



# UCR16CM/A

**TRIAC**

## TRIAC

### ■ DESCRIPTION

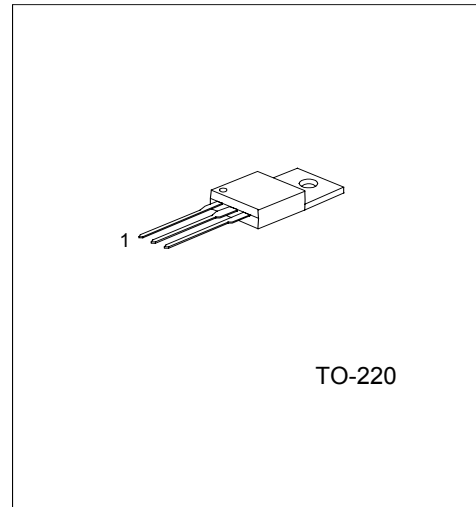
The **UCR16CM/A** is isolated, glass passivation type triac in full plastic TO-220F package for medium power use.

### ■ 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.



\*Pb-free plating product number:  
UCR16CML/UCR16CMAL

### ■ PIN CONFIGURATION

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

### ■ ORDERING INFORMATION

Ordering Number		Package	Packing
Normal	Lead free		
UCR16CM-TA3-T	UCR16CML-TA3-T	TO-220	Tube
UCR16CMA-TA3-T	UCR16CMAL-TA3-T		

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage <sup>Note *</sup>	UCR16CM-4 UCR16CMA-4	$V_{DRM}$	400	V
	UCR16CM-6 UCR16CMA-6		600	
Non-Repetitive Peak Off-State Voltage <sup>Note *</sup>	UCR16CM-4 UCR16CMA-4	$V_{DSM}$	500	V
	UCR16CM-6 UCR16CMA-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.

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

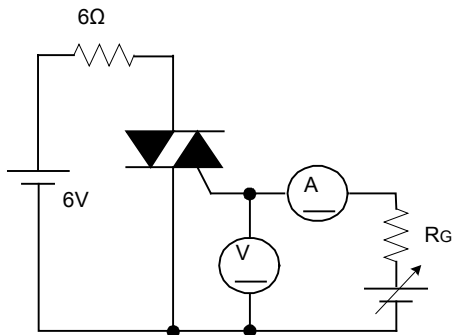
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT			
Gate Trigger Voltage	I	$V_{GT}$	$V_D=6\text{V}$ $R_L=6\Omega$	MT2 (+), Gate (+)		1.5	V			
	II							MT2 (+), Gate (-)		
	III							MT2 (-), Gate (-)		
	IV							MT2 (-), Gate (+)		
Gate Trigger Current	UCR16CM	$I_{GT}$	$V_D=6\text{V}$ $R_L=6\Omega$	MT2 (+), Gate (+)		30	mA			
								II	MT2 (+), Gate (-)	
								III	MT2 (-), Gate (-)	
								IV	MT2 (-), Gate (+)	
	UCR16CMA							I	MT2 (+), Gate (+)	20
								II	MT2 (+), Gate (-)	20
								III	MT2 (-), Gate (-)	20
								IV	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	UCR16CM	dv / dt	$V_{DRM} = \text{Rated}$ , $T_j = 125^\circ\text{C}$ Exponential Rise		300		V/ $\mu\text{s}$			
	UCR16CMA				200					
Critical Rate of Rise of Off-State Voltage at Commutation	UCR16CM	(dv / dt) c	$V_{DRM} = 400\text{V}$ , $T_j = 125^\circ\text{C}$ (di / dt) c = -8A / ms	10			V/ $\mu\text{s}$			
	UCR16CMA			4						

### ■ THERMAL DATA

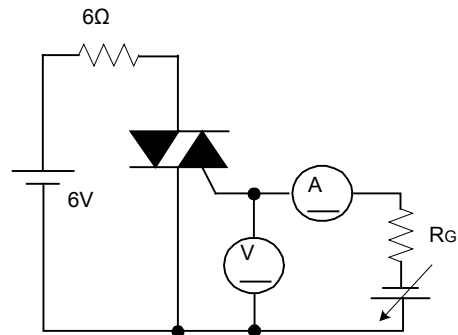
PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Case	TO-220F $\theta_{Jc}$	3	$^\circ\text{C}/\text{W}$

■ TEST CIRCUITS

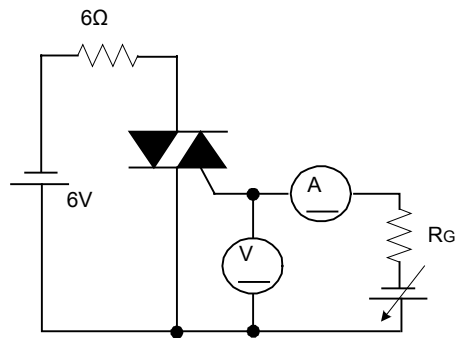
GATE TRIGGER CHARACTERISTICS



TEST PROCEDURE I



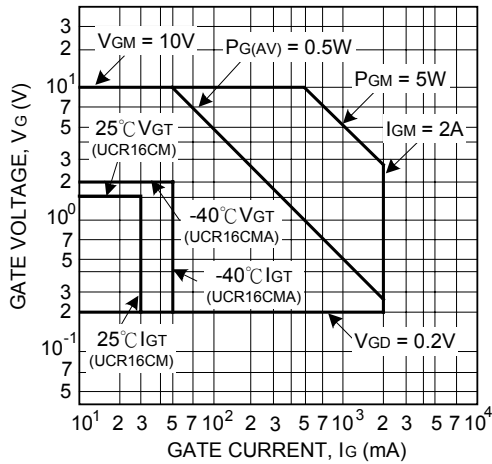
TEST PROCEDURE II



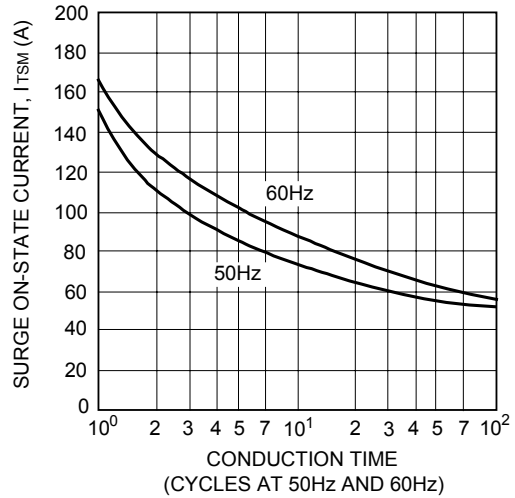
TEST PROCEDURE III

## TYPICAL CHARACTERISTICS

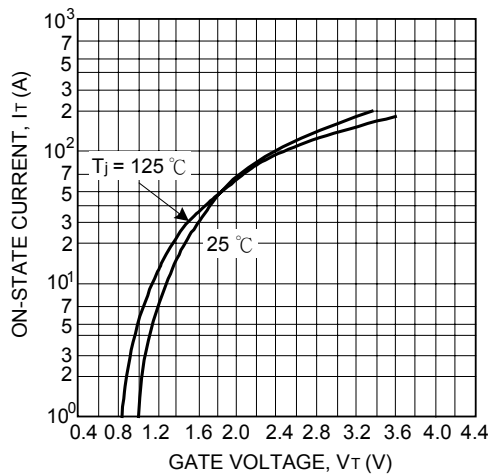
GATE TRIGGER CHARACTERISTICS



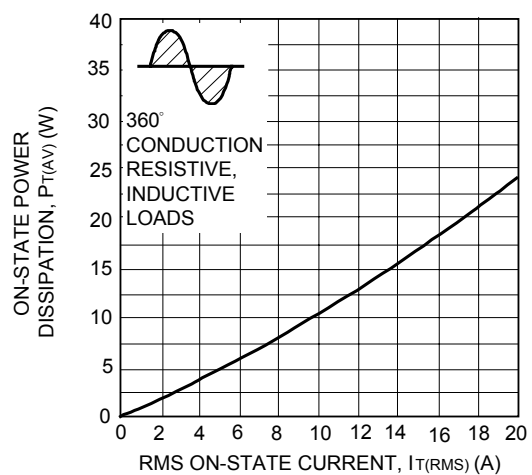
RATED SURGE ON-STATE CURRENT



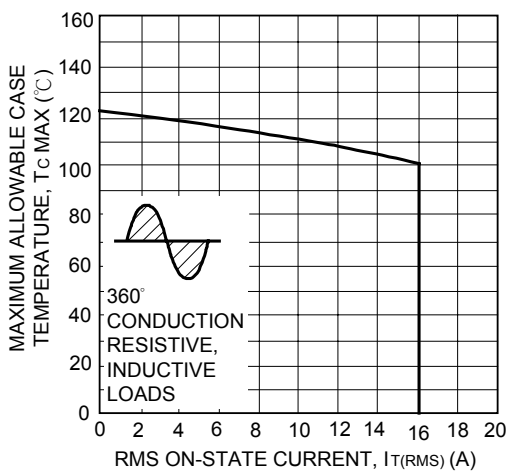
MAXIMUM ON-STATE CHARACTERISTICS



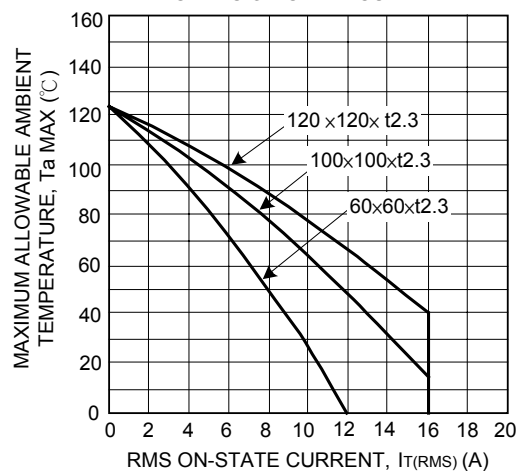
MAXIMUM ON-STATE POWER DISSIPATION



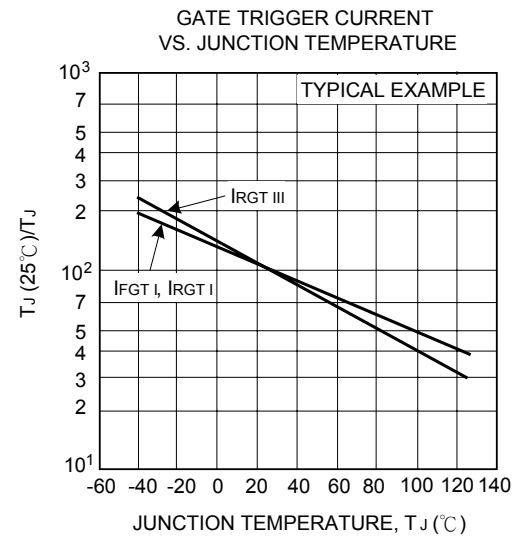
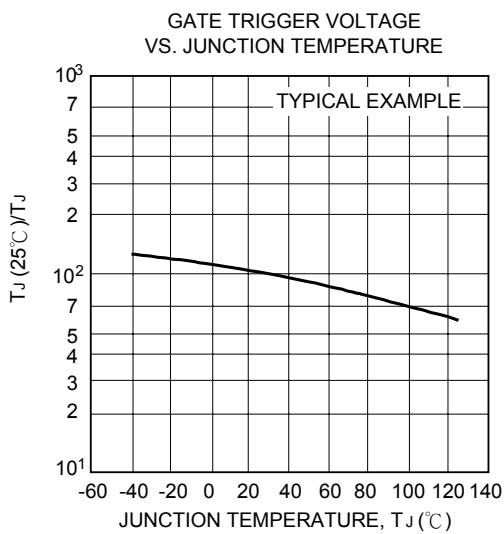
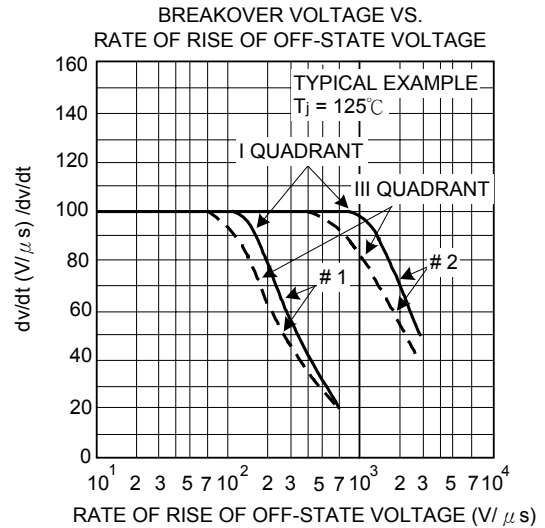
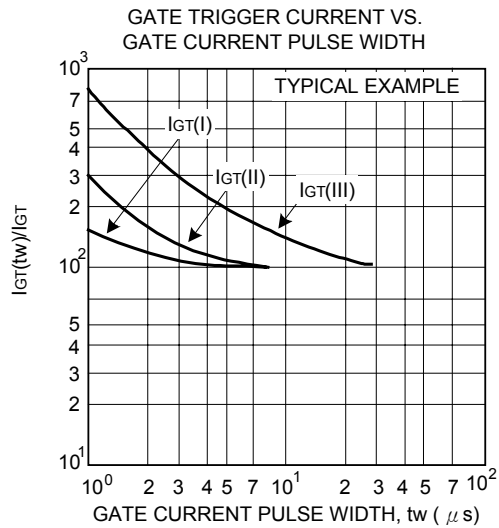
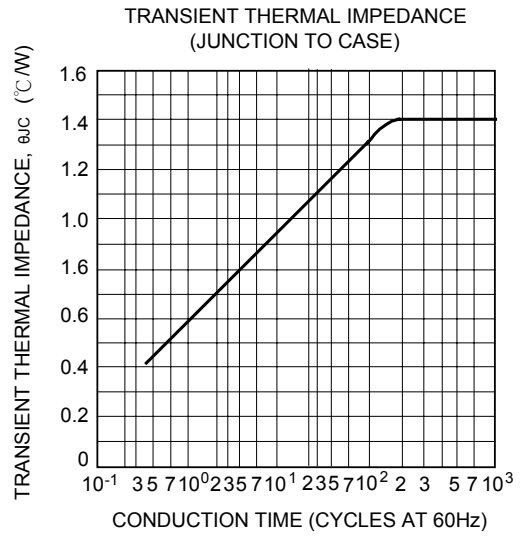
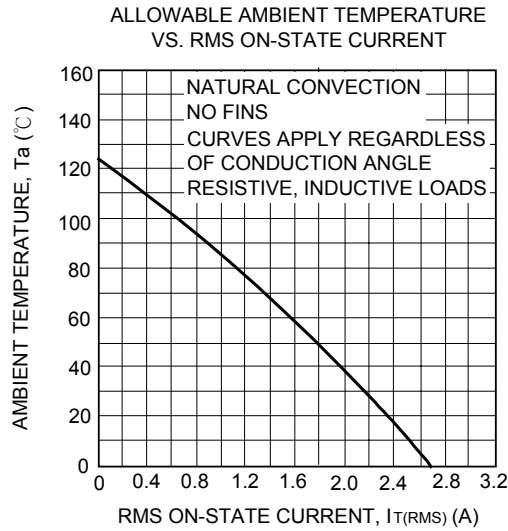
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



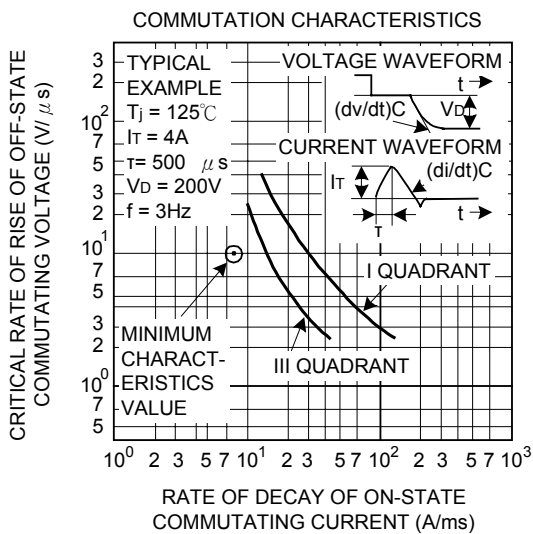
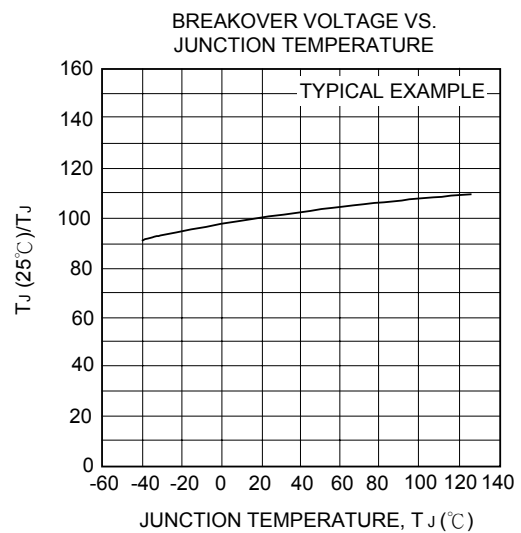
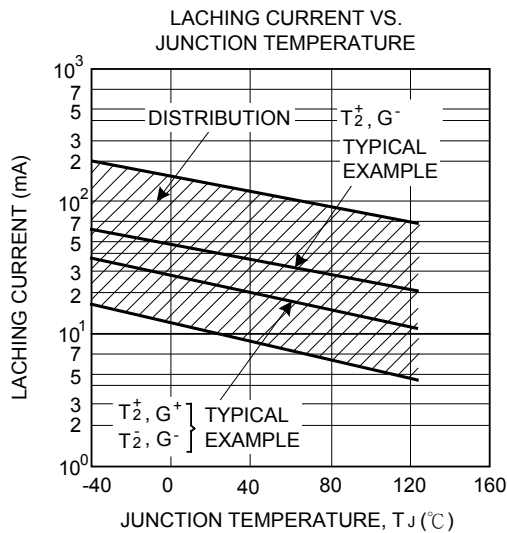
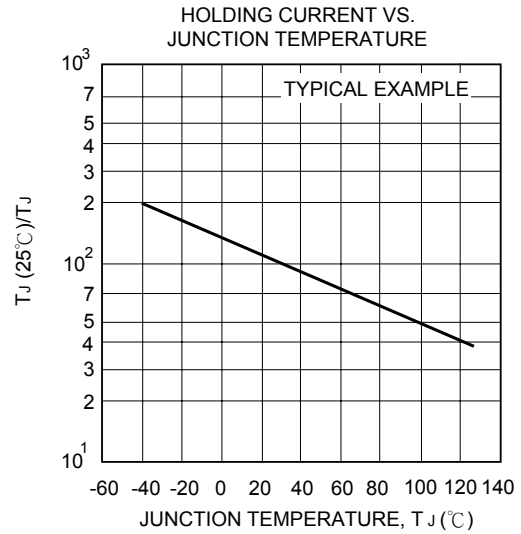
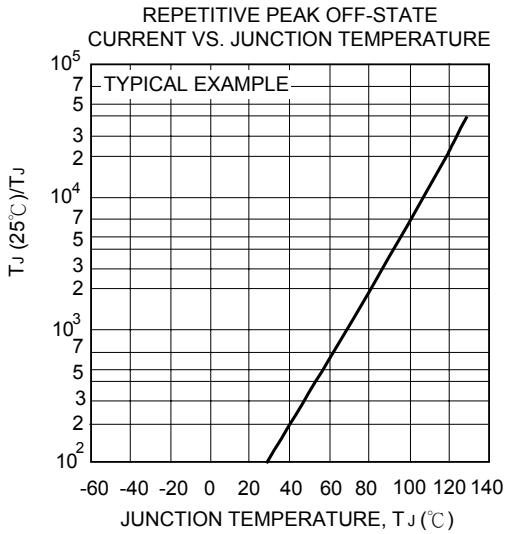
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



■ TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL CHARACTERISTICS(Cont.)



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