

INTRODUCTION

This application note provides the information necessary to determine whether or not the DS1302 is a “drop in” replacement for the DS1202 in existing applications.

REPLACEMENT ISSUES

The DS1302 may provide a replacement for the DS1202 without requiring hardware or software modification of the existing DS1202 application with a couple of exceptions to note.

SOFTWARE 3-WIRE READ CYCLE

Data on the I/O pin must be read after the falling edge of SCLK and before the rising edge of SCLK.

DS1202 3-Wire Read Cycle Implementation

Data is output on the falling edge of SCLK and remains valid until the next falling edge of SCLK.

DS1302 3-Wire Read Cycle Implementation

Data is output on the falling edge of SCLK and is high impedance on the rising edge of SCLK.

Potential Software Concern

If the software in the current DS1202 application reads the I/O line after the falling edge of SCLK, both the DS1202 and DS1302 will provide expected results.

If the software reads the I/O line after the rising edge of SCLK the DS1202 will return expected data but the DS1302 will provide inconsistent data.

Software Conclusion

Ensure the data on the I/O pin is read after the falling edge of SCLK and before the rising edge of SCLK.

HARDWARE PIN 1

This pin must be unconnected in current DS1202 applications.

DS1202 Pin 1

No connection.

DS1302 Pin 1

Vcc2 input. The primary supply in a dual power supply configuration. Internal pull-down resistor provided for proper operation if the pin is left unconnected.

Potential Hardware Concern

If pin 1 in the current DS1202 application is not connected, both the DS1202 and DS1302 will provide expected results.

If pin 1 in the current DS1202 application is connected for some reason and the connection provides a voltage level greater than the voltage present on Vcc1 (pin 8), the DS1302 will be powered by this connection therefore drawing unexpected current from the application.

Hardware Conclusion

Ensure that pin 1 is not connected in the current DS1202 application.