TND305

Tiny 6-Pin Device Forms Tiny RC Oscillator

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TECHNICAL NOTE

Many times a designer needs a small, low power oscillator to provide a clock signal that does not need to be particularly accurate, just reliable. There are many suppliers who can supply an crystal oscillator, with high accuracy that costs several dollars each. This article shows how to build a 500 KHz oscillator occupying ½–in^2 , and costing less than $0.50 each for all the components. The circuit is comprised of a single 6–pin device (**NL27WZ04** from ON Semiconductor), 2 resistors and one capacitor. The nominal operating volts will be 2.3 to 5.0 volts. The device frequency can be described approximately as follows:

$$f = 1/(2.2\ R_1C)\ Hz$$
$$R_2 > 8\ R_1,\ C > 50\ pf$$

To operate at 500 KHz, we allow C=75 pf, and R_1 to be 12K, and R_2 to be 100K

Figure 1 shows a simple circuit based on a new two–gate logic IC that functions as a 500 KHz Oscillator with strong drive operating at 3.3 volts with a minimum number of components. The circuit features the NL27WZ04, available in a micro–miniature 6–pin SC–88 (SOT–363) package that occupies only 4.5 mm^2.

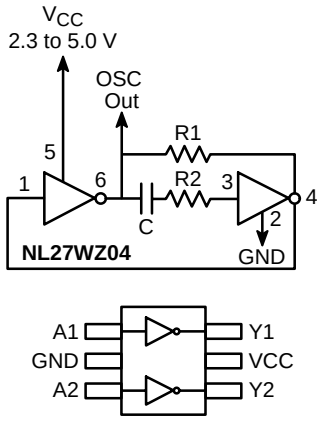

Figure 1. Tiny RC Oscillator

Notes

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:
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