

SM8LZ47

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 800V$
- R.M.S ON-State Current : $I_T(RMS) = 8A$
- High Commutating (dv / dt) : $(dv / dt)_c = 10V / \mu s$ (Min.)
- Isolation Voltage : $V_{ISOL} = 1500V$ AC

MAXIMUM RATINGS

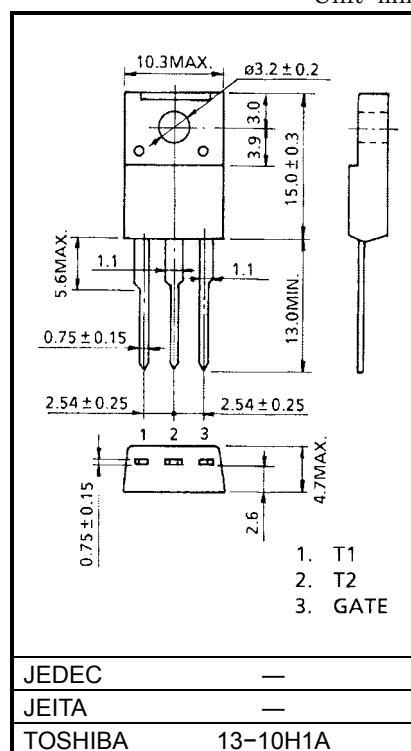
CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	800	V
R.M.S On-State Current (Full Sine Waveform)	$I_T(RMS)$	8	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	70 (50Hz) 80 (60Hz)	A
I^2t Limit Value	I^2t	24.5	A^2s
Critical Rate of Rise of On-State Current (Note 1)	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_{FGM}	10	V
Peak Gate Current	I_{GM}	2	A
Junction Temperature	T_j	-40~125	°C
Storage Temperature Range	T_{stg}	-40~125	°C
Isolation Voltage (AC, $t = 1min.$)	V_{ISOL}	1500	V

Note: di / dt test condition

$V_{DRM} = 400V$, $I_{TM} \leq 12A$, $t_{gw} \geq 10\mu s$, $t_{gr} \leq 250ns$,

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

Unit: mm

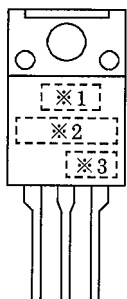


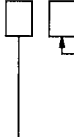
Weight: 1.7g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

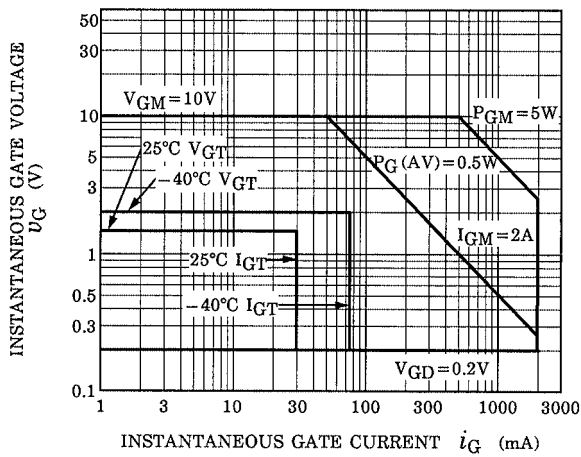
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current		I_{DRM}	$V_{\text{DRM}} = 800\text{V}$		—	—	20	μA
Gate Trigger Voltage	I	V_{GT}	$V_{\text{D}} = 12\text{V}$ $R_{\text{L}} = 20\Omega$	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (—)	—	—	1.5	
	III			T2 (—), Gate (—)	—	—	1.5	
Gate Trigger Current	I	I_{GT}	$V_{\text{D}} = 12\text{V}$ $R_{\text{L}} = 20\Omega$	T2 (+), Gate (+)	—	—	30	mA
	II			T2 (+), Gate (—)	—	—	30	
	III			T2 (—), Gate (—)	—	—	30	
Peak On-State Voltage		V_{TM}	$I_{\text{TM}} = 12\text{A}$		—	—	1.5	V
Gate Non-Trigger Voltage		V_{GD}	$V_{\text{D}} = 800\text{V}$, $T_{\text{c}} = 125^{\circ}\text{C}$		0.2	—	—	V
Holding Current		I_{H}	$V_{\text{D}} = 12\text{V}$, $I_{\text{TM}} = 1\text{A}$		—	—	50	mA
Thermal Resistance		$R_{\text{th}} (\text{j-c})$	Junction to Case, AC		—	—	3.6	$^{\circ}\text{C} / \text{W}$
Critical Rate of Rise of Off-State Voltage		dv / dt	$V_{\text{DRM}} = 800\text{V}$, $T_{\text{j}} = 125^{\circ}\text{C}$ Exponential Rise		—	300	—	$\text{V} / \mu\text{s}$
Critical Rate of Rise of Off-State Voltage at Commutation		$(\text{dv} / \text{dt})_{\text{c}}$	$V_{\text{DRM}} = 400\text{V}$, $T_{\text{j}} = 125^{\circ}\text{C}$ $(\text{di} / \text{dt})_{\text{c}} = -4.5\text{A} / \text{ms}$		10	—	—	$\text{V} / \mu\text{s}$

MARKING

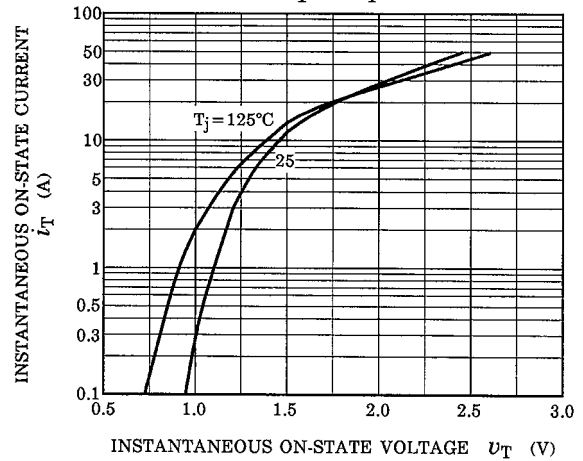


NUMBER	SYMBOL		MARK
* 1	TOSHIBA PRODUCT MARK		
* 2	TYPE	SM8LZ47	M8LZ47
* 3	Lot Number  Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

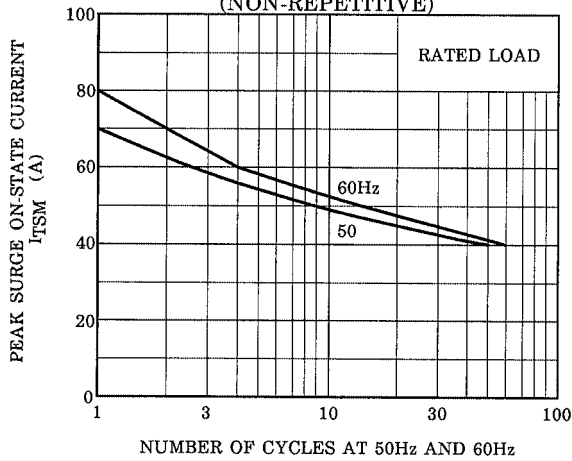
GATE TRIGGER CHARACTERISTIC



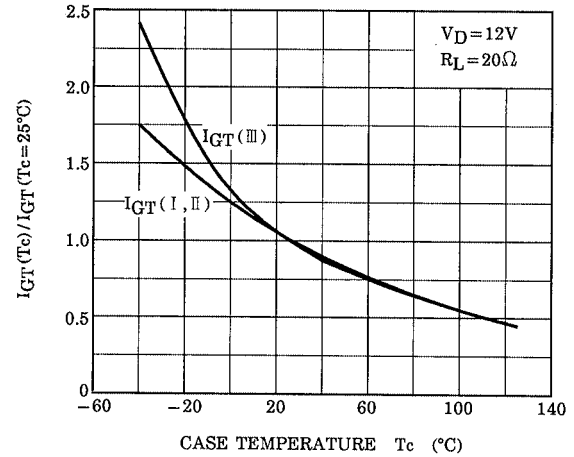
$i_T - v_T$



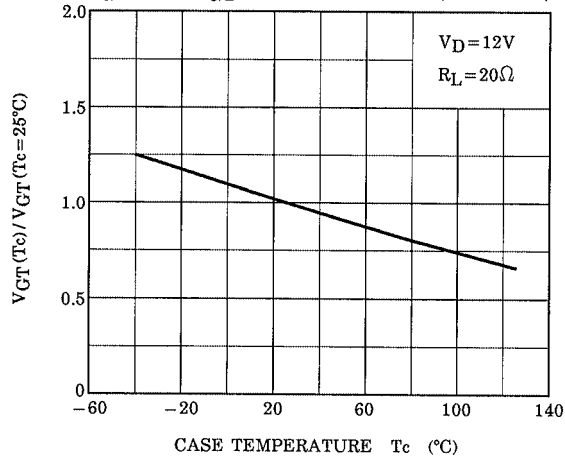
SURGE ON-STATE CURRENT (NON-REPETITIVE)



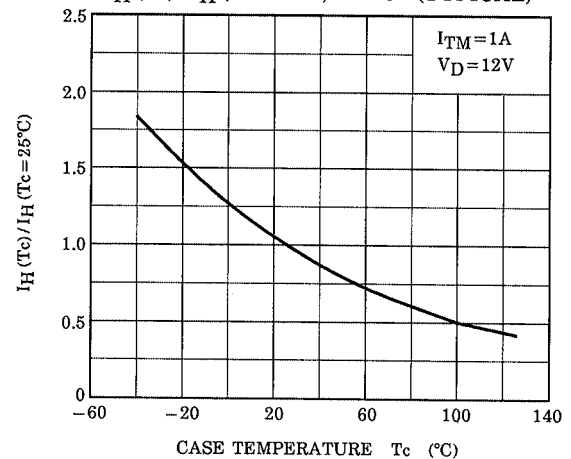
$I_{GT}(T_c) / I_{GT}(T_c = 25^\circ C) - T_c$ (TYPICAL)

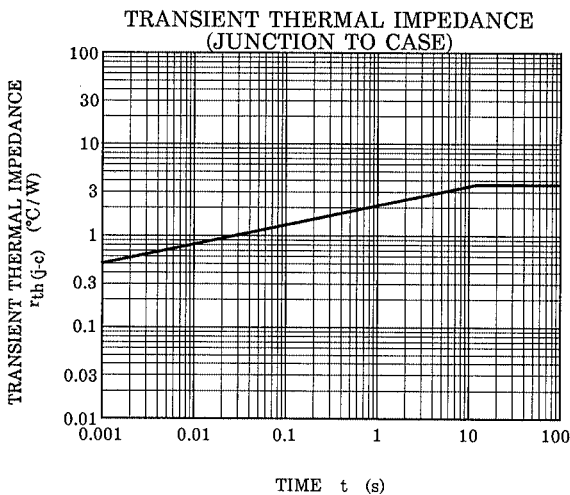
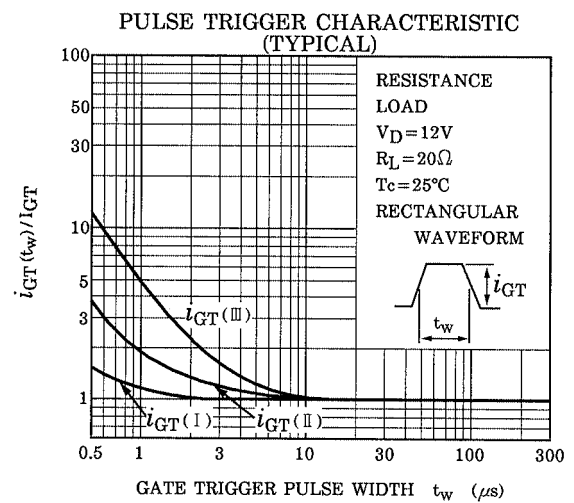
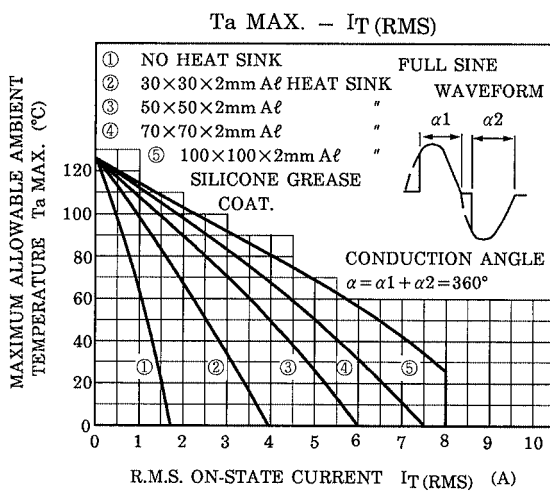
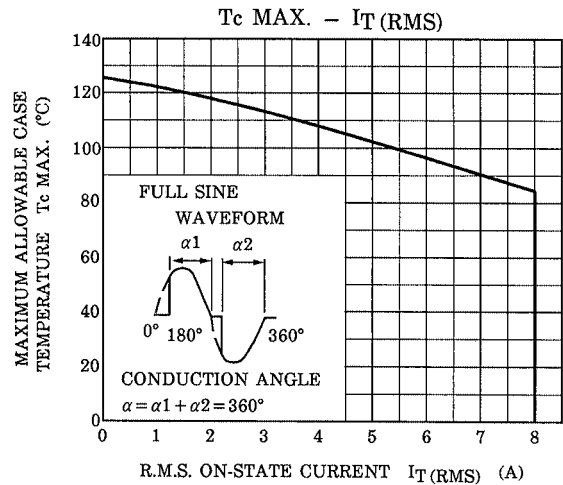
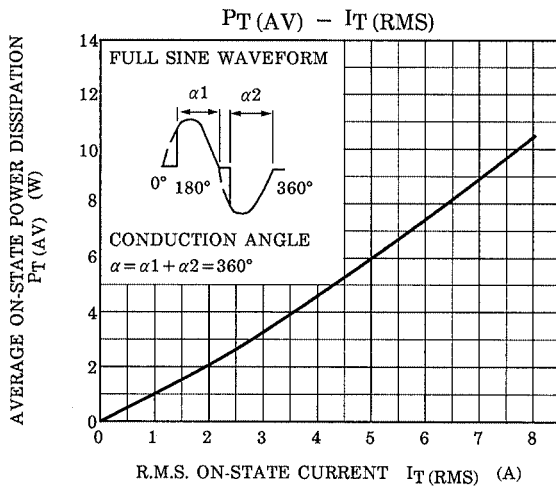


$V_{GT}(T_c) / V_{GT}(T_c = 25^\circ C) - T_c$ (TYPICAL)



$I_H(T_c) / I_H(T_c = 25^\circ C) - T_c$ (TYPICAL)





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