



UMOC306X/UMOC308X

Preliminary

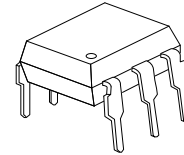
PHOTOCOUPLER

6-PIN DIP ZERO-CROSS DRIVER PHOTOCOUPLER

DESCRIPTION

The UTC **UMOC306X/UMOC308X** is consist of a GaAs infrared emitting diode optically coupled to a monolithic silicon zero voltage crossing photo triac.

The UTC **UMOC306X/UMOC308X** designed for use with a discrete power triac in the interface of logic systems to equipment powered from 110 to 380 VAC lines, such as solid-state relays, industrial controls, motors, solenoids and consumer appliances.

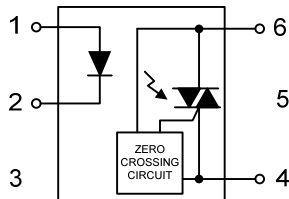


DIP-6

FEATURES

- * Peak off-state voltage
600V: UMOC306X
800V: UMOC308X
- * Isolation voltage between input and output V_{iso} : 5,000Vrms
- * 6pin DIP photocoupler, triac driver output
- * High repetitive peak off-state voltage
- * High critical rate of rise of off-state voltage

SYMBOL

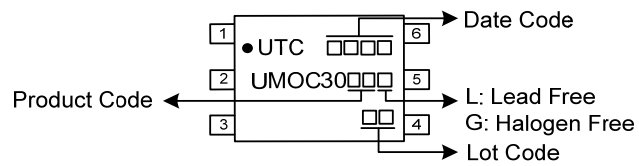


ORDERING INFORMATION

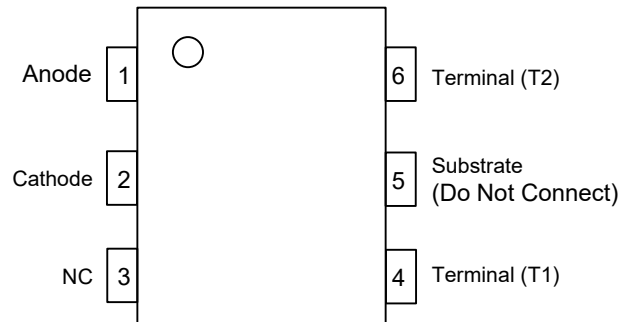
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UMOC306XL-D06-T	UMOC306XG-D06-T	DIP-6	Tube
UMOC308XL-D06-T	UMOC308XG-D06-T	DIP-6	Tube

<p>UMOC306XG-D06-T</p>		(1) Packing Type (2) Package Type (3) Green Package (4) Trigger LED Current
		(1) T: Tube (2) D06: DIP-6 (3) G: Halogen Free and Lead Free, L: Lead Free (4) refer to ELECTRICAL CHARACTERISTICS of I_{FT}

MARKING



PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Input	LED Reverse Voltage	V _R	6	V
	LED Forward Current	I _F	60	mA
	Power Dissipation	P _D	100	mW
Output	Off-State Output Terminal Voltage	V _{DRM}	UMOC306X 600	V
	UMOC308X		800	V
	ON-State RMS Current	I _{T(RMS)}	100	mA
	Peak Repetitive Surge Current (PW=100μs, 120pps)	I _{TSM}	1	A
	Collector Power Dissipation	P _C	300	mW
I/O Isolation Voltage		V _{ISO}	5000	V/AC
Power dissipation		P _D	330	mW
Operating Temperature		T _{OPR}	-40 ~ +100	°C
Storage Temperature		T _{STG}	-40 ~ +150	°C

Notes: 1. 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.

2. AC for 1 minute, R.H.= 40~60% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

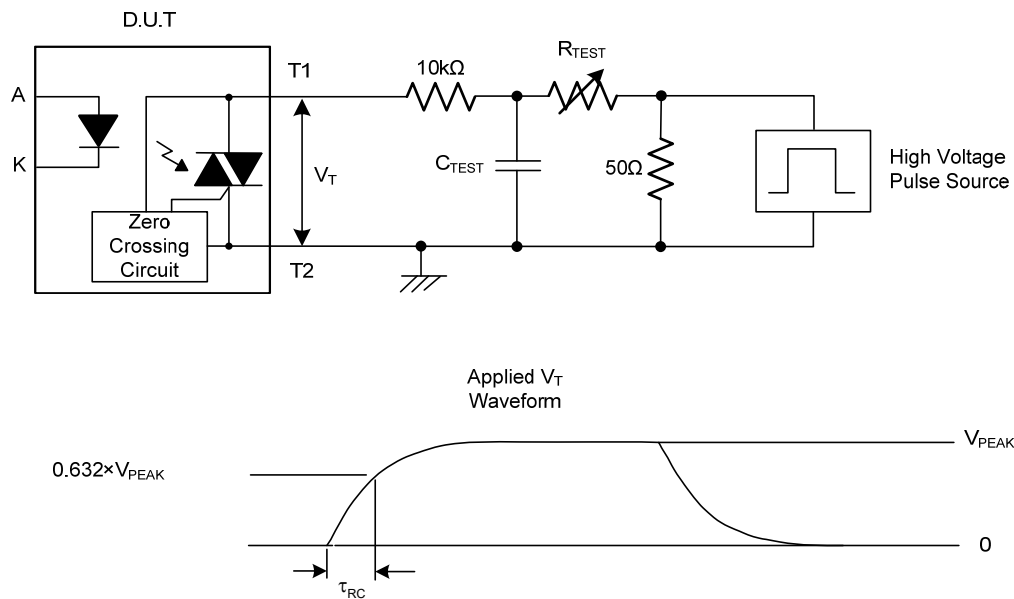
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
INPUT							
LED Dropout Voltage	V _F	I _F =30mA			1.5	V	
LED Reverse Voltage	I _R	V _R =6V			10	μA	
OUTPUT							
Peak Blocking Current, Either Direction (Rated V _{DRM} , Note 1) @ I _{FT} Per Device	I _{DRM}	V _{DRM} =Rated V _{DRM} I _F = 0mA(Note2)			0.5	μA	
Peak On-State Voltage, Either Direction	V _{TM}	I _{TM} =100mA Peak I _F =Rated I _{FT}			3	V	
Inhibit Voltage (T1-T2 Voltage above which device will not trigger.)	V _{INH}	I _F =Rated I _{FT}			20	V	
Critical Rate of Rise of Off-State Voltage (Note 2)	dv/dt	V _{PEAK} =	UMOC306X	1000		V/μs	
		Rated V _{DRM} , I _{FT} =0	UMOC308X	600		V/μs	
TRANSFER CHARACTERISTICS							
Led Trigger Current, Current Required to Latch Output, Either Direction	I _{FT}	Main terminal Voltage=3V (Note 3)	UMOC3061			15	mA
			UMOC3081				
			UMOC3062			10	mA
			UMOC3082				
			UMOC3063			5	mA
			UMOC3083				
Holding Current, Either Direction	I _H			280		μA	

Notes: 1. Typical values at T_A=25°C

2. Test voltage must be applied within dv/dt rating.

3. All devices are guaranteed to trigger at an I_F value less than or equal to max I_{FT}. Therefore, recommended operating I_F lies between max. (15mA for UMO3061/UMOC3081; 10mA for UMO3062/UMOC3082; 5mA for UMO3063/UMOC3083) and absolute maximum I_F (60 mA).

■ STATIC dv/dt TEST CIRCUIT & WAVEFORM



■ MEASUREMENT METHOD

The high voltage pulse is set to the required V_{PEAK} value and applied to the D.U.T. output side through the RC circuit above. LED current is not applied. The waveform V_T is monitored using a x100 scope probe. By varying R_{TEST}, the dv/dt (slope) is increased, until the D.U.T. is observed to trigger (waveform collapses). The dv/dt is then decreased until the D.U.T. stops triggering. At this point, τ_{RC} is recorded and the dv/dt calculated

$$dv / dt = \frac{0.632 \times V_{PEAK}}{\tau_{RC}}$$

For example, V_{PEAK} = 600V. The dv/dt value is calculated as follows:

$$dv / dt = \frac{0.63 \times 600}{\tau_{RC}} = \frac{378}{\tau_{RC}}$$

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