



UOC3021S

Preliminary

PHOTOCOUPLER

4-PIN DIP RANDOM-PHASE OPTOISOLATORS TRIAC DRIVER OUTPUT

DESCRIPTION

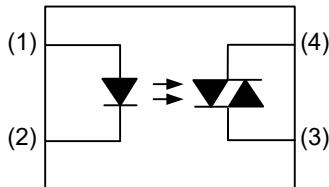
The UTC **UOC3021S** consists of gallium arsenide infrared emitting diodes, optically coupled to a silicon bilateral switch.

The UTC **UOC3021S** is suitable for applications requiring isolated triac triggering.

FEATURES

- * 250V Phototriac Driver Output
- * Gallium-Arsenide-Diode Infrared Source and Optically-Coupled Silicon Triac Driver (Bilateral Switch)
- * High Isolation 7500V Peak
- * Output Driver Designed for 220V ac

SYMBOL



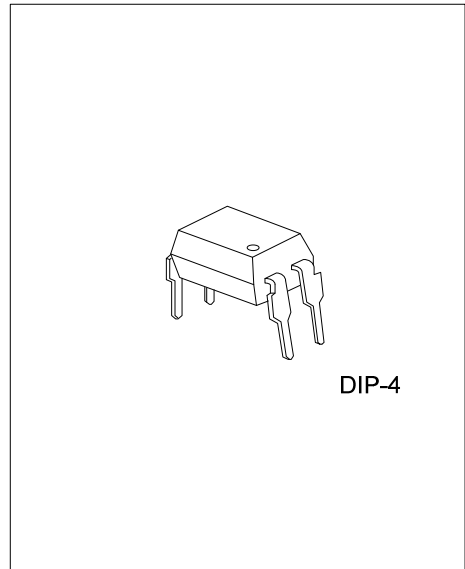
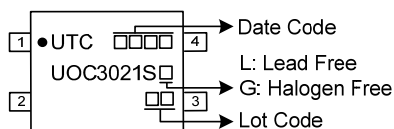
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment				Packing
Lead Free	Halogen Free		1	2	3	4	
UOC3021SL-D04-T	UOC3021SG-D04-T	DIP-4	A	K	M	M	Tube

Note: Pin Assignment: A: ANODE K: CATHODE M: MAIN TERMINAL

<p>UOC3021SG-D04-T</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) T: Tube (2) D04: DIP-4 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



DIP-4

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

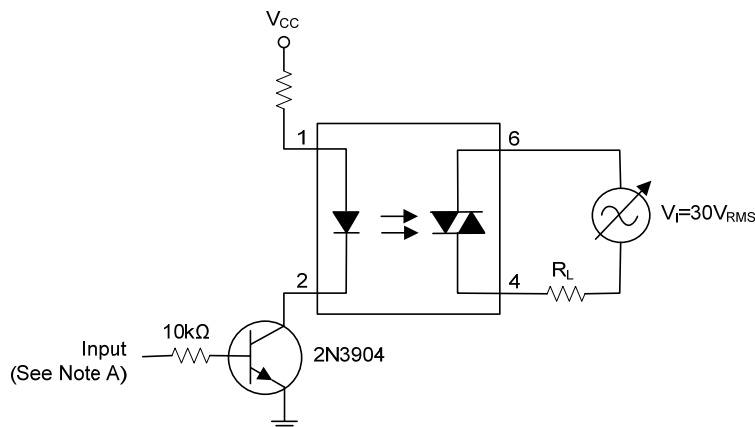
PARAMETER		SYMBOL	RATINGS	UNIT	
Input	LED Forward Current	I_F	50	mA	
	LED Reverse Voltage	V_R	3	V	
Output	Repetitive Peak OFF-State Voltage	V_{DRM}	400	V	
	ON-State RMS Current	$I_{T(RMS)}$	$T_A=25^{\circ}\text{C}$	100	mA
			$T_A=70^{\circ}\text{C}$	50	mA
Non-Repetitive Surge Current (50~60Hz, 1 Cycle)	I_{TSM}	1.2	A		
Operating Junction Temperature		T_J	-40 ~ +100	$^{\circ}\text{C}$	
Storage Temperature		T_{STG}	-40 ~ +150	$^{\circ}\text{C}$	

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.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT						
LED Dropout Voltage	V_F	$I_F=10\text{mA}$		1.2	1.5	V
LED Reverse Voltage	I_R	$V_R=3\text{V}$			100	μA
OUTPUT						
Peak OFF-State Current	I_{DRM}	$I_F=0\text{mA}$, $V_{DRM}=400\text{V}$			100	nA
Peak ON-State Voltage	V_{TM}	$I_F=10\text{mA}$, $I_{TM}=100\text{mA}$.		1.4	2.5	V
Holding Current	I_H			100		μA
TRANSFER CHARACTERISTICS						
Trigger LED Current	I_{FT}	$V_D=3\text{V}$, $R_L=100\Omega$		8	15	mA

■ TEST CIRCUITS AND WAVEFORMS



Critical Rate of Rise Test Circuit

NOTE A. The critical rate of rise of off-state voltage, dv/dt , is measured with the input at 0V. The frequency of V_{IN} is increased until the phototriac turns on. This frequency is then used to calculate the dv/dt according to the formula:

$$dv/dt = 2\sqrt{2\pi f V_{IN}}$$

The critical rate of rise of commutating voltage, $dv/dt(c)$, is measured by applying occasional 5V pulses to the input and increasing the frequency of V_{in} until the phototriac stays on (latches) after the input pulse has ceased. With no further input pulses, the frequency of V_{in} is then gradually decreased until the phototriac turns off. The frequency at which turn-off occurs may then be used to calculate the $dv/dt(c)$ according to the formula shown above.

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