



U12JZ47/A

TRIAC

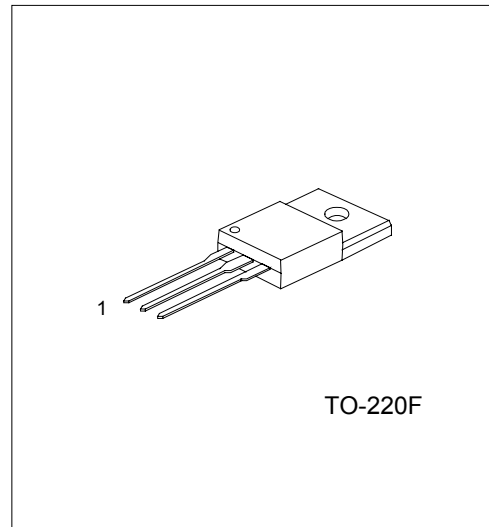
HIGH COMMUTATING TRIAC

■ 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



*Pb-free plating product number:
U12JZ47L/U12JZ47AL

■ 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		

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	U12JZ47-4	V_{DRM}	400	V
	U12JZ47A-4			
	U12JZ47-6		600	
	U12JZ47A-6			
RMS On-State Current (Commercial Frequency, Full Sine Waveform $T_c = 72^\circ\text{C}$)		$I_{\text{T (RMS)}}$	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	$\text{A}/\mu\text{s}$
Peak Gate Power Dissipation		P_{GM}	5	W
Average Gate Power Dissipation		$P_{\text{G (AV)}}$	0.5	V
Peak Gate Voltage		V_{GM}	10	V
Peak Gate Current		I_{GM}	2	A
Junction Temperature		T_{J}	125	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-40 ~ +150	$^\circ\text{C}$
Isolation Voltage (AC, $t = 1\text{min.}$)		V_{Isol}	1500	V

Note: * di/dt test condition $V_{\text{DM}}=0.5 \times \text{Rated}$, $I_{\text{TM}} \leq 17\text{A}$, $t_{\text{gw}} \geq 10\mu\text{s}$, $t_{\text{gr}} \leq 250\text{ns}$, $igp = I_{\text{GT}} \times 2.0$.

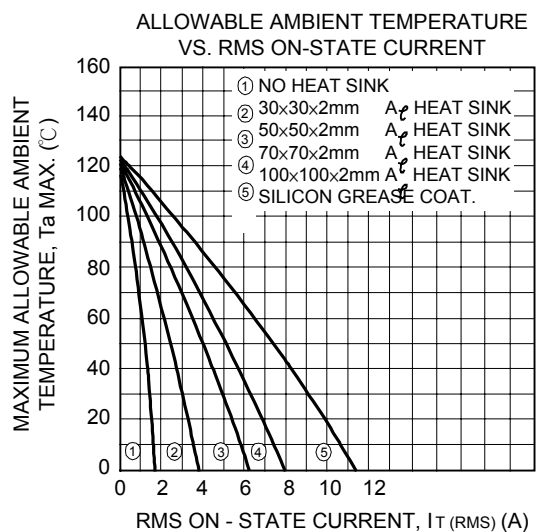
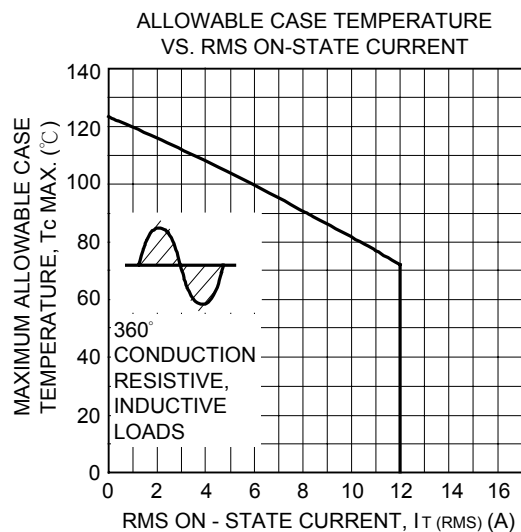
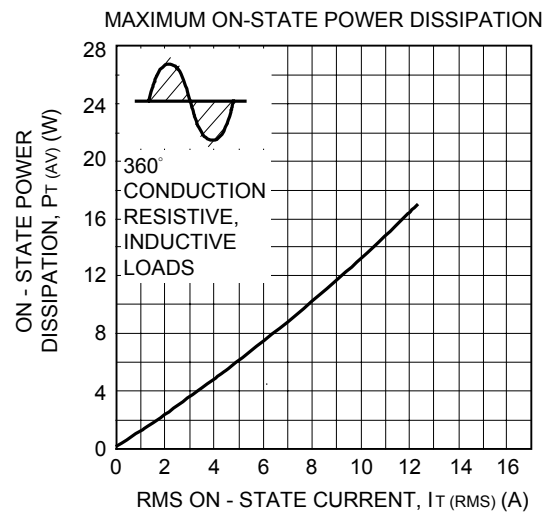
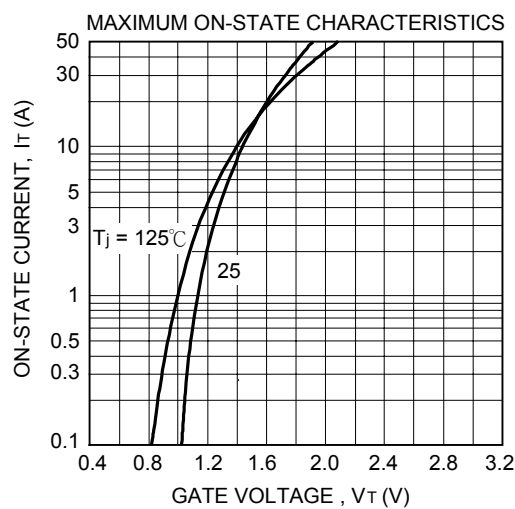
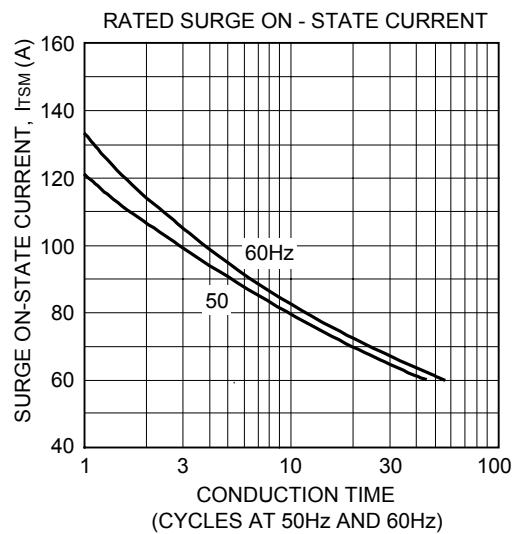
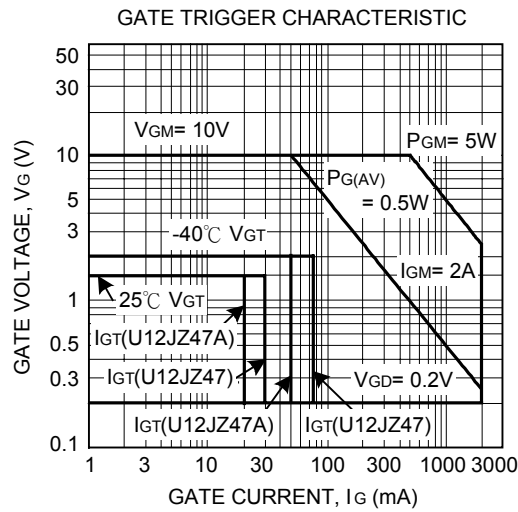
■ ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, unless otherwise specified)

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, T _c = 125°C		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°C			300		V/μs	
	U12JZ47A		Exponential Rise			200			
Critical Rate of Rise of Off-State Voltage at Commutation	U12JZ47	(dv / dt) c	V _{DRM} = 400V, T _j = 125°C		10			V/μs	
	U12JZ47A		(di / dt) c = -6.5A / ms		4				

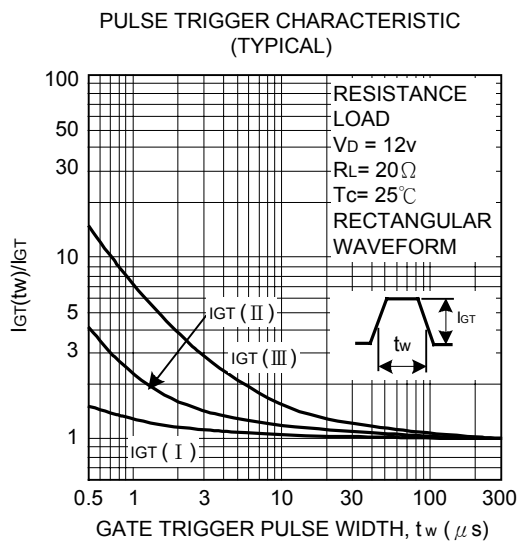
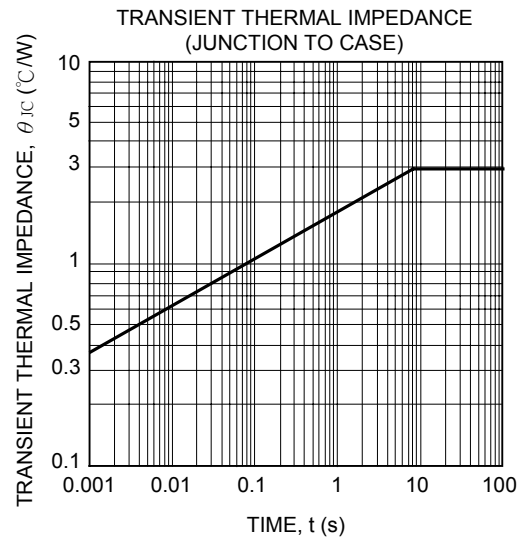
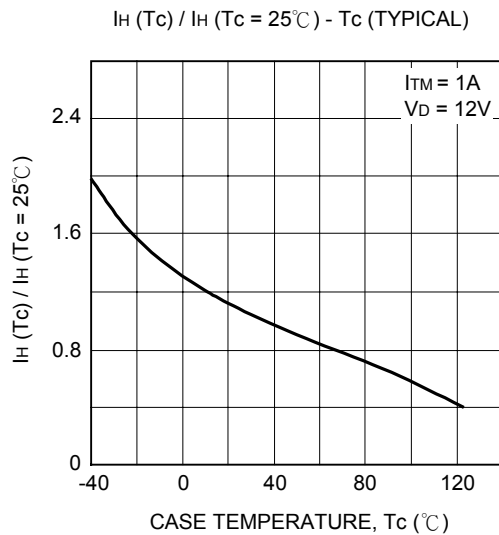
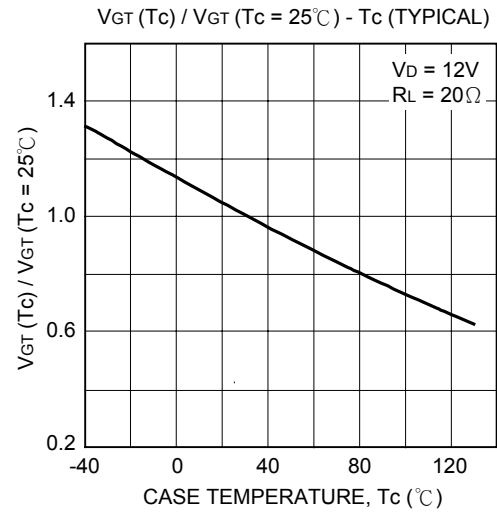
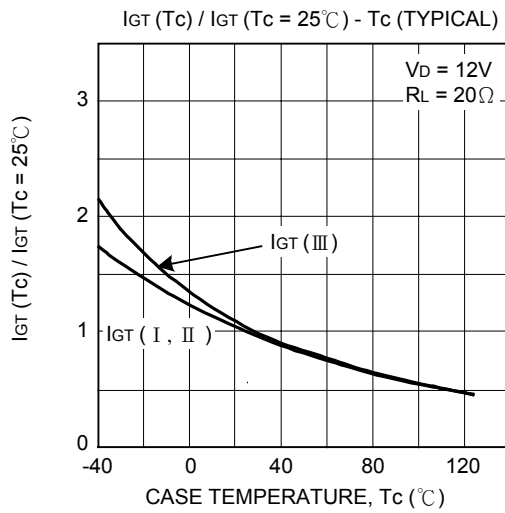
■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Case	θ_{Jc}	3	$^\circ\text{C}/\text{W}$

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.