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OVERVIEW

This application note is intended to answer some frequently asked questions with regards to using the DS32KHz TCXO (Temperature Compensated Crystal Oscillator) and Dallas Semiconductor Real Time Clocks.

USING THE DS32KHz

The DS32KHz has four pins, which are required for operation; V_{CC}, V_{BAT}, GND, and 32KHz_OUT. The V_{CC}, V_{BAT}, and GND are power supply connections and must either be connected to a positive supply or grounded. The 32KHz_OUT signal is intended to drive the X1 input of the RTC. The X2 pin of the RTC should be allowed to float when driving the X1 input with an oscillator, see Figure 1.

WHICH RTC TO USE

Dallas Semiconductor has a wide selection of Real Time Clocks to choose from. Some of these devices were designed using a P-WELL process while the more recent devices have been designed using an N-WELL process. The older P-WELL devices are not recommended for use with the DS32KHz. Table 1 shows a list of devices grouped by interface that use the N-WELL process and can be used with the DS32KHz. Table 2 lists devices that are <u>not</u> recommended for use with the DS32KHz.

RECOMMENDED DALLAS SEMICONDUCTOR RTC CHIPS Table 1

RTC	Interface Type
DS1302	Serial (3-wire)
DS1305	Serial (3-wire or SPI)
DS1306	Serial (3-wire or SPI)
DS1307	Serial (2-wire)
DS1602	Serial (3-wire)
DS1670	Serial (3-wire)
DS1672	Serial (2-wire)
DS1673	Serial (3-wire)
DS1677	Serial (3-wire)
DS1315	Phantom
DS1685	Mux
DS1688	Mux
DS1689	Mux
DS17285	Mux
DS17485	Mux
DS17885	Mux
DS1500	Bytewide
DS1501	Bytewide

RTC'S THAT ARE NOT RECOMMENDED FOR USE WITH DS32KHz Table 2

RTC
DS1202
DS12885
DS14285
DS1283
DS1284
DS1384

REDUCING OPERATING CURRENT

When driving an RTC with the DS32KHz, higher than expected operating current may be experienced. One solution to lower this current is to resistor divide the DS32KHz output as shown in Figure 1. Other circuits can be used however this one is very straightforward.

DS32KHz CONNECTION Figure 1