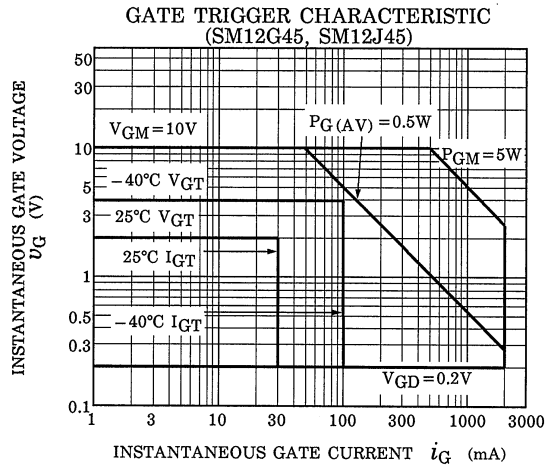
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

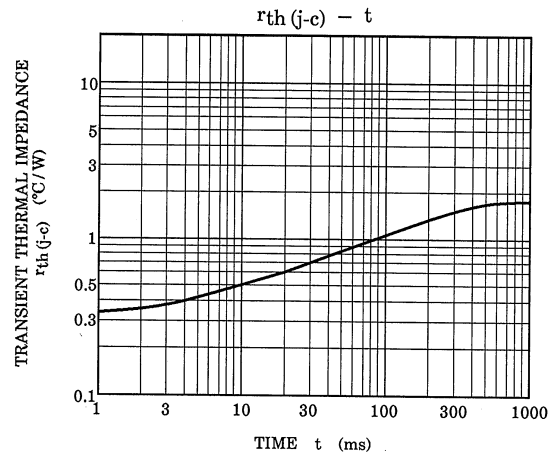
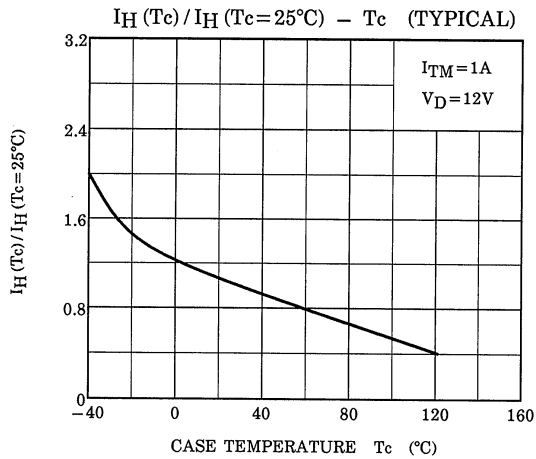
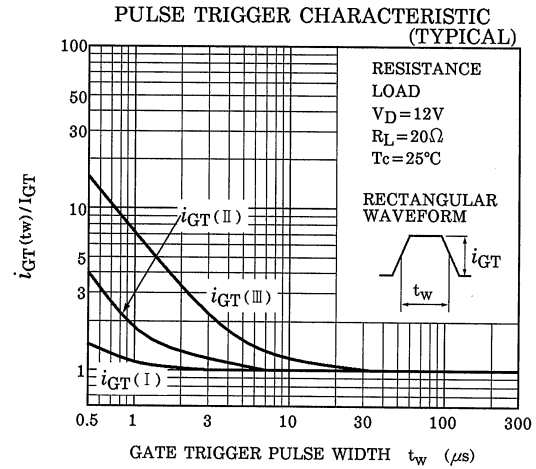
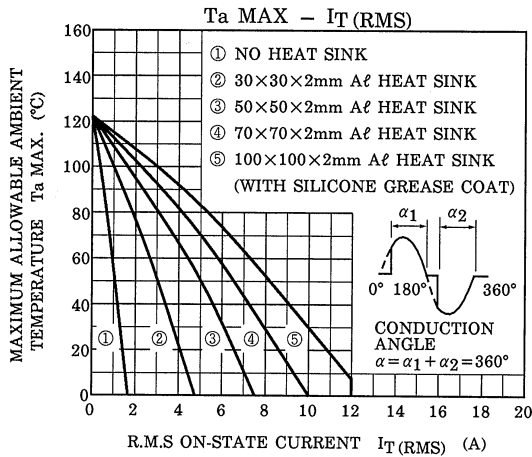
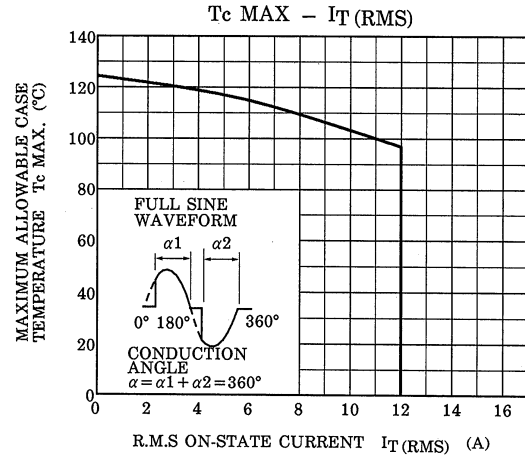
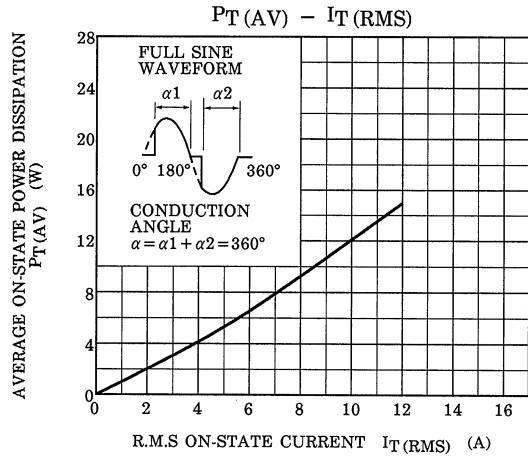
CHARACTERISTIC			SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current			I _{DRM}	V _{DRM} =Rated, T _j = 125°C		—	—	2	mA
Gate Trigger Voltage	SM12G45 SM12J45	I	V _{GT}	V _D = 12V, R _L = 20Ω	T2 (+) , Gate (+)	—	—	2	V
		II			T2 (+) , Gate (–)	—	—	2	
		III			T2 (–) , Gate (–)	—	—	2	
		IV			T2 (–) , Gate (+)	—	—	—	
	SM12G45A SM12J45A	I			T2 (+) , Gate (+)	—	—	1.5	
		II			T2 (+) , Gate (–)	—	—	1.5	
		III			T2 (–) , Gate (–)	—	—	1.5	
		IV			T2 (–) , Gate (+)	—	—	—	
Gate Trigger Current	SM12G45 SM12J45	I	I _{GT}	V _D = 12V, R _L = 20Ω	T2 (+) , Gate (+)	—	—	30	mA
		II			T2 (+) , Gate (–)	—	—	30	
		III			T2 (–) , Gate (–)	—	—	30	
		IV			T2 (–) , Gate (+)	—	—	—	
	SM12G45A SM12J45A	I			T2 (+) , Gate (+)	—	—	20	
		II			T2 (+) , Gate (–)	—	—	20	
		III			T2 (–) , Gate (–)	—	—	20	
		IV			T2 (–) , Gate (+)	—	—	—	
Peak On-State Voltage			V _{TM}	I _{TM} = 17A		—	—	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		—	—	1.8	°C / W
Critical Rate of Rise of Off-State Voltage at Commutation	SM12G45 SM12J45	(dv / dt) c	V _{DRM} = 400V (di / dt) c = – 6.5A / ms	10	—	—	V / μs		
	SM12G45A SM12J45A			4	—	—			

MARKING



	Part No. (or abbreviation code)	Part No.
*1	M12G45	SM12G45, SM12G45A
	M12J45	SM12J45, SM12J45A
*2	A	SM12G45A, SM12J45A





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