



## UBCR304

Preliminary

TRIACS

### 4A TRIAC

#### DESCRIPTION

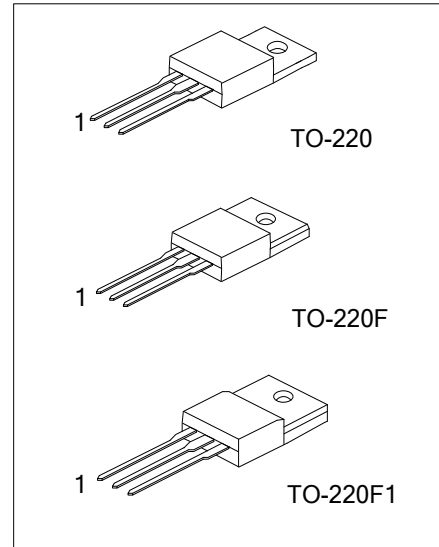
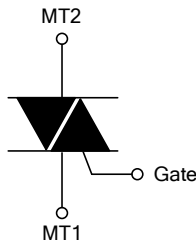
The UTC **UBCR304** is a 4A triacs which can be operated in 3 quadrants only, it uses UTC's advanced technology to provide customers with high commutation performances, etc.

The UTC **UBCR304** is suitable for use in electric pot, electric rice cooker and controller for other heater.

#### FEATURES

- \*  $I_{T(RMS)}$ : 4A
- \*  $V_{DRM}$ : 800V ( $T_J=125^{\circ}C$ )
- \*  $I_{GT\ I-II-III}$ : 30mA

#### SYMBOL



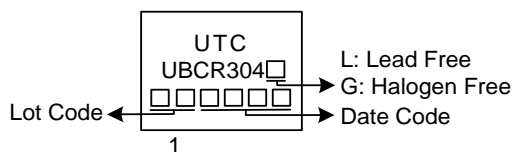
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UBCR304L-x-TA3-T	UBCR304G-x-TA3-T	TO-220	MT1	MT2	G	Tube
UBCR304L-x-TF1-T	UBCR304G-x-TF1-T	TO-220F1	MT1	MT2	G	Tube
UBCR304L-x-TF3-T	UBCR304G-x-TF3-T	TO-220F	MT1	MT2	G	Tube

Note: Pin Assignment: MT1: MT1 MT2: MT2 G: Gate

<p>UBCR304G-x-TA3-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) <math>V_{DRM}</math></li> <li>(4) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube</li> <li>(2) TA3: TO-220, TF3: TO-220F, TF1: TO-220F1</li> <li>(3) 7: 700V, 8: 800V</li> <li>(4) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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#### MARKING



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage (Note 1)	$V_{DRM} / V_{RRM}$	800	V
On-State RMS Current (Commercial Frequency, Sine Full Wave 360° Conduction)	$I_{T(RMS)}$	4	A
Surge On-State Current (60Hz Sinewave 1 Full Cycle, Peak Value, Non-Repetitive)	$I_{TSM}$	30	A
$I^2t$ for Fusing (Value Corresponding to 1 Cycle of Half Wave 60Hz, Surge On-State Current)	$I^2t$	3.7	A <sup>2</sup> s
Peak Gate Current	$I_{GM}$	2	A
Peak Gate Power Dissipation	$P_{GM}$	3	W
Average Gate Power Dissipation	$P_{G(AV)}$	0.3	W
Peak Gate Voltage	$V_{GM}$	10	V
Operating Junction Temperature	$T_J$	-40 ~ +125	°C
Storage Junction Temperature	$T_{STG}$	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	TO-220	3.9	°C/W
	TO-220F/TO-220F1	5.2	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current (Note 2)	$I_{GT}$	$T_J=25^\circ\text{C}$ , $V_D=6\text{V}$ , $R_L=6\Omega$ , $R_G=330\Omega$	I		35	mA
			II		35	mA
			III		35	mA
Gate Trigger Voltage (Note 2)	$V_{GT}$	$T_J=25^\circ\text{C}$ , $V_D=6\text{V}$ , $R_L=6\Omega$ , $R_G=330\Omega$	I		1.5	V
			II		1.5	V
			III		1.5	V
Gate Non-Trigger Voltage	$V_{GD}$	$T_J=100^\circ\text{C}$ , $V_D=1/2 V_{DRM}$	0.1			V
Holding Current (Note 2)	$I_H$	$I_T=100\text{mA}$		5		mA
Latching Current	$I_L$	$I_G=36\text{mA}$	I	8		mA
			II	17		mA
			III	30		mA
Critical Rate of Rise of Off-State commutation Voltage (Note 3)	$(dv/dt)_c$	$T_J=125^\circ\text{C}$	2.5			V/ $\mu\text{s}$

### ■ STATIC CHARACTERISTICS

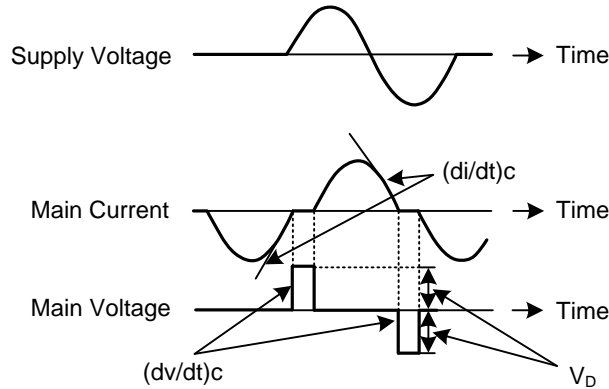
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
On-State Voltage	$V_{TM}$	$T_J=25^\circ\text{C}$ , $I_{TM}=5.5\text{A}$ , Instantaneous Measurement			1.5	V
Repetitive Peak Off-State Current	$I_{DRM}$	$T_J=150^\circ\text{C}$ , $V_{DRM}$ Applied			2.0	mA

Notes: 1. Gate open.

2. Measurement using the gate trigger characteristics measurement circuit.

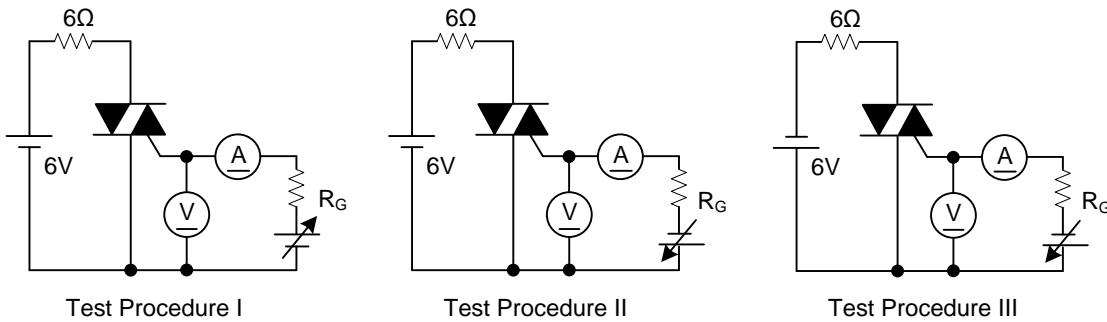
3. Test conditions of the critical-rate of rise of off-state commutation voltage is shown in the table below.

■ **COMMUTATING VOLTAGE AND CURRENT WAVEFORMS (INDUCTIVE LOAD)**



Note: Test Conditions: 1. Junction temperature:  $T_J=125^\circ\text{C}$   
 2. Rate of decay of on-state commutating current:  $(di/dt)_c=-1.5\text{A/ms}$   
 3. Peak off-state voltage:  $V_D=400\text{V}$

■ **TEST CIRCUITS**



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