



U12JZ47/A

TRIAC

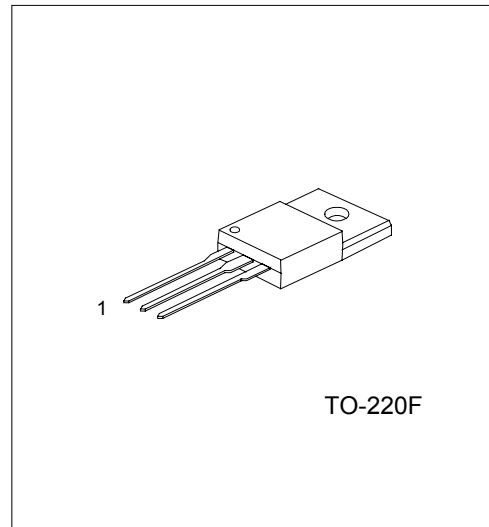
HIGH COMMUTATING TRIAC

■ 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 $T_C = 72^\circ\text{C}$)		$I_T(\text{RMS})$	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		$P_{G(AV)}$	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 $V_{DM}=0.5 \times \text{Rated}$, $I_{TM} \leq 17\text{A}$, $t_{gw} \geq 10\mu\text{s}$, $t_{gr} \leq 250\text{ns}$, $igp = I_{GT} \times 2.0$.

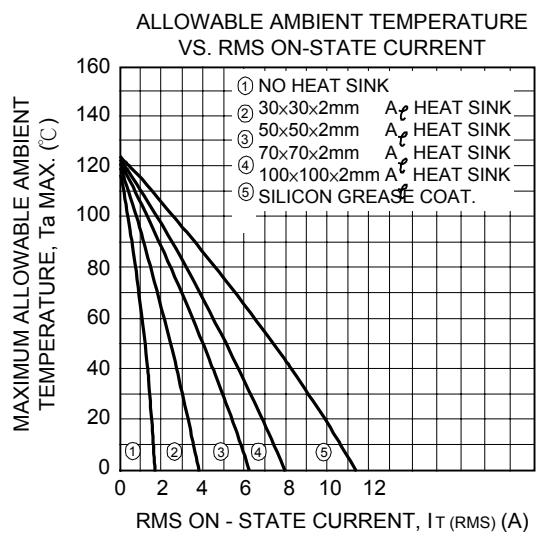
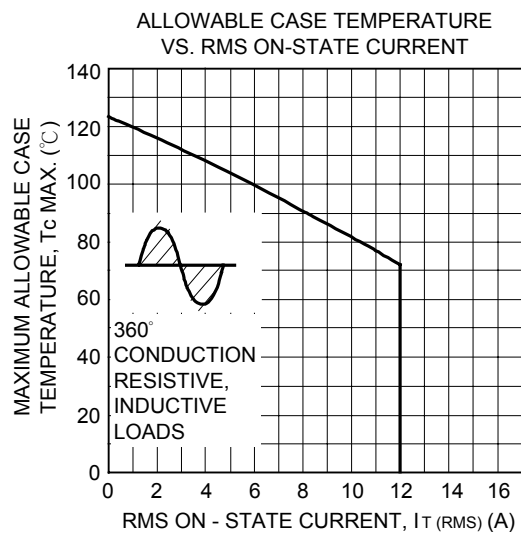
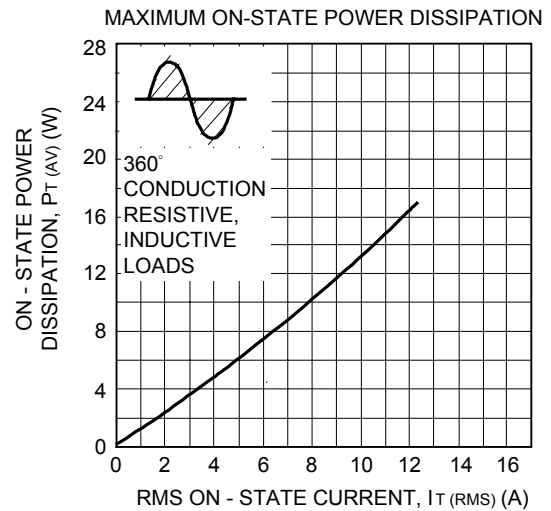
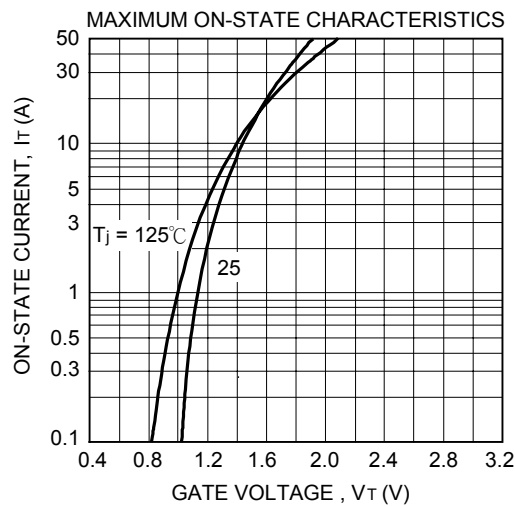
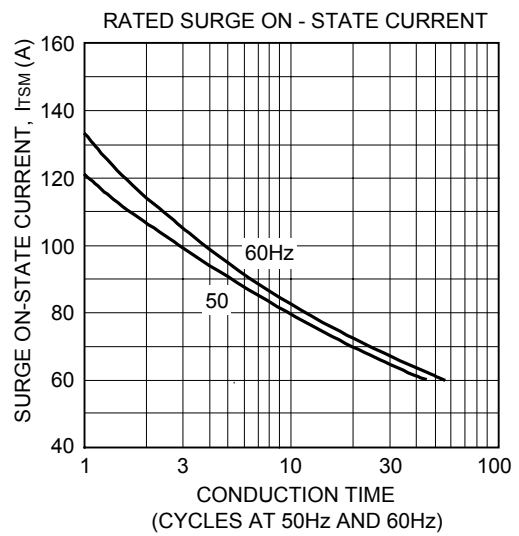
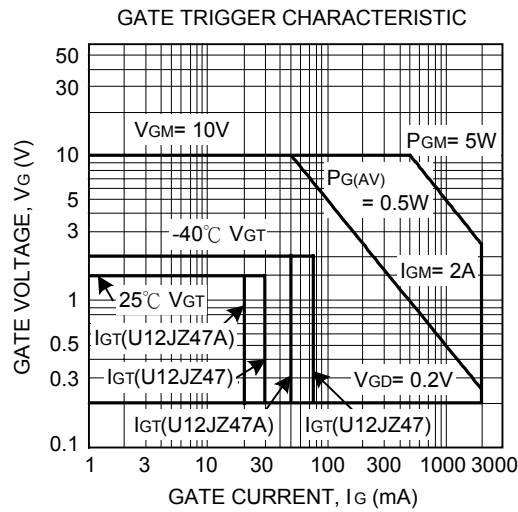
■ ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, unless otherwise specified)

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 (-)			20	
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				

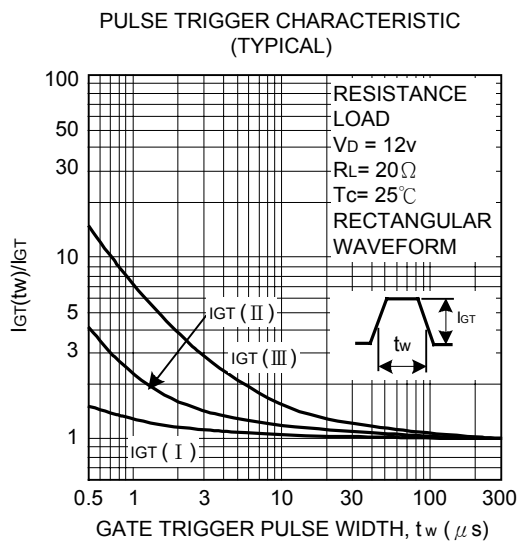
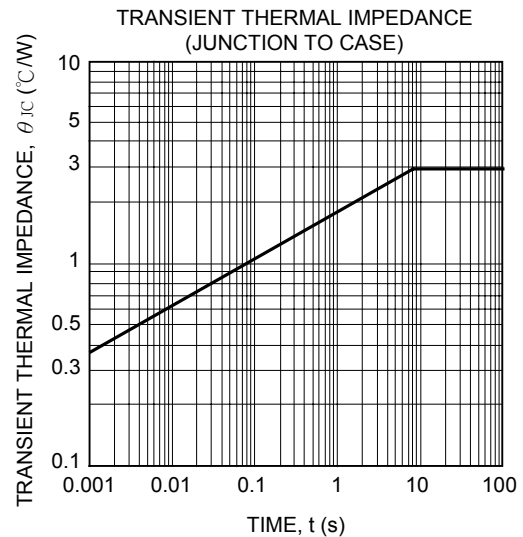
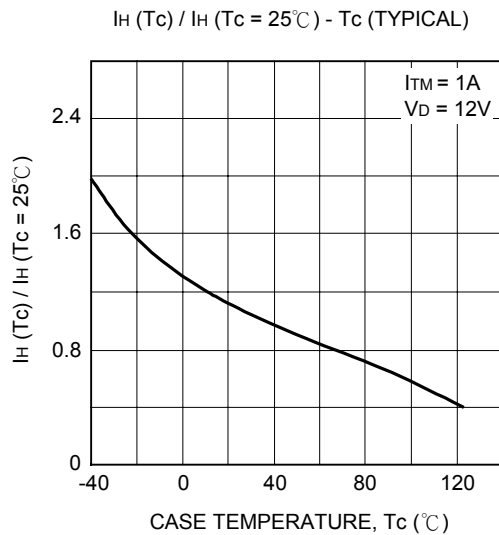
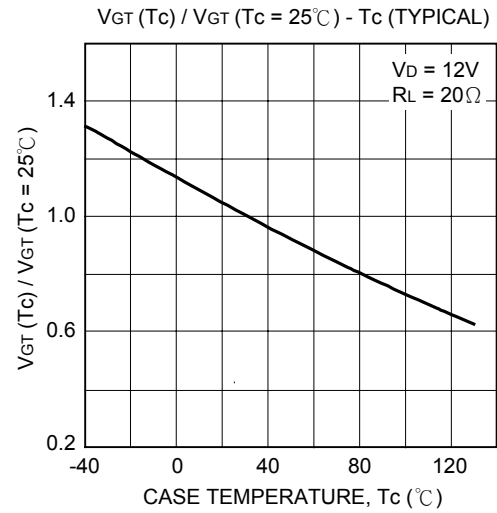
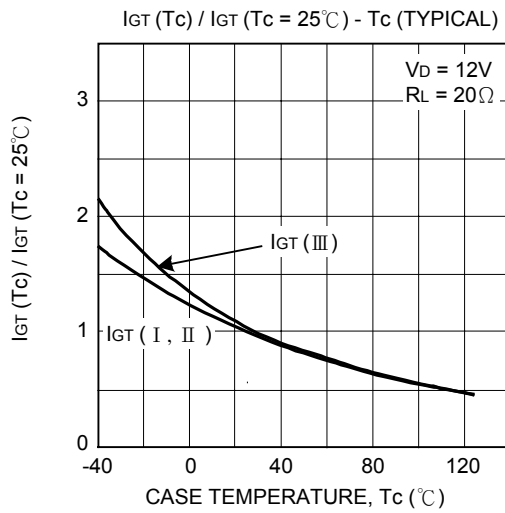
■ THERMAL DATA

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

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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