



# UCR316CM/A

**TRIAC**

## TRIAC

### DESCRIPTION

The **UCR316CM/A** is isolated glass passivation type triac for medium power use.

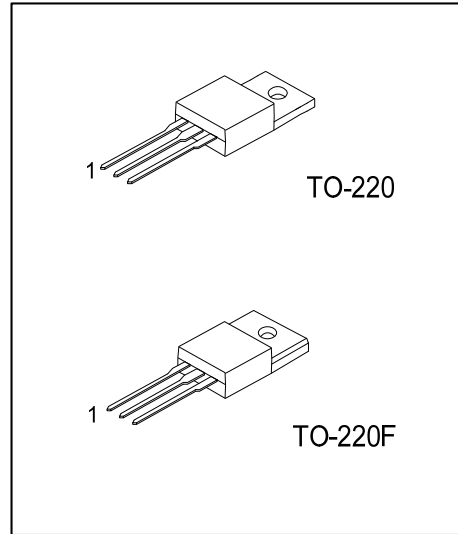
### FEATURES

- \* Repetitive Peak off-State Voltage:  $V_{DRM} = 400, 600V$
- \* R.M.S On-State Current:  $I_T (RMS) = 16A$
- \* High Commutating (dv / dt)

### APPLICATIONS

- \* Light Dimmer and Electric Flasher Unit.
- \* Household Electrical Equipment Control.
- \* Small Motor Control.
- \* Copy Machine.
- \* General Purpose Control Applications.

### ORDERING INFORMATION



Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UCR316CML-x-TA3-T	UCR316CMG-TA3-T	TO-220	MT1	MT2	G	Tube
UCR316CML-x-TF3-T	UCR316CMG-TF3-T	TO-220F	MT1	MT2	G	Tube
UCR316CMAL-x-TA3-T	UCR316CMAG-TA3-T	TO-220	MT1	MT2	G	Tube
UCR316CMAL-x-TF3-T	UCR316CMAG-TF3-T	TO-220F	MT1	MT2	G	Tube

Note: Pin Assignment: MT1: Terminal 1 MT2: Terminal 2 G: Gate

<p>UCR316CML-x-TA3-T</p> <p>(1) Packing Type (2) Package Type (3) <math>V_{DRM}, V_{DSM}</math> (4) Green Package</p>	<p>(1) T: Tube (2) TA3: TO-220, TF3: TO-220F (3) <math>V_{DRM}</math>: 4: 400V, 6: 600V; <math>V_{DSM}</math>: 4: 500V, 6: 720V (4) L: Lead Free, G: Halogen Free and Lead Free</p>
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### MARKING

UCR316CM	UCR316CMA
<p>UTC UCR316CM □ □ □ □ □ □ □ Lot Code ← → Data Code</p> <p>L: Lead Free G: Halogen Free</p>	<p>UTC UCR316CMA □ □ □ □ □ □ □ Lot Code ← → Data Code</p> <p>L: Lead Free G: Halogen Free</p>

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage (Note)	UCR316CM-4 UCR316CMA-4	$V_{DRM}$	400	V
	UCR316CM-6 UCR316CMA-6		600	
Non-Repetitive Peak Off-State Voltage (Note)	UCR316CM-4 UCR316CMA-4	$V_{DSM}$	500	V
	UCR316CM-6 UCR316CMA-6		720	
RMS On-State Current (Commercial Frequency, Full Sine Waveform $T_C=100^\circ\text{C}$ )		$I_{T(RMS)}$	16	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	50Hz	$I_{TSM}$	155	A
	60Hz		170	
$I^2t$ Limit Value		$I^2t$	121	$\text{A}^2\text{s}$
Peak Gate Power Dissipation		$P_{GM}$	5	W
Average Gate Power Dissipation		$P_{G(AV)}$	0.5	W
Peak Gate Voltage		$V_{GM}$	10	V
Peak Gate Current		$I_{GM}$	2	A
Junction Temperature		$T_j$	125	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-40 ~ +150	$^\circ\text{C}$

Note: Gate Open.

### ■ THERMAL DATA

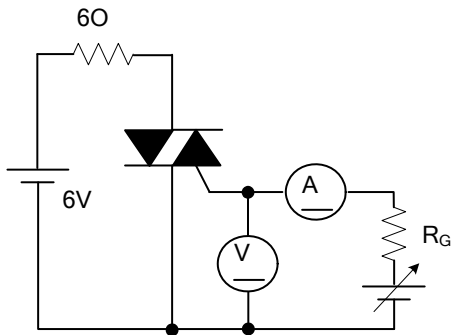
PARAMETER		SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Case	TO-220	$\theta_{JC}$	1.4	$^\circ\text{C/W}$
	TO-220F		3.0	$^\circ\text{C/W}$

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

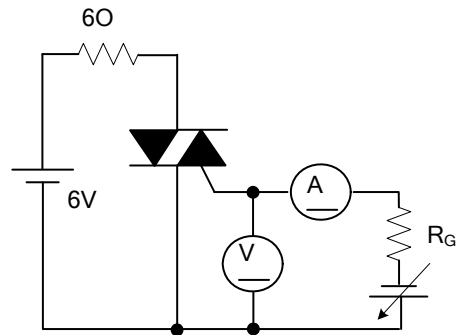
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Voltage	I II III IV	$V_{GT}$	$V_D=6\text{V}, R_L=6\Omega$	MT2 (+), Gate (+)		1.5	V
				MT2 (+), Gate (-)		1.5	
				MT2 (-), Gate (-)		1.5	
				MT2 (-), Gate (+)		-	
Gate Trigger Current	UCR316CM I II III IV	$I_{GT}$	$V_D=6\text{V}, R_L=6\Omega$	MT2 (+), Gate (+)		30	mA
				MT2 (+), Gate (-)		30	
				MT2 (-), Gate (-)		30	
				MT2 (-), Gate (+)		-	
	UCR316CMA I II III IV	MT2 (+), Gate (+)		20			
		MT2 (+), Gate (-)		20			
		MT2 (-), Gate (-)		20			
		MT2 (-), Gate (+)					
Peak On-State Voltage		$V_{TM}$	$I_{TM}=25\text{A}$			1.5	V
Gate Non-Trigger Voltage		$V_{GD}$	$T_j=125^\circ\text{C}, V_D=1/2V_{DRM}$	0.2			V
Repetitive Peak Off-State Current		$I_{DRM}$	$V_{DRM}$ Applied			2	mA
Holding Current		$I_H$	$V_D=12\text{V}, I_{TM}=1\text{A}$		25	50	mA
Critical Rate of Rise of Off-State Voltage	UCR316CM	$dv/dt$	$V_{DRM} = \text{Rated}, T_j = 125^\circ\text{C}$ Exponential Rise		300		V/ $\mu\text{s}$
	UCR316CMA				200		
Critical Rate of Rise of Off-State Voltage at Commutation	UCR316CM	$(dv/dt)_c$	$V_{DRM} = 400\text{V}, T_j = 125^\circ\text{C}$ $(di/dt)_c = -8\text{A/ms}$	10			V/ $\mu\text{s}$
	UCR316CMA			4			

■ TEST CIRCUITS

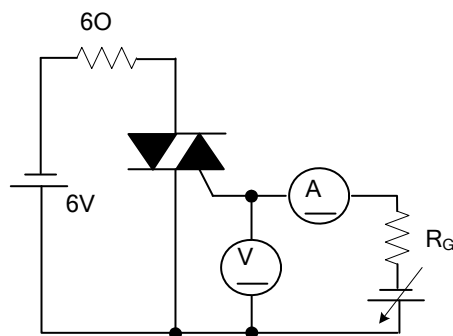
GATE TRIGGER CHARACTERISTICS



TEST PROCEDURE I

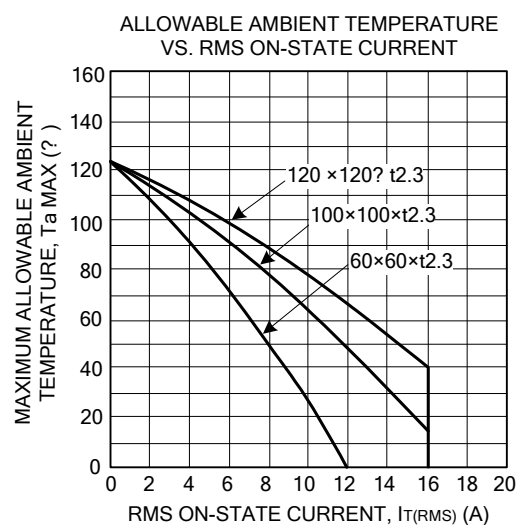
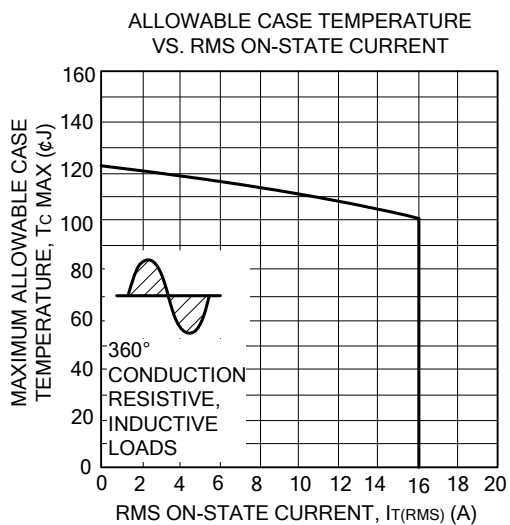
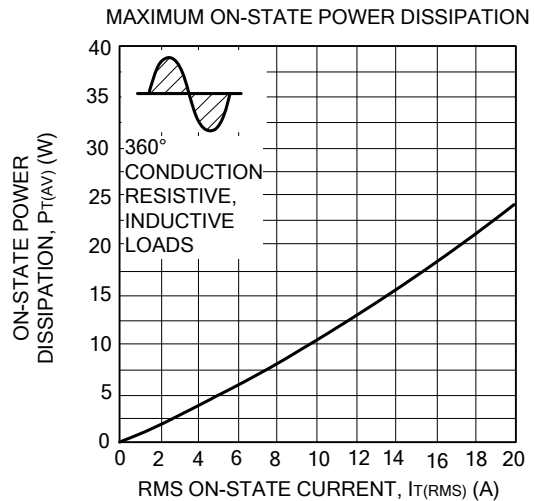
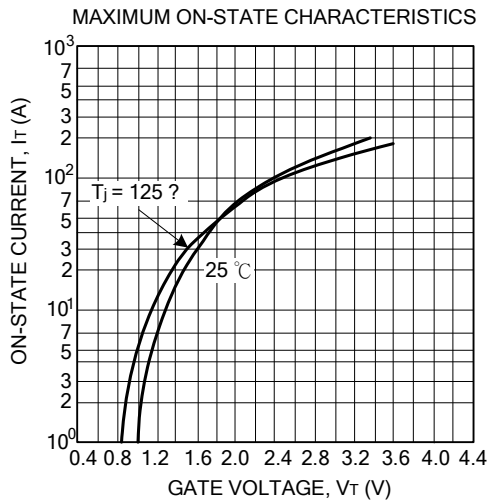
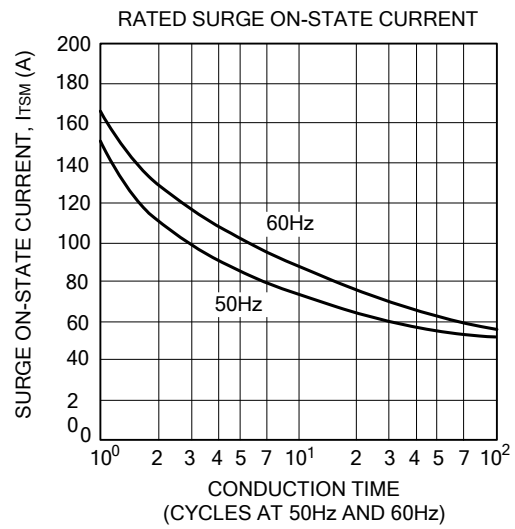
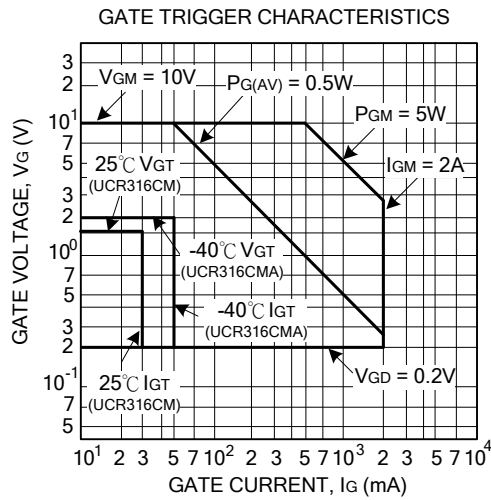


TEST PROCEDURE II

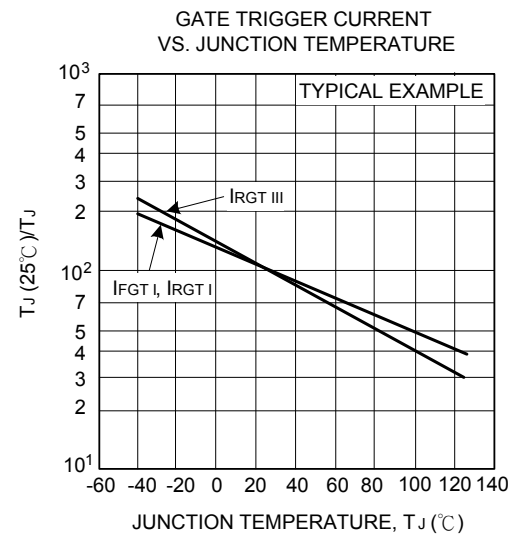
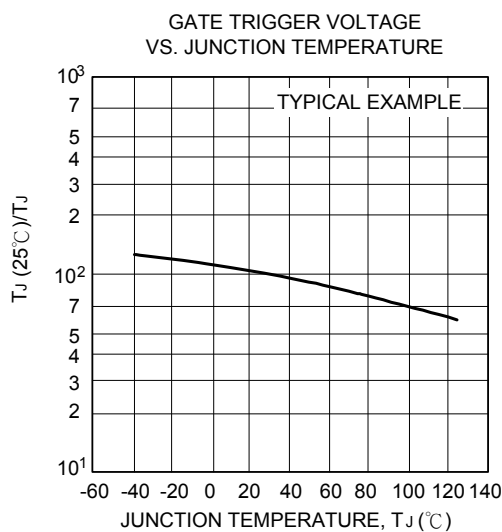
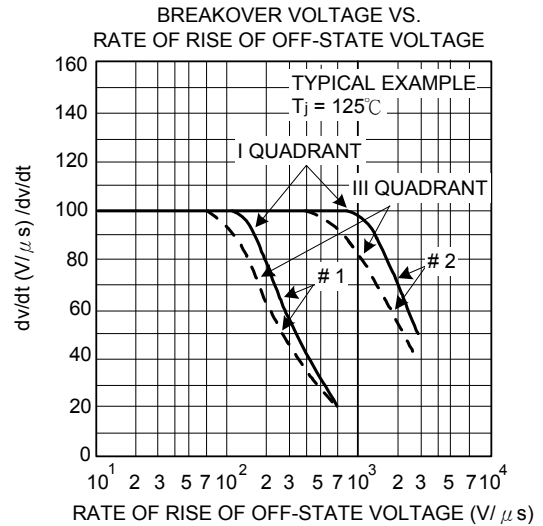
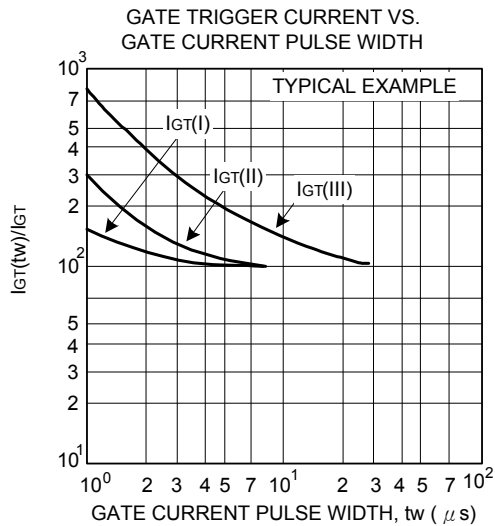
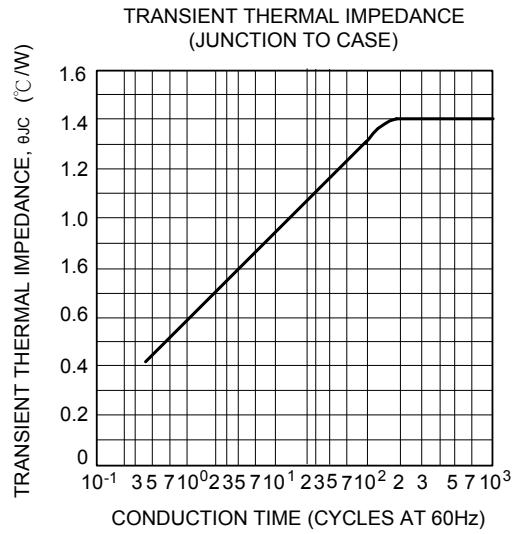
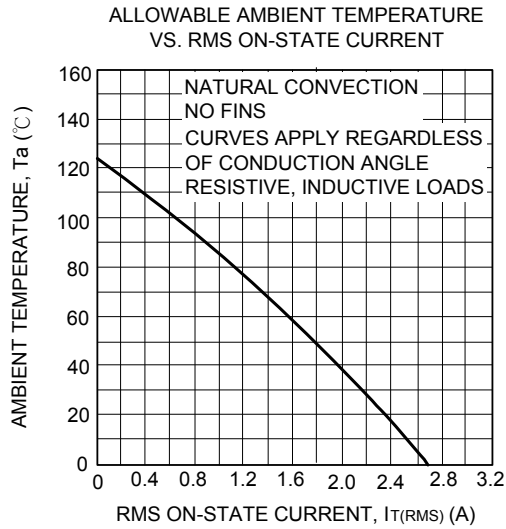


TEST PROCEDURE III

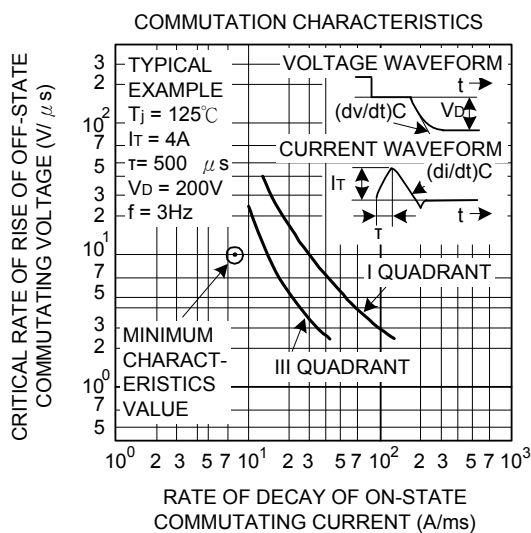
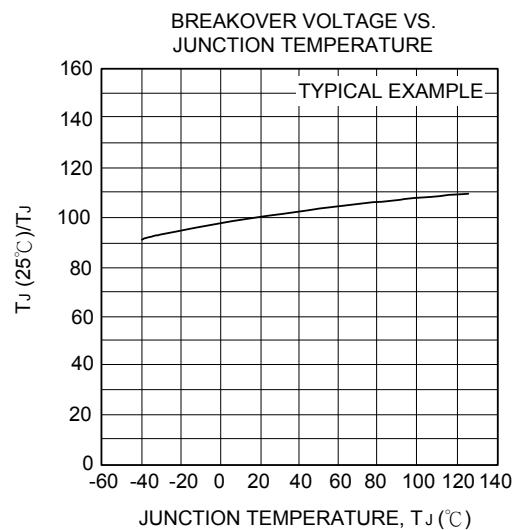
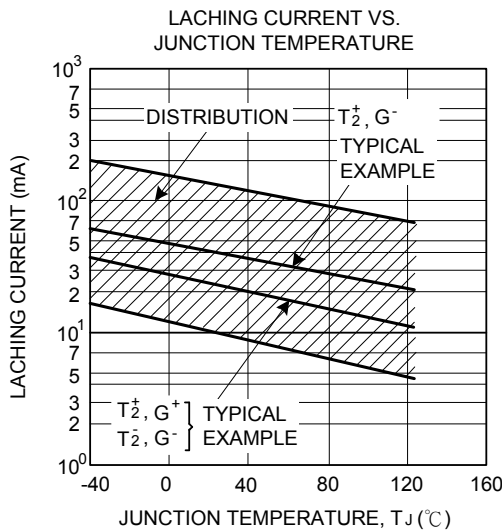
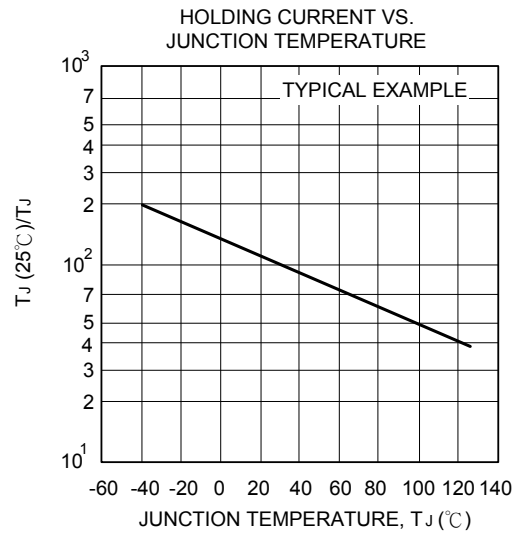
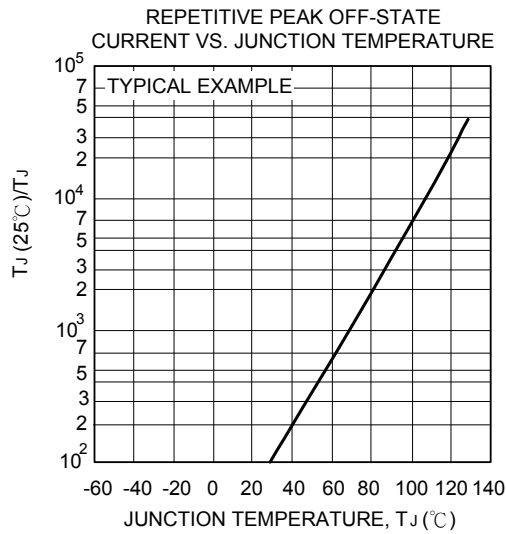
## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL CHARACTERISTICS(Cont.)



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