



APPLICATION NOTE 4018

Use a Single Connector for Both the T1/E1 Interface and the Composite Clock of the DS3100

Abstract: This application note provides the recommended circuit design for using a single connector to support both the T1/E1 interface and composite clocks of the DS3100.

Overview

This application note describes how a BITS receiver or transmitter and a composite clock receiver or transmitter can be wired to the same signal connector externally. This allows either a DS1/E1 signal or a composite clock signal to be connected to or from the DS3100 through a single connector.

Based on lab tests, it is recommended to use a resistor-divider circuit to drop down the voltage to 1V at the receive-side input. It is also necessary to set the BITS receivers to 110 Ω termination when composite-clock mode is used. External termination could be used when internal termination is not preferred.

The circuits in **Figures 1** and **2** were tested using the [DS3100 evaluation kit](#). The analog switches were powered with a 3.3V power supply. The components used in this test setup are shown in **Table 1**.

Table 1. Components for DS3100 Test Setup

| Name | Quantity | Description | Supplier | Part Number |
|-------|----------|----------------------------------|----------|----------------|
| T1 | 1 | Transformer, 1CT:2CT and 1CT:2CT | Pulse | PE-65861/T1090 |
| T2/T3 | 1 | Transformer, 1CT:1 | Pulse | PE-65540 |

Note: Any type of transformers that match the electrical specs of the PE-65540 can be used.

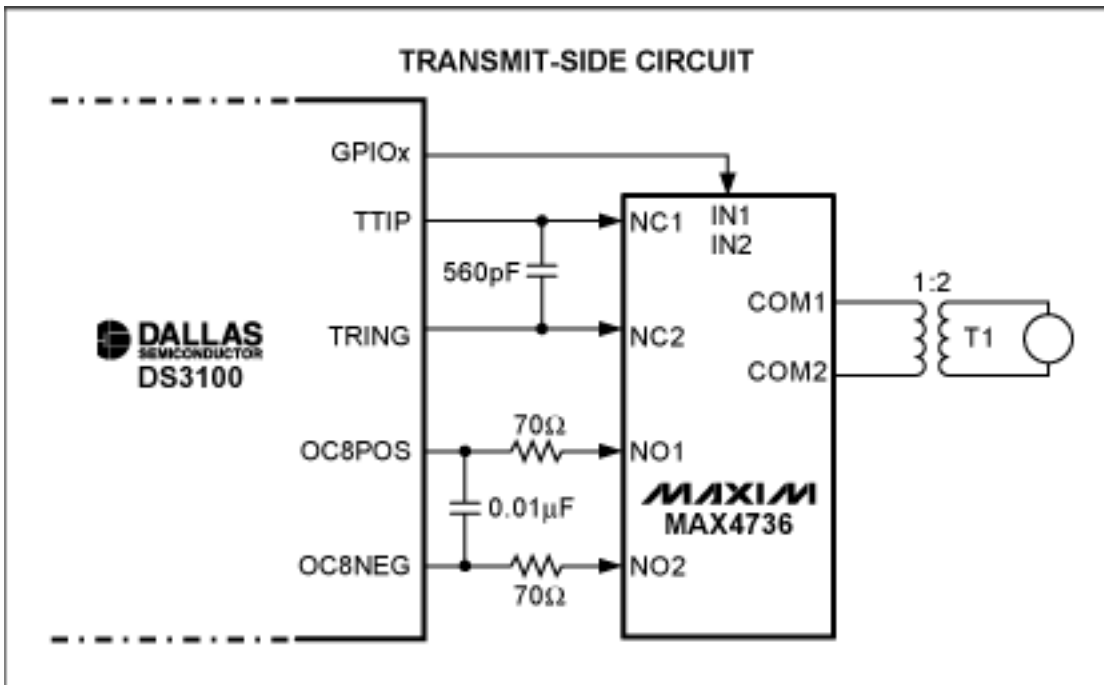


Figure 1. Recommended transmit circuit design for the DS3100. Note: The [MAX4736](#) is a low-on-resistance, low-voltage, dual single-pole/double throw (SPDT) analog switch that operates from a single 1.6V to 4.2V supply.

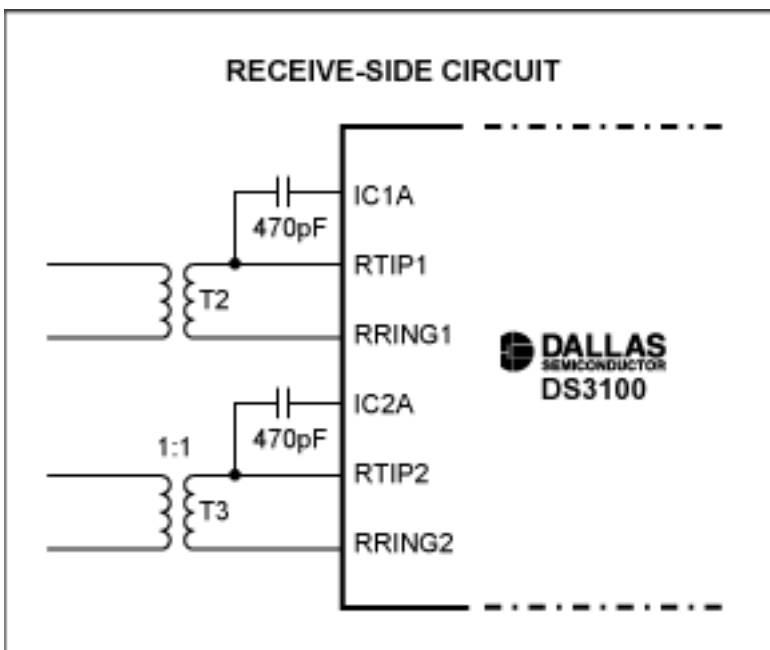


Figure 2. Recommended receive circuit design for the DS3100.

Conclusion

This application note shows how to use a single connector for both the T1/E1 interface and the composite clock of the DS3100. For more information about the DS3100 timing-card IC, please refer to the [DS3100 data sheet](#).

If you have further questions about our telecommunication products, please contact the Telecommunication Applications support team by email at telecom.support@dalsemi.com, or call 972-371-6555.

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Related Parts

DS3100: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

MAX4736: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

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