SIEMENS

ICs for Communications

Framing and Line Interface Component for PCM 30 and PCM 24 FALC54

PEB 2254

Addendum / Corrections 10.97 to the Data Sheet 11.96

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Background to the Corruption of Received Data in the Digital Line Interface Mode

The following application information is provided to assist designers using the FALC54 family of parts.

This bulletin deals with external components connected to pin 3, REFR. Several customers have observed “Corruption of Received Data in Digital Line Interface Mode” as described in Errata Sheets V1.2 and V1.3.
As a result of the analysis of this problem the data corruption is eliminated by inclusion of a small capacitor connected to pin #3. Other benefits accrue from the addition of this external component as well.

Recommendations

Inclusion of the capacitor at pin 3 is optional for existing designs using FALC54 V1.2, V1.3, V1.3R and V1.4 with analog inputs.

Siemens recommends inclusion of the capacitor at pin #3 for all existing V1.2, V1.3, V1.3R and V1.4 designs which use the dual rail or optical interface.

Siemens recommends inclusion of the capacitor at pin #3 for all new FALC54 designs, regardless of input mode, because of the benefits described below.

Implementation details

FALC54 V1.2, V1.3, V1.3R and V1.4

Please refer to pin #3, RFER, described on pages 13 and 152 of the Data Sheet 11.96.

1. In addition to the resistor, a capacitor should be connected as close as practical to pin #3 of the FALC54. The other ends of these components should be connected to Vssr, the analog ground, using short connections.

2. The capacitor should have a value between 680 and 5000 picofarads, inclusive.

3. This resistor controls a reference voltage used in the analog circuitry of the FALC54.

4. The capacitor filters the reference voltage which reduces the level sensitivity of the analog transmit signals to variations of Vdd.

5. The capacitor improves the input jitter tolerance of the FALC54.

6. The capacitor filters noise at the digital or optical inputs, pins 2 and 4. This condition is listed as “Corruption of Received Data in Digital Line Interface Mode” in errata sheets V1.2 and V1.3.