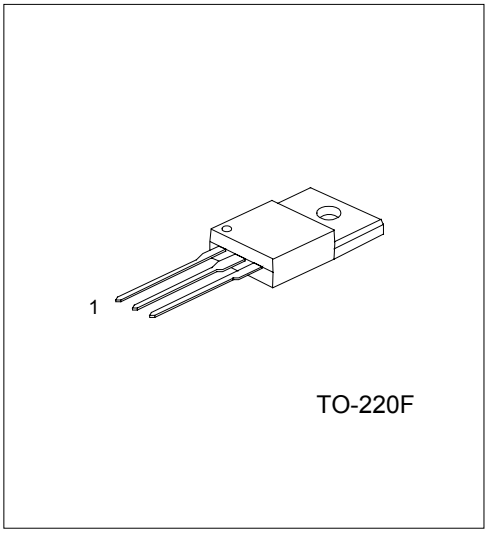
U12JZ47/A

TRIAC

HIGH COMMUTATING TRIAC



TO-220F

*Pb-free plating product number:
U12JZ47L/U12JZ47AL

■ DESCRIPTION

The **U12JZ47/A** is a bi-directional, silicon planar type triac in full plastic pack for AC power control applications.

■ FEATURES

* Repetitive Peak off-State Voltage: V_{DRM} = 400, 600V
* R.M.S On-State Current: $I_{T\ (RMS)}$ = 12A
* High Commutating (dv / dt)
* Isolation Voltage: V_{Isol} = 1500V AC

■ PIN CONFIGURATION

PIN	PIN NAME	DESCRIPTION
1	MT1	Terminal 1
2	MT2	Terminal 2
3	Gate	Gate Terminal

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Pn/Sn	Lead free		
U12JZ47-TF3-T	U12JZ47L-TF3-T	TO-220F	Tube
U12JZ47A-TF3-T	U12JZ47AL-TF3-T		

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■ ABSOLUATE MAXIUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	U12JZ47-4 U12JZ47A-4	V_{DRM}	400	V
	U12JZ47-6 U12JZ47A-6		600	
RMS On-State Current (Commercial Frequency, Full Sine Waveform T_C = 72℃)		$I_{T\ (RMS)}$	12	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	50Hz	I_{TSM}	120	A
	60Hz		132	
I^2t Limit Value		I^2t	72	A^2s
Critical Rate of Rise of On-State Current (Note *)		di / dt	50	A/μs
Peak Gate Power Dissipation		P_{GM}	5	W
Average Gate Power Dissipation		$P_{G\ (AV)}$	0.5	V
Peak Gate Voltage		V_{GM}	10	V
Peak Gate Current		I_{GM}	2	A
Junction Temperature		T_J	125	℃
Storage Temperature Range		T_{STG}	-40 ~ +150	℃
Isolation Voltage (AC, t = 1min.)		VIsol	1500	V

Note: * di/dt test condition V_{DM}=0.5×Rated, I_{TM}≦17A, tgw≧10μs, tgr≦250ns, igp=I_{GT}×2.0.

■ ELECTRICAL CHARACTERISTICS (Ta= 25℃, unless otherwise specified)

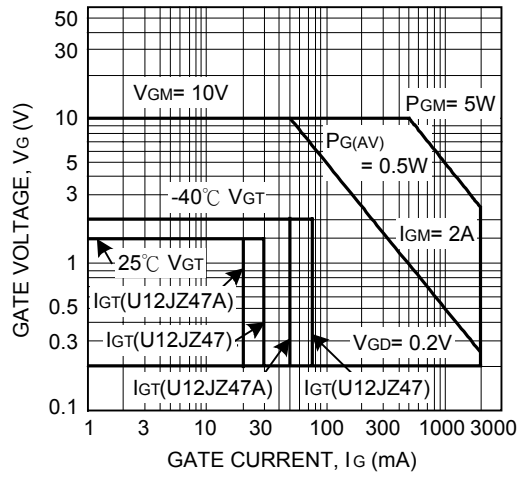
PARAMETER			SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Gate Trigger Voltage		I	V_{GT}	V_D = 12V R_L = 20Ω	MT2 (+), Gate (+)			1.5	V
		II			MT2 (+), Gate (-)			1.5	
		III			MT2 (-), Gate (-)			1.5	
		IV			MT2 (-), Gate (+)				
Gate Trigger Current	U12JZ47	I	I_{GT}	V_D = 12V R_L = 20Ω	MT2 (+), Gate (+)			30	mA
		II			MT2 (+), Gate (-)			30	
		III			MT2 (-), Gate (-)			30	
		IV			MT2 (-), Gate (+)				
	U12JZ47A	I			MT2 (+), Gate (+)			20	
		II			MT2 (+), Gate (-)			20	
		III			MT2 (-), Gate (-)			20	
		IV			MT2 (-), Gate (+)				
Peak On-State Voltage			V_{TM}	I_{TM} = 17A				1.5	V
Gate Non-Trigger Voltage			V_{GD}	V_D = Rated, Tc = 125℃		0.2			V
Repetitive Peak Off−State Current			I_{DRM}	V_{DRM} = Rated				20	μA
Holding Current			I_H	V_D = 12V, I_{TM} = 1A				50	mA
Critical Rate of Rise of Off-State Voltage	U12JZ47		dv / dt	V_{DRM} = Rated, T_j = 125℃ Exponential Rise			300		V/μs
	U12JZ47A						200		
Critical Rate of Rise of Off-State Voltage at Commutation	U12JZ47		(dv / dt) c	V_{DRM} = 400V, T_j = 125℃ (di / dt) c = -6.5A / ms		10			V/μs
	U12JZ47A					4			

■ THERMAL DATA

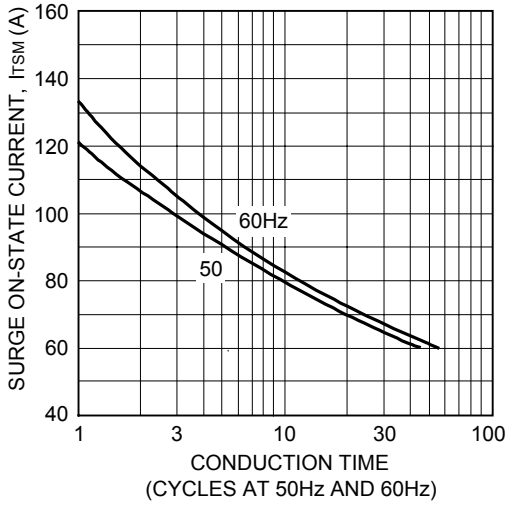
PARAMETER		SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Case	TO-220F	θ_{Jc}	3	℃/W

■ TYPICAL CHARACTERICS

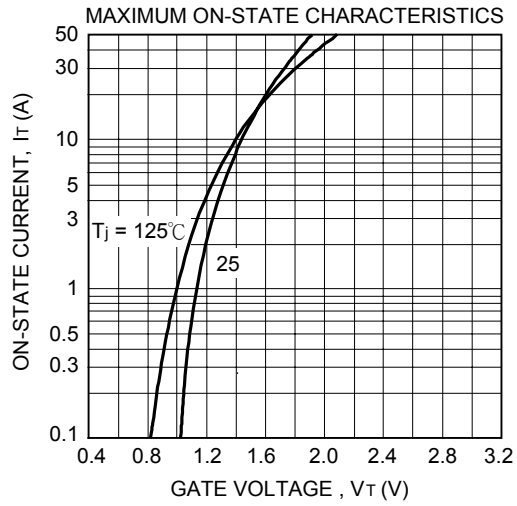
GATE TRIGGER CHARACTERISTIC



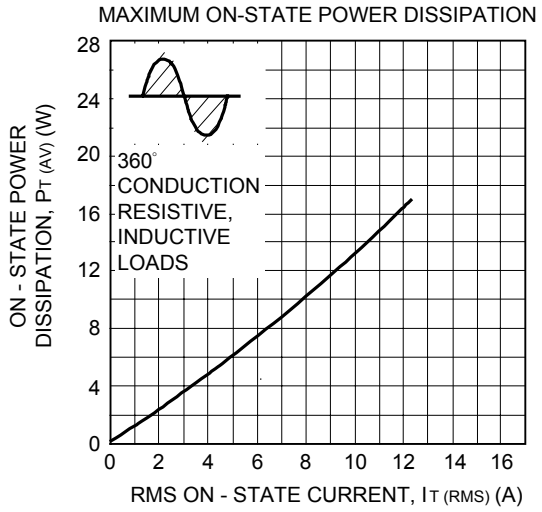
RATED SURGE ON - STATE CURRENT



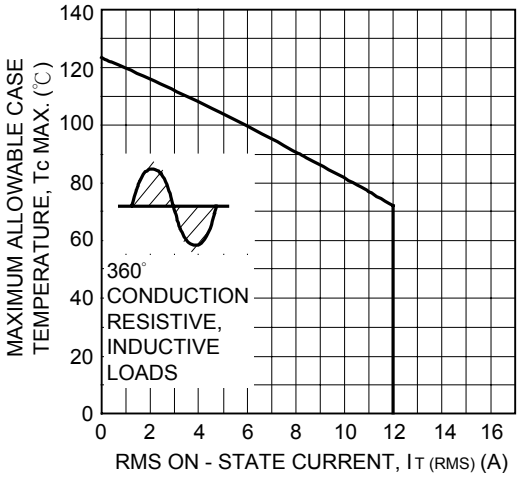
MAXIMUM ON-STATE CHARACTERISTICS



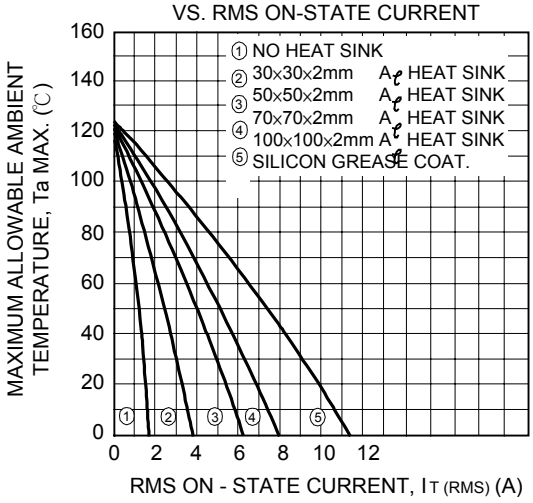
MAXIMUM ON-STATE POWER DISSIPATION



ALLOWABLE CASE TEMPERATURE
VS. RMS ON-STATE CURRENT

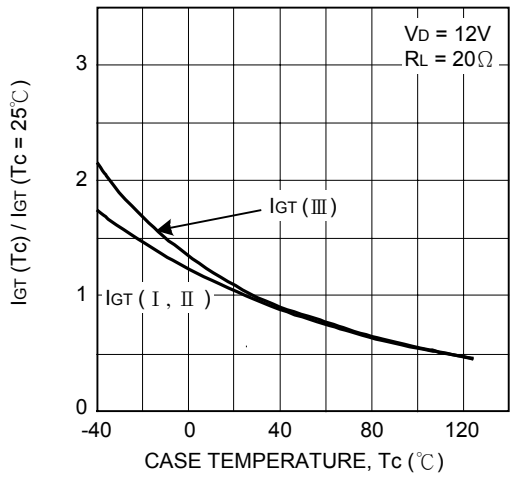


ALLOWABLE AMBIENT TEMPERATURE
VS. RMS ON-STATE CURRENT

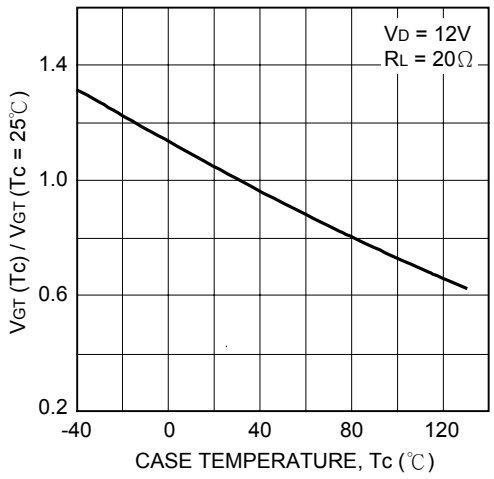


■ TYPICAL CHARACTERICS (Cont.)

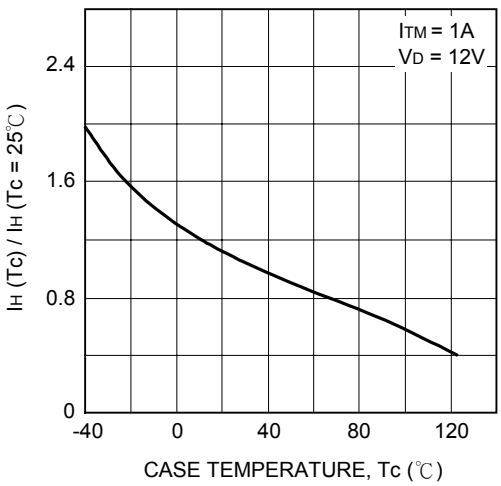
IGT (Tc) / IGT (Tc = 25℃) - Tc (TYPICAL)



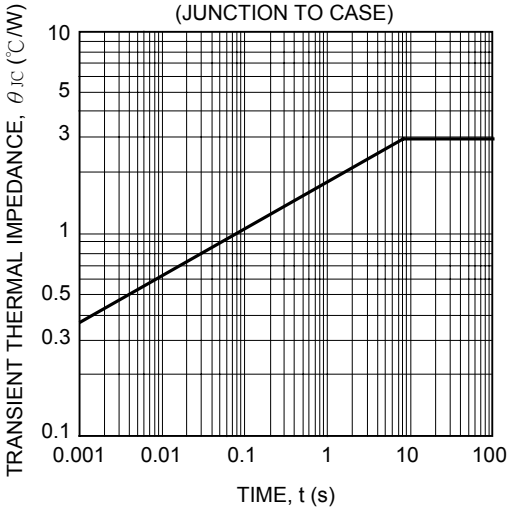
VGT (Tc) / VGT (Tc = 25℃) - Tc (TYPICAL)



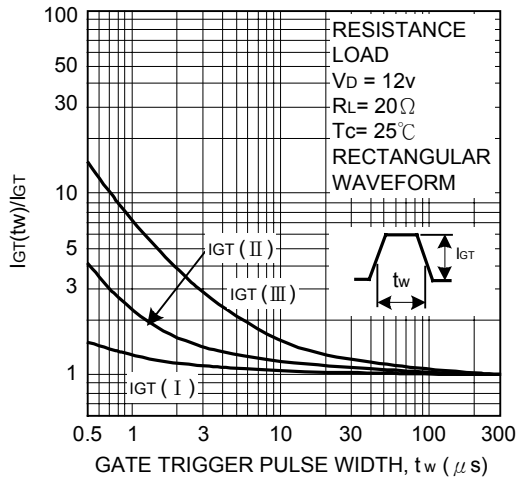
IH (Tc) / IH (Tc = 25℃) - Tc (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



PULSE TRIGGER CHARACTERISTIC (TYPICAL)



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