



UNISONIC TECHNOLOGIES CO.,

U12JZ47/A

TRIAC

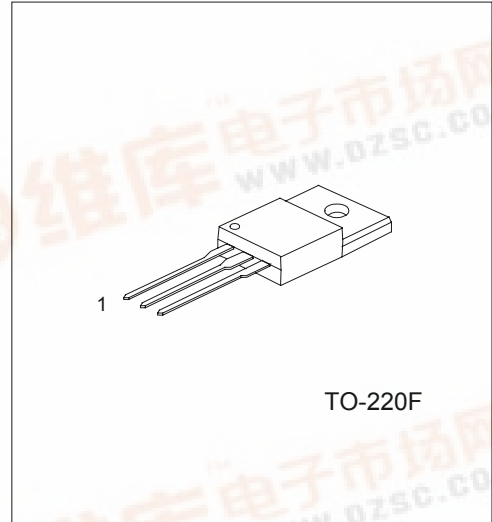
HIGH COMMUTATING TRIAC

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 $T_C = 72^\circ\text{C}$)		$I_{T(RMS)}$	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 = 1min.)		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)

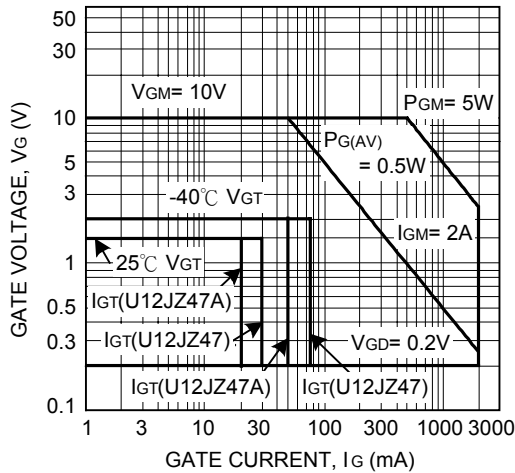
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT			
Gate Trigger Voltage	I	V_{GT}	$V_D = 12\text{V}$ $R_L = 20\Omega$	MT2 (+), Gate (+)		1.5	V			
	II							MT2 (+), Gate (-)	1.5	
	III							MT2 (-), Gate (-)	1.5	
	IV							MT2 (-), Gate (+)		
Gate Trigger Current	U12JZ47	I_{GT}	$V_D = 12\text{V}$ $R_L = 20\Omega$	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}	$I_{TM} = 17\text{A}$			1.5	V			
Gate Non-Trigger Voltage		V_{GD}	$V_D = \text{Rated}$, $T_C = 125^\circ\text{C}$	0.2			V			
Repetitive Peak Off-State Current		I_{DRM}	$V_{DRM} = \text{Rated}$			20	μA			
Holding Current		I_H	$V_D = 12\text{V}$, $I_{TM} = 1\text{A}$			50	mA			
Critical Rate of Rise of Off-State Voltage	U12JZ47	dv / dt	$V_{DRM} = \text{Rated}$, $T_j = 125^\circ\text{C}$ Exponential Rise		300		$\text{V}/\mu\text{s}$			
	U12JZ47A				200					
Critical Rate of Rise of Off-State Voltage at Commutation	U12JZ47	$(dv / dt)_c$	$V_{DRM} = 400\text{V}$, $T_j = 125^\circ\text{C}$ $(di / dt)_c = -6.5\text{A} / \text{ms}$		10		$\text{V}/\mu\text{s}$			
	U12JZ47A				4					

■ THERMAL DATA

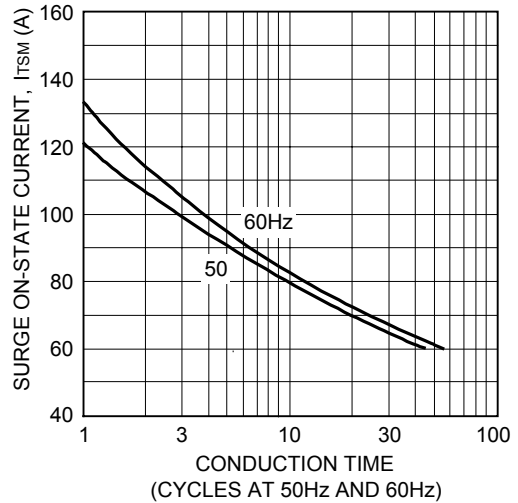
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Case	θ_{Jc}	3	$^\circ\text{C}/\text{W}$

■ TYPICAL CHARACTERISTICS

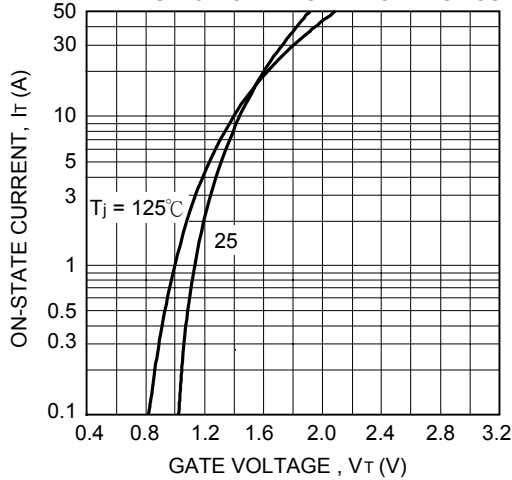
GATE TRIGGER CHARACTERISTIC



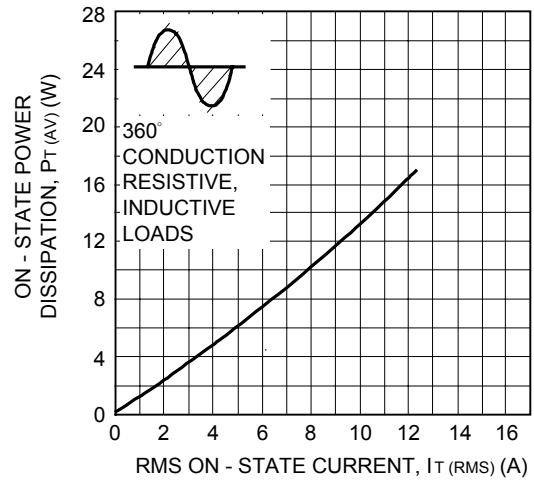
RATED SURGE ON - STATE CURRENT



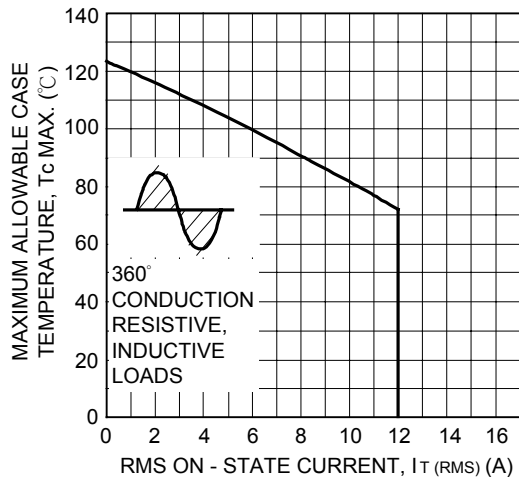
MAXIMUM ON-STATE CHARACTERISTICS



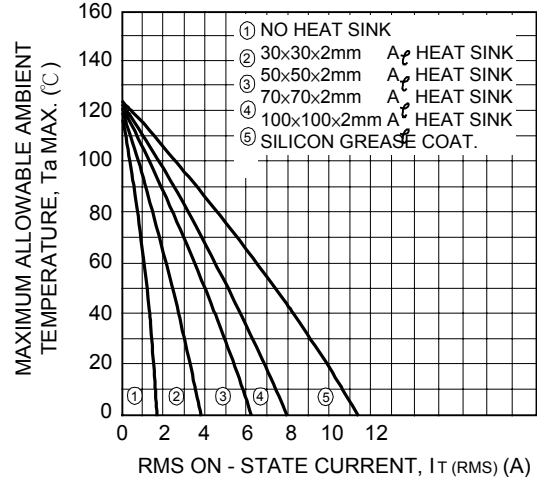
MAXIMUM ON-STATE POWER DISSIPATION



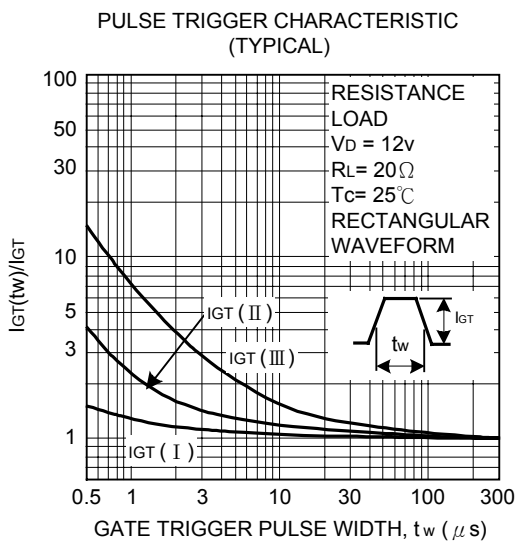
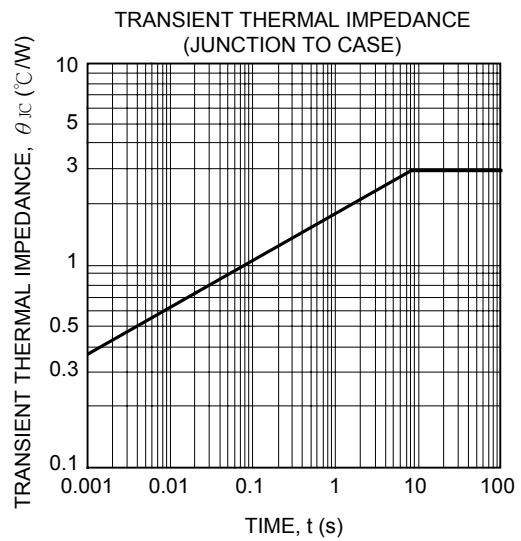
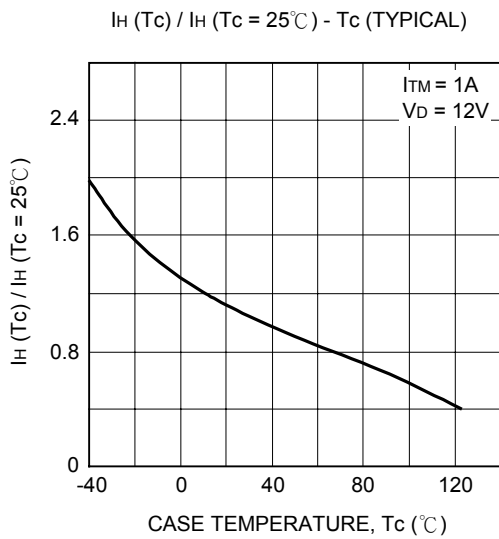
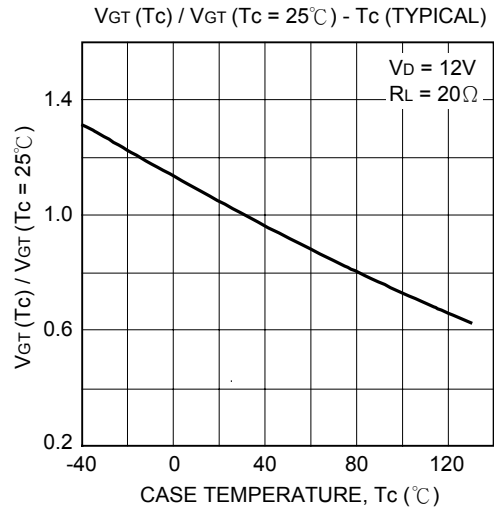
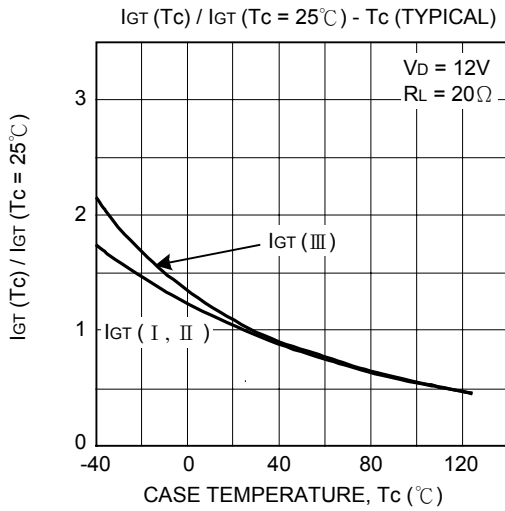
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



■ TYPICAL CHARACTERISTICS (Cont.)



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