

Migrating from the MC1319x to the MC1320x Device

Introduction

This document contains guidelines for migrating from the MC1319x to the MC1320x device.

The MC1320x series was designed to be able to drop into existing MC1319x designs with a minimum number of changes. This document outlines these recommended changes.

The key differences between the MC1319x series and the MC1320x series is the addition of an internal transmit/receive (TR) switch to the MC1320x design and some receiver design changes that require a few register setting changes for optimal performance.

The changes described have been verified by Freescale Applications Engineering using the 1319xEVB development board.

NOTE

Refer to the *MC1320x Reference Manual* for detailed device information.

Recommended RF Matching Network Changes

Figure 1 shows the RF matching network from the 1319xEVB development board. When moving to the MC1320x, changes to this design are minimal.

At transmit pins PAO_P and PAO_N, L102 should be reduced from 8.2 nH to 6.8 nH. For slightly different implementations, the value of the shunt inductor can be reduced by an equivalent ratio. The change should be verified by measuring the output power of the board. If this change is not made, there may be several dB reduction in output power.

No change is required at the Receive pins, RIN_M and RIN_P. For completeness, a packet error rate (PER) test can be performed and L101 adjusted up or down to ensure the best match.

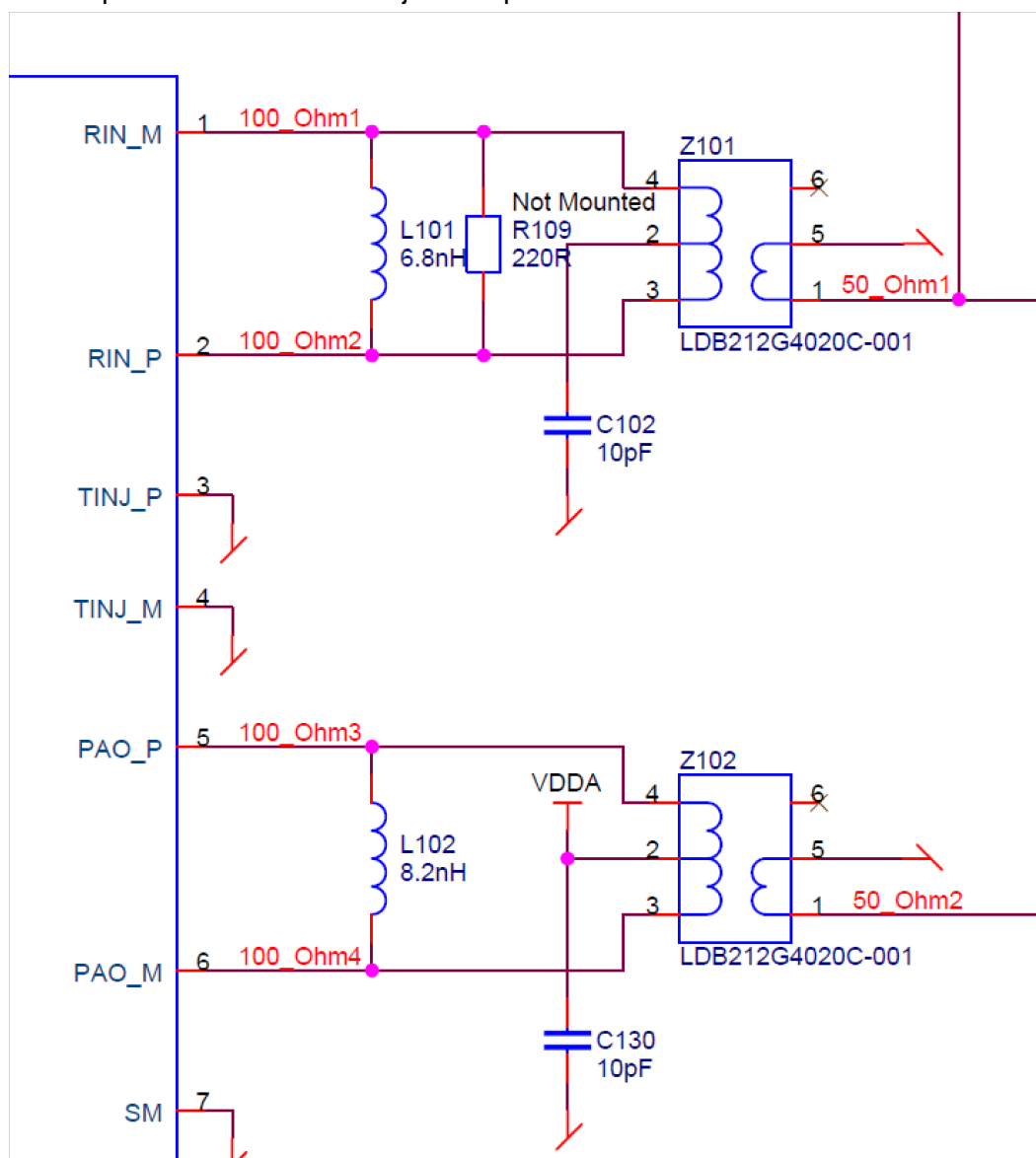


Figure 1 RF Matching Network

Required Software Changes

- The MC1320x series devices include a transmit/receive switch that is not included on the MC1319x series devices. The default setting is for the switch not to be enabled, so no change in software is required.
- The receiver performance of the MC1320x series has been improved over the MC1319x and this requires different register settings as follows:
 1. PSM_Mode Register 0x31 should be programmed to 0xA0C0 (normal operation) - this register is described in the MC1320x Reference Manual as reserved except for the 3-bit **psm_tm[2:0]** field located at bit PSM_Mode[5:3]. This field uses a value of 0b000 for normal operation and a value of 0b001 for RF test (modulator disabled). The MC13202 now requires that reserved bits PSM_Mode[7:6] be over-written to 2b11, and as a result, the new program values are: a) 0xA0C0 for normal operation, and b) 0xA0C8 for modulator disabled test.
 2. Register 0x34 should be programmed to value 0xFEC6 - this is a reserved hidden register that trims radio parameters, and the default value must be over-written.
- It is not required that the software project be upgraded to one of Freescale's newer codebases and no other changes are required.

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