



## UCR8PM

Preliminary

TRIAC

### 8A TRIAC

#### DESCRIPTION

The UTC **UCR8PM** is an 8A standard triac.

The UTC **UCR8PM** is suitable for use in inversion operation of capacitor motor, washing machine and other general controlling devices.

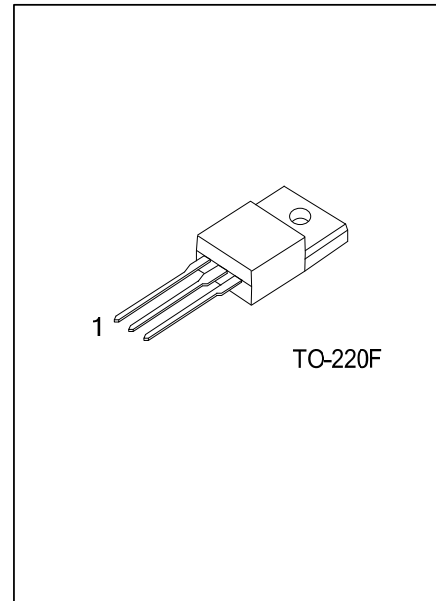
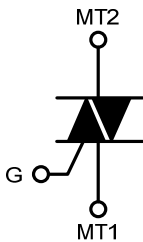
#### FEATURES

\*  $I_{T(RMS)}$ : 8A

\*  $V_{DRM}$ : 700V

\*  $I_{FGT}$ ,  $I_{RGT}$ ,  $I_{RGTIII}$ : 30mA

#### SYMBOL



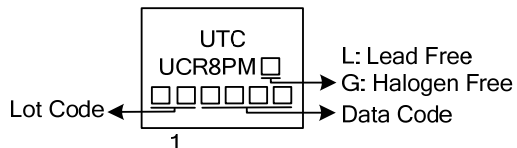
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UCR8PML-TF3-T	UCR8PMG-TF3-T	TO-220F	MT1	MT2	G	Tube

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

UCR8PMG-TF3-T	(1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube (2) TF3: TO-220F (3) L: Lead Free, G: Halogen Free and Lead Free
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#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage (Note)	$V_{\text{DRM}}$	700	V
Non-Repetitive Peak Off-State Voltage (Note)	$V_{\text{DSM}}$	840	V
On-State RMS Current (Commercial Frequency, Sine Full Wave 360° Conduction, $T_C=88^{\circ}\text{C}$ )	$I_{\text{T(RMS)}}$	8	A
Surge On-State Current (60Hz Sinewave 1 Full Cycle, Peak Value, Non-Repetitive)	$I_{\text{TSM}}$	80	A
$I^2t$ for Fusing (Value Corresponding to 1 Cycle of Half Wave 60Hz, Surge On-State Current)	$I^2t$	26	$\text{A}^2\text{s}$
Peak Gate Current	$I_{\text{GM}}$	2	A
Peak Gate Power Dissipation	$P_{\text{GM}}$	5	W
Average Gate Power Dissipation	$P_{\text{G(AV)}}$	0.5	W
Peak Gate Voltage	$V_{\text{GM}}$	10	V
Isolation Voltage (Note)	$V_{\text{ISO}}$	2000	V
Operating Junction Temperature	$T_J$	-40~+125	$^{\circ}\text{C}$
Storage Junction Temperature	$T_{\text{STG}}$	-40~+125	$^{\circ}\text{C}$

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 RESISTANCES

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	$\theta_{\text{JC}}$	3.7	$^{\circ}\text{C/W}$

The contact thermal resistance  $\theta_{\text{CF}}$  in case of greasing is  $0.5^{\circ}\text{C/W}$ .

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Repetitive Peak Off-State Current	$I_{\text{DRM}}$	$T_J=125^{\circ}\text{C}$ , $V_{\text{DRM}}$ Applied			2.0	mA
On-State Voltage	$V_{\text{TM}}$	$T_C=25^{\circ}\text{C}$ , $I_{\text{TM}}=12\text{A}$ , Instantaneous Measurement			1.6	V
Gate Trigger Voltage (Note 2)	$V_{\text{GT}}$	$T_J=25^{\circ}\text{C}$ , $V_D=6\text{V}$ , $R_L=6\Omega$ , $R_G=330\Omega$	T2+G+		1.5	V
			T2+G-		1.5	V
			T2-G-		1.5	V
Gate Trigger Current (Note 2)	$I_{\text{GT}}$	$T_J=25^{\circ}\text{C}$ , $V_D=6\text{V}$ , $R_L=6\Omega$ , $R_G=330\Omega$	T2+G+		30 (Note 4)	mA
			T2+G-		30 (Note 4)	mA
			T2-G-		30 (Note 4)	mA
Gate Non-Trigger Voltage	$V_{\text{GD}}$	$T_J=125^{\circ}\text{C}$ , $V_D=1/2 V_{\text{DRM}}$	0.2			V
Critical Rate of Rise of Off-State commutation Voltage (Note 3)	$(dv/dt)_c$	$T_J=125^{\circ}\text{C}$	10			V/ $\mu\text{s}$

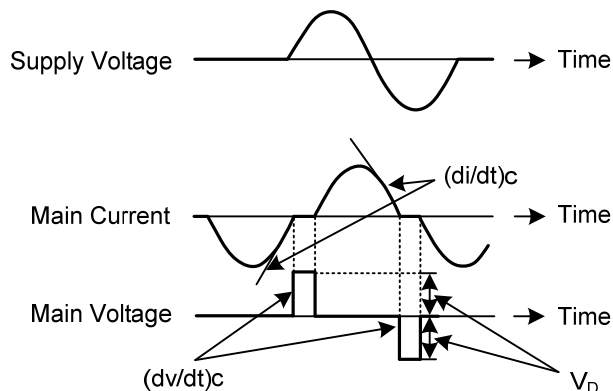
Notes: 1. Gate open.

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.

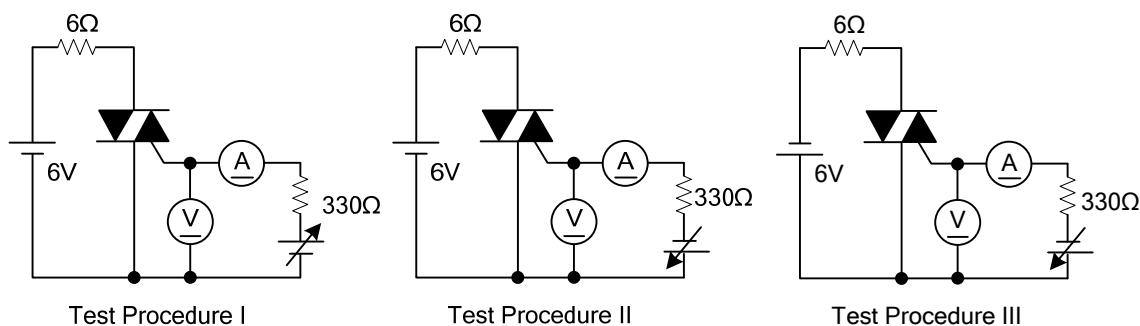
4. High sensitivity ( $I_{\text{GT}} \leq 20\text{mA}$ ) is also available. ( $I_{\text{GT}}$  item: 1)

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



Test conditions: 1. Junction temperature:  $T_J=125^\circ\text{C}$   
 2. Rate of decay of on-state commutating current:  $(di/dt)_c=-4.0\text{A/ms}$   
 3. Peak off-state voltage:  $V_D=400\text{V}$

## ■ TEST CIRCUITS



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