



## URYD21

Preliminary

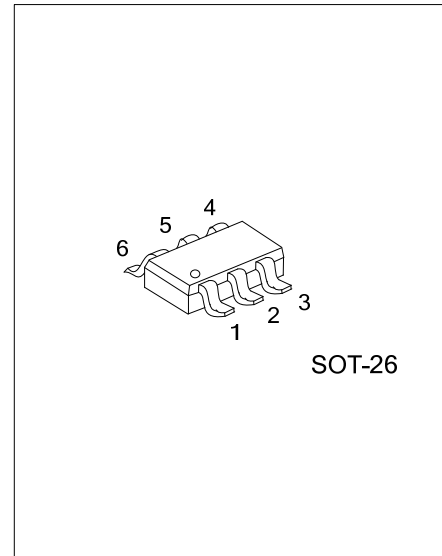
CMOS IC

### 300mA BI-DIRECTION RELAY DRIVER

#### DESCRIPTION

**URYD21** is a bi-direction relay driver circuit, used to control the magnetic latching relay, with large output capability, ultra-low power consumption. It can be widely used in smart meters and other pulses, level control applications.

**URYD21** can provide 300mA typical driving current, which will different according to the relay coil resistance. The input High Level Threshold of **URYD21** is 3V; it can compatible with most single chip microcontroller.



#### FEATURES

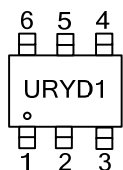
- \* Supports USB DCP Shorting D+ Line to 5 to 36V input voltage range
- \* Low Power Consumption (IQ<1uA)
- \* Input High Level Threshold: 3V, compatible with most single chip microcontroller
- \* Typical Driving Current: 300mA
- \* Rds(on)=15ohm(Vin=12V, PMOSFET+NMOSFET)
- \* Rds(on)=10ohm(Vin=20V, PMOSFET+NMOSFET)
- \* Peak Driving Current: 500mA@Vin=24V
- \* Environment Temperature: -40°C~85°C

#### ORDERING INFORMATION

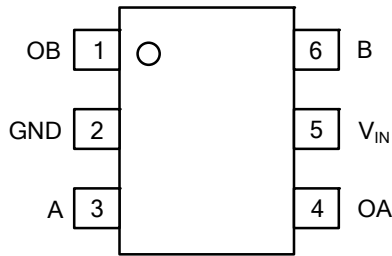
Ordering Number	Package	Packing
URYD21G-AG6-R	SOT-26	Tape Reel

<p>URYD21G-AG6-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free</p>
---	---

#### MARKING



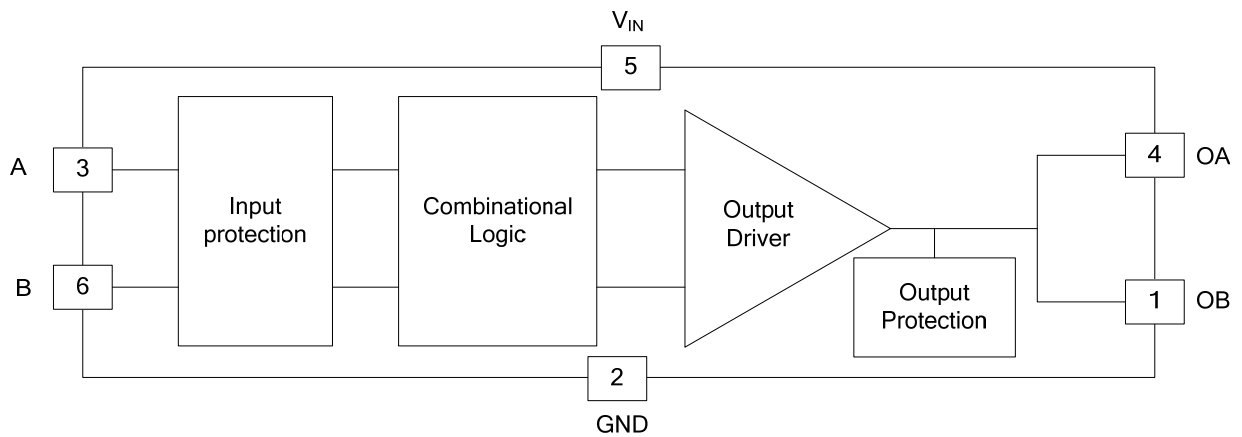
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	OB	Output B
2	GND	Ground
3	A	Input A
4	OA	Output A
5	VIN	Supply
6	B	Input B

■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	$V_{IN}$	40	V
Ambient Temperature	$T_A$	-40 ~ +125	$^{\circ}\text{C}$
Operating Junction Temperature Range	$T_J$	+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 ( $V_{DD}=5\text{V}$ ,  $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage Range	$V_{IN}$		5		36	V
Quiescent Current	$I_Q$				1	$\mu\text{A}$
Switch $R_{DS(ON)}$	$R_{DS(ON)}$	$V_{IN}=12\text{V}$ , $R_L=75\ \Omega$		12	18	$\Omega$
		$V_{IN}=30\text{V}$ , $R_L=75\ \Omega$		10	16	$\Omega$
		$V_{IN}=12\text{V}$ , $R_L=40\ \Omega$		12	18	$\Omega$
		$V_{IN}=30\text{V}$ , $R_L=40\ \Omega$		10	16	$\Omega$
ON Input High Voltage	$V_{TH}$	$V_{IN}=12\text{V}$		3		V
Equivalent Input Resistor	$R_{IN}$			500		K $\Omega$
Fly-Wheel Diode Forward Voltage	$V_{SD}$	$I_S=1.0\text{A}$		0.8		V
Rise Time	$t_R$	$V_{IN}=12\text{V}$ , $R_L=75\ \Omega$		40		ns
Turn ON Delay Time	$t_{D(ON)}$			60		ns
Fall Time	$t_F$			30		ns
Turn OFF Delay Time	$t_{D(OFF)}$			110		ns

## ■ DETAILED DESCRIPTION

**Pulse Triggering**

If input is driven by square pulse, connect the inputs to the pulse source directly.

The recommended pulse width=100ms. The length of the intervals should be longer than 100ms. These intervals include: intervals between forward drive pulse and next backward drive pulse, intervals between forward drive pulse and next forward drive pulse, intervals between backward drive pulse and next forward drive pulse, intervals between backward drive pulse and next backward drive pulse.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.