

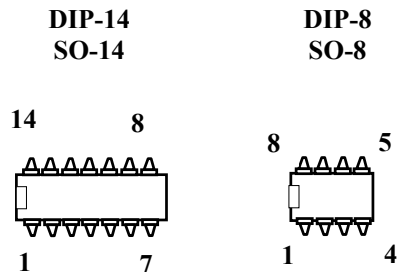
**IC FOR INDUCTIVE PROXIMITY SWITCHES**

**Description**

УР1101ХП06 is bipolar IC for design inductive proximity switches. Built-in oscillator, along with external LC-circuit, provides high frequency oscillation where amplitude is highly dependent on the quality factor (Q) of resonant circuit. When the metallic object moved closer to the LC-circuit the quality factor become low and amplitude of oscillations is decreased accordingly. This change of amplitude transmitted to the Schmitt trigger by means demodulator and change state of complimentary output stages.

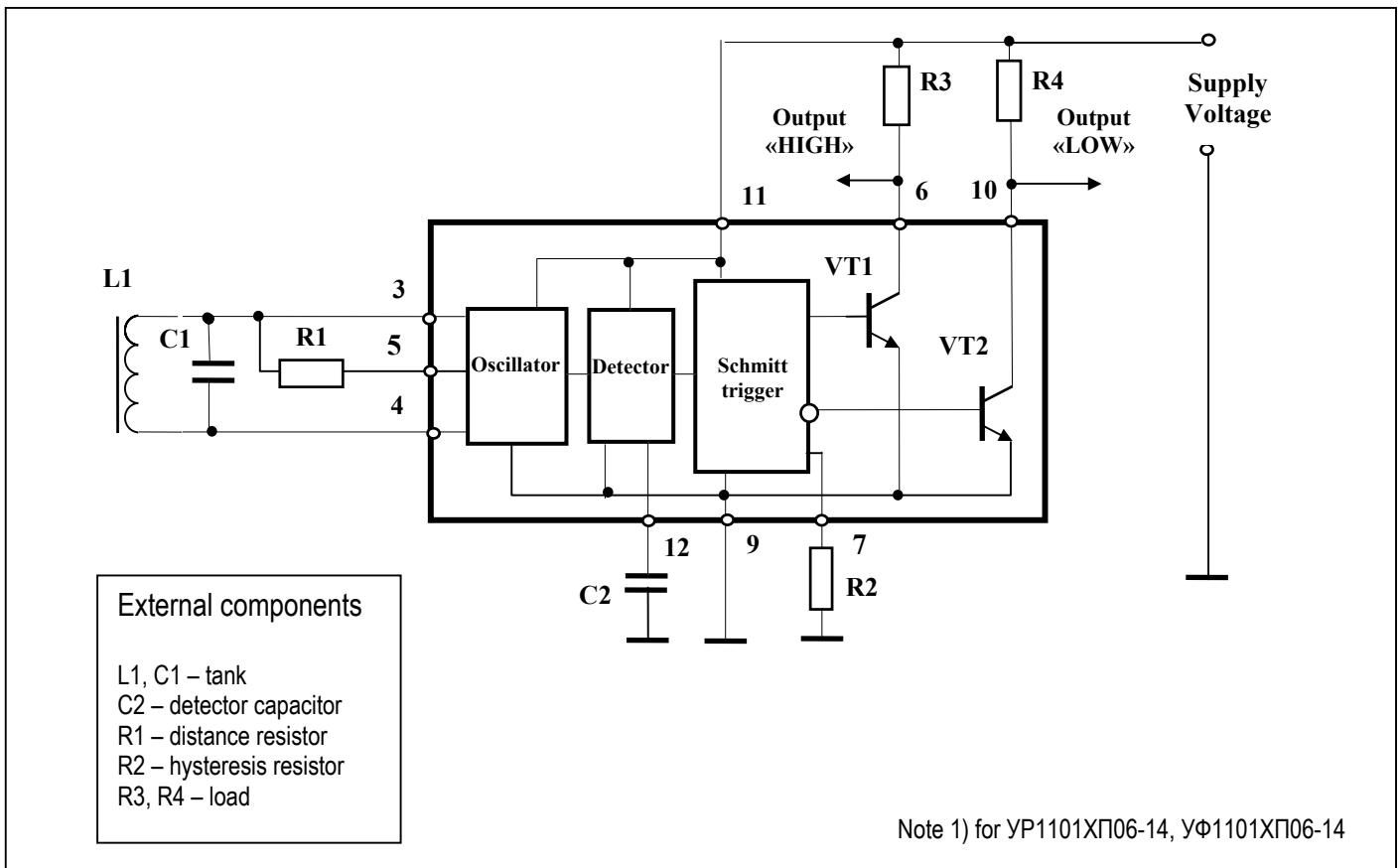
**Features**

- Wide supply voltage of 5 to 30V
- Thermal Shutdown
- Short-circuit protection
- Output current sink capability up to 50 mA
- Operating temperature range  $-25^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$



Device	Package	Features
УР1101ХП06 -14	DIP-14	Two complimentary outputs. Adjustable values of distance and hysteresis.
УФ1101ХП06 -14	SO-14	Two complimentary outputs. Adjustable values of distance and hysteresis.
УР1101ХП06А	DIP-8	Single output. In condition when the metallic target is far from tank – output stage state is «LOW». Adjustable values of distance and hysteresis.
УР1101ХП06В	DIP-8	Single output. In condition when the metallic target is far from tank – output stage state is «HIGH». Adjustable values of distance and hysteresis.
УР1101ХП06С	DIP-8	Two complimentary outputs. Fixed hysteresis. <i>hysteresis=0.1·distance (internal setup)</i>
УФ1101ХП06А	SO-8	Single output. In condition when the metallic target is far from tank – output stage state is «LOW». Adjustable values of distance and hysteresis.
УФ1101ХП06В	SO-8	Single output. In condition when the metallic target is far from tank – output stage state is «HIGH». Adjustable values of distance and hysteresis.
УФ1101ХП06С	SO-8	Two complimentary outputs. Fixed hysteresis. <i>hysteresis=0.1·distance (internal setup)</i>

Block Diagram<sup>1)</sup>

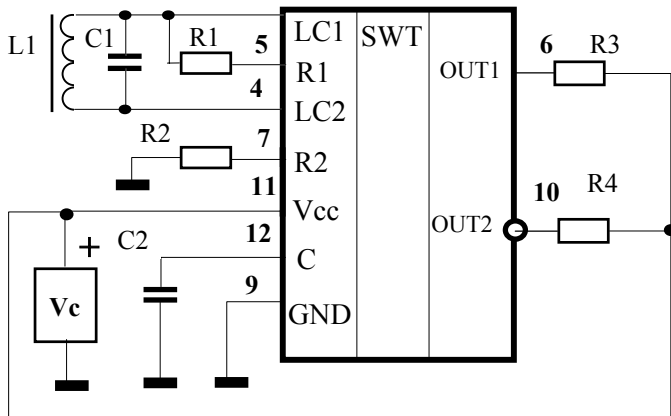


ELECTRICAL SPECIFICATION ( $T_A = 25^{\circ}\text{C}$ )

The name of parameter	Units	Symbol	Min.	Max.
1. Supply Voltage	V	$U_{CC}$	5	30
2. Supply Current ( $U_{CC}=30\text{V}$ )	mA	$I_{CC}$	-	15
3. Maximal Output Current	mA	$I_{OMAX}$	-	50
4. Output Saturation Voltage ( $I_{LOAD}=50\text{mA}$ )	V	$U_{DS}$	-	1.8
5. Maximal switching frequency	Hz	$F_{MAX}$	2000	-
6. Output Leakage Current	$\mu\text{A}$	$I_{LEAK}$	-	10

Application Circuits

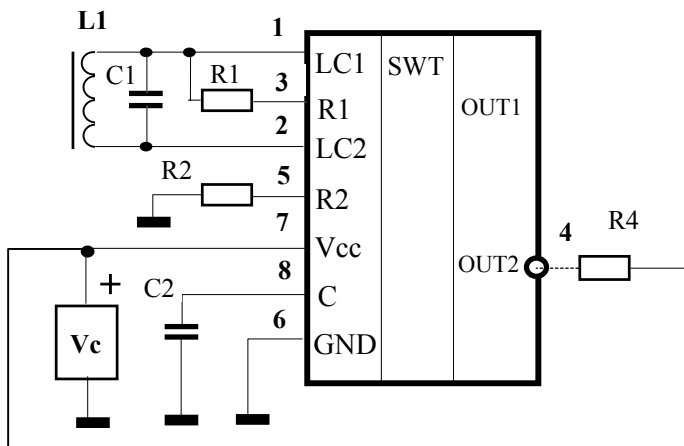
УР1101ХП06-14/УФ1101ХП06-14



$R1, R2 = 2k\Omega \div 20k\Omega$   
 $R3, R4 = 0.6k\Omega \div 60k\Omega$   
 $L1 = 100\mu H \pm 10\%$   
 $C1, C2^2) = 510 pF \pm 10\%$   
 $Vc = 5V \div 30V$

Pin	Pin function
1	NC
2	NC
3	Tank
4	Tank
5	Distance Resistor
6	Output 1
7	Hysteresis Resistor
8	NC
9	Ground
10	Output 2
11	Voltage Supply
12	Detector Capacitor
13	NC
14	NC

УР1101ХП06А/УФ1101ХП06А

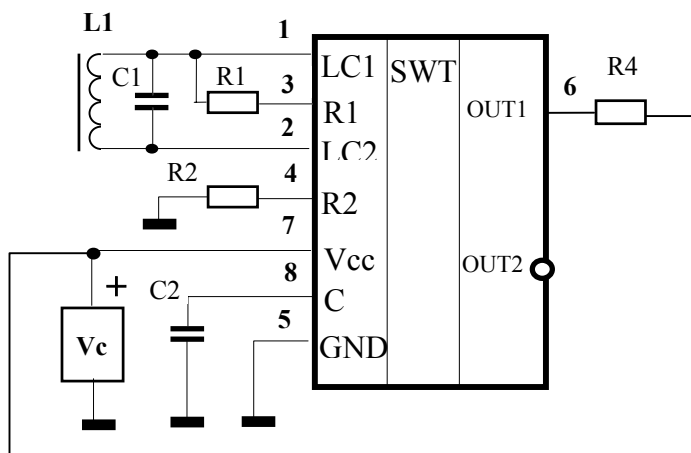


$R1, R2 = 2k\Omega \div 20k\Omega$   
 $R3, R4 = 0.6k\Omega \div 60k\Omega$   
 $L1 = 100\mu H \pm 10\%$   
 $C1, C2^2) = 510 pF \pm 10\%$   
 $Vc = 5V \div 30V$

Pin	Pin function
1	Tank
2	Tank
3	Distance Resistor
4	Output 2
5	Hysteresis Resistor
6	Ground
7	Voltage Supply
8	Detector Capacitor

Application Circuits

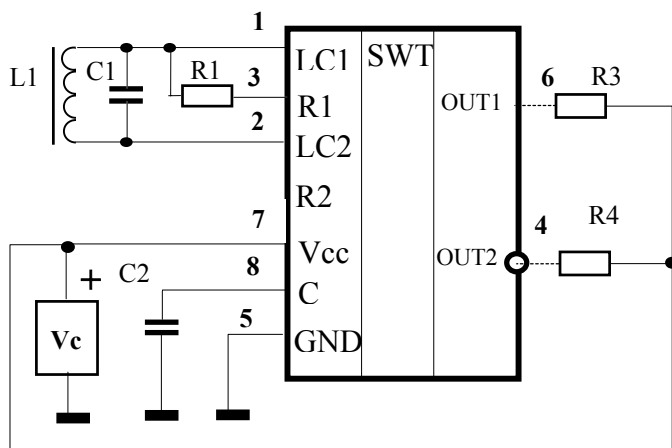
УР1101ХП06В/УФ1101ХП06В



Pin	Pin function
1	Tank
2	Tank
3	Distance Resistor
4	Hysteresis Resistor
5	Ground
6	Output 1
7	Voltage supply
8	Detector Capacitor

$R1, R2 = 2k\Omega \div 20k\Omega$   
 $R3, R4 = 0.6k\Omega \div 60k\Omega$   
 $L1 = 100\mu H \pm 10\%$   
 $C1, C2^{2)} = 510 pF \pm 10\%$   
 $Vc = 5V \div 30V$

УР1101ХП06С/УФ1101ХП06С



Pin	Pin function
1	Tank
2	Tank
3	Distance Resistor
4	Output 2
5	Ground
6	Output 1
7	Voltage Supply
8	Detector Capacitor

$R1, R2 = 2k\Omega \div 20k\Omega$   
 $R3, R4 = 0.6k\Omega \div 60k\Omega$   
 $L1 = 100\mu H \pm 10\%$   
 $C1, C2^{2)} = 510 pF \pm 10\%$   
 $Vc = 5V \div 30V$

Note 2) If IC work in condition of strong electromagnetic disturbance the value of capacitor C2 can be increase up to 500nF, but, in this case, maximal frequency of switching will be equal only 50Hz.

Diagrams

Distance versus R1 resistance  
(for  $\varnothing 20$  mm)

