

F1102 300M RF Support

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February 13, 2015

IDT Action Tracker #199



Integrated Device Technology

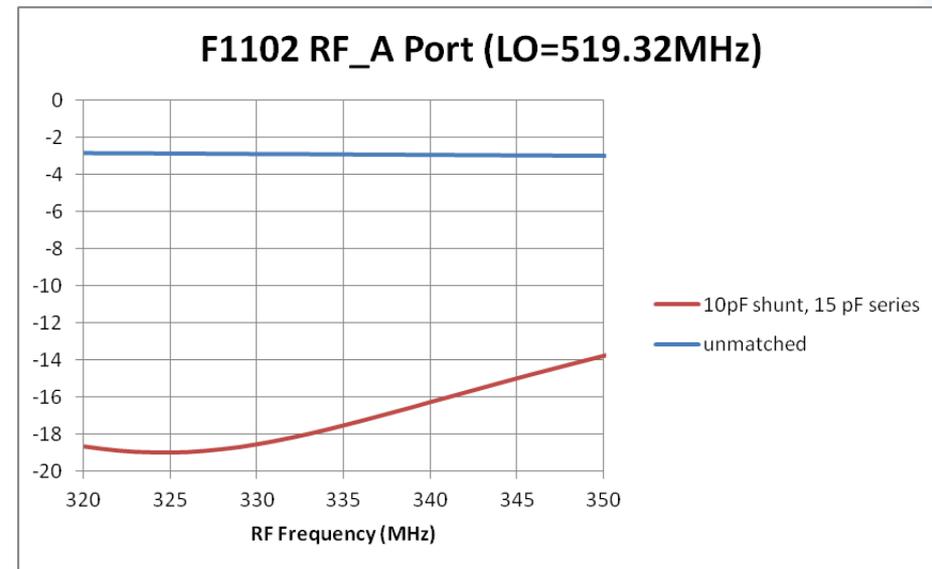
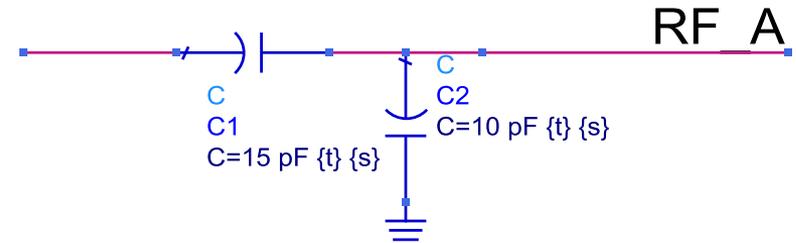
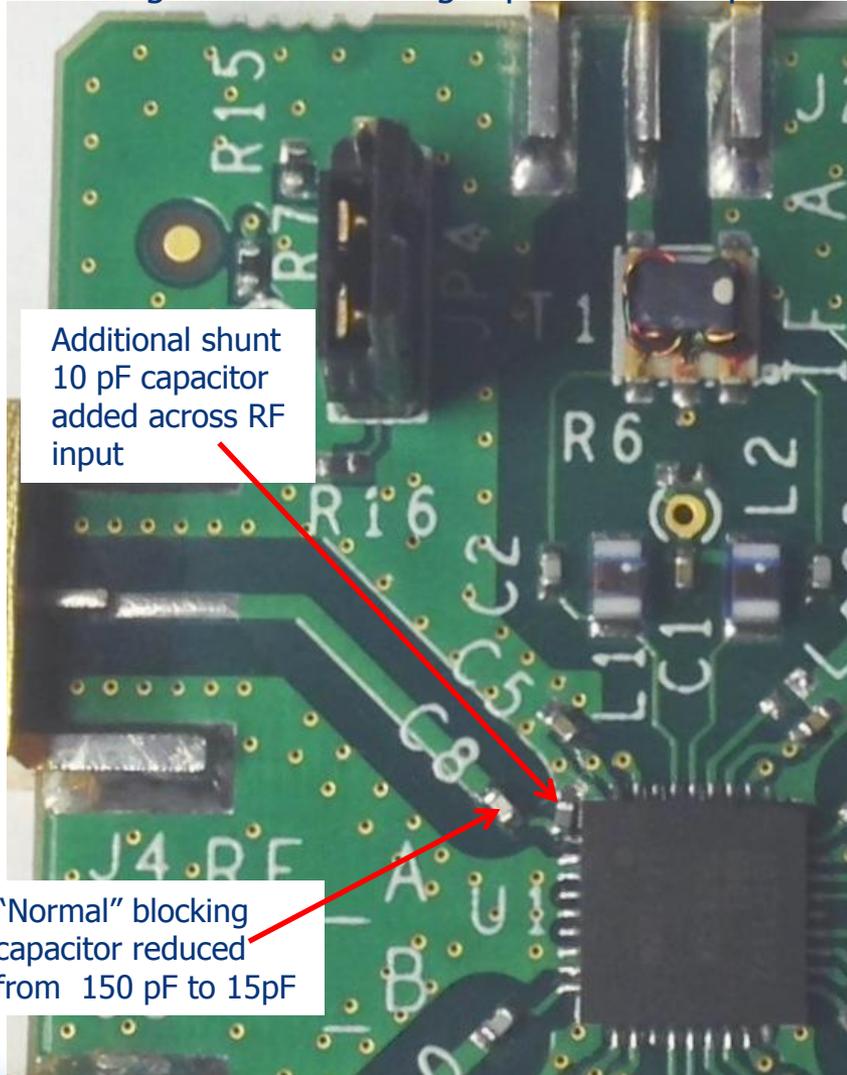
The Analog and Digital Company™

Introduction

- Customer has new RF band request and wants F1102 to support it
- RF frequency: 330MHz to 340MHz, $IF=184.32\text{MHz}$, high side injection
- F1102 presents very poor match at this frequency without additional matching
- Customer may be able to place shunt caps on RF input port

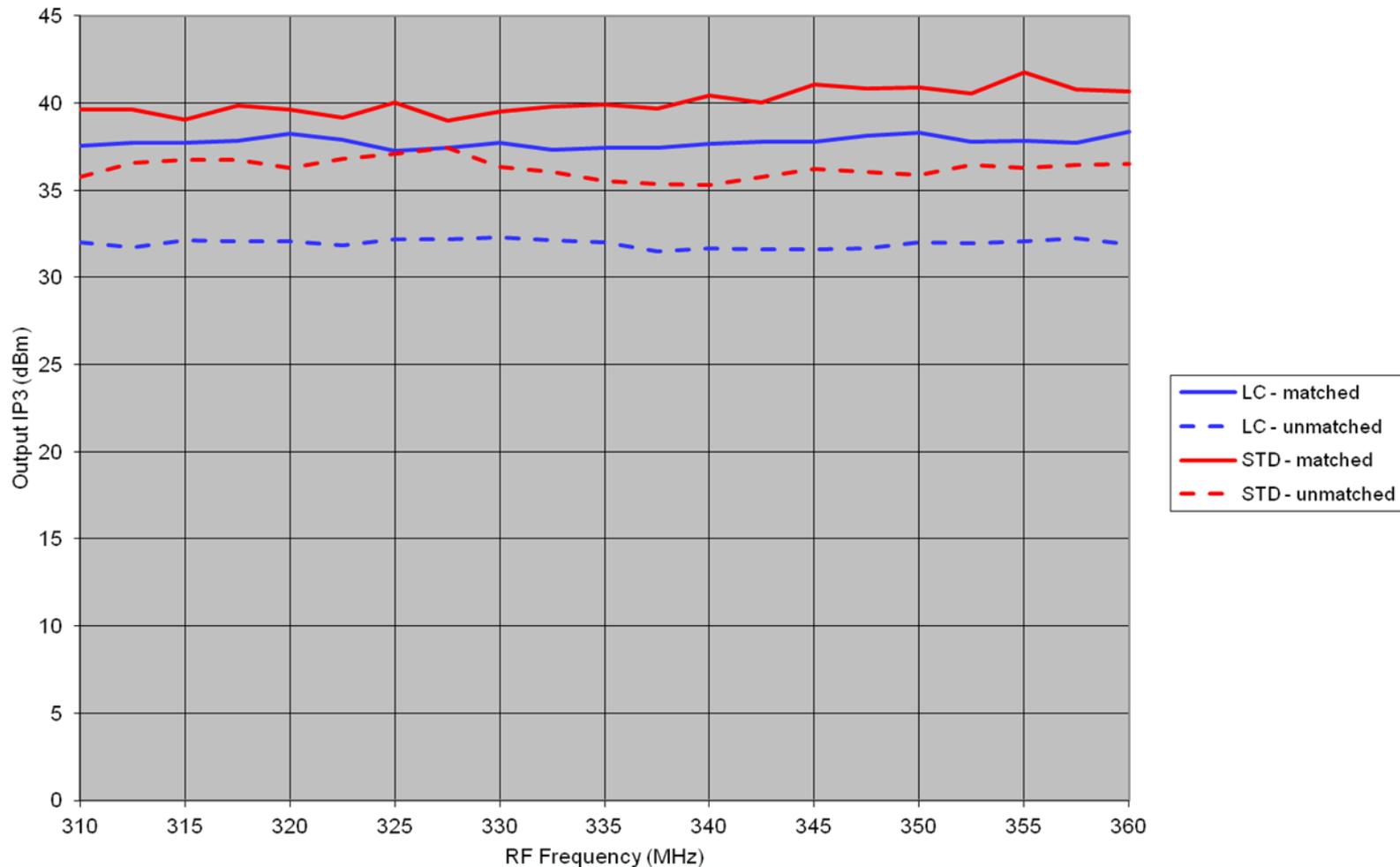
F1102 RF input matching

Reducing value of blocking capacitor to 15 pF and adding 10 pF shunt capacitor improved input match



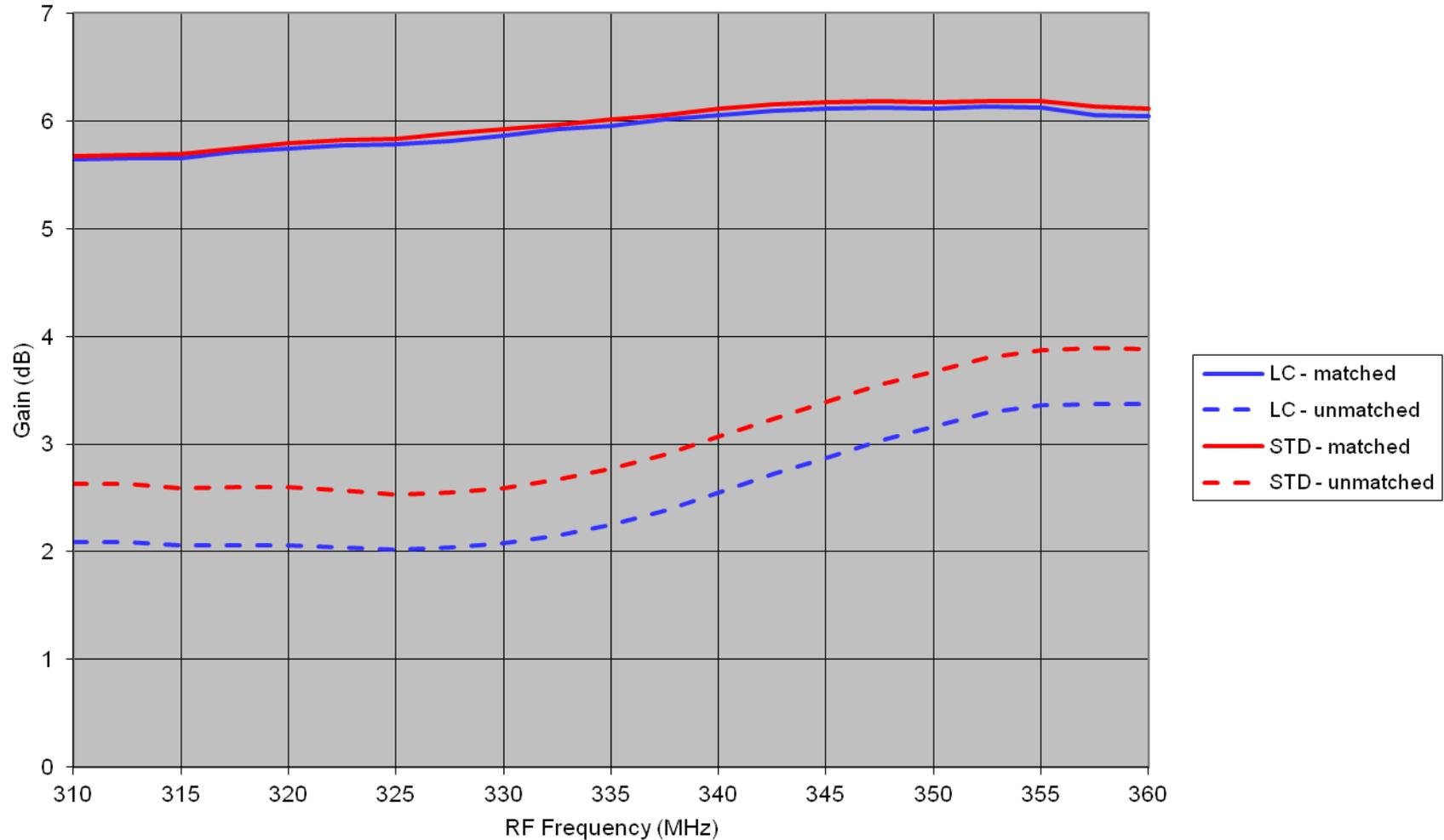
OIP3 with and without RFIN match (LC and Standard Current Mode)

F1102 Performance with LO=519 MHz



Gain with and without RFIN match (LC and Standard Current Mode)

F1102 Performance with LO=519 MHz



Summary

- Without any RF input tuning on the F1102:
 - Poor input match (3 dB RL) 330 MHz to 340 MHz
 - Low gain (2 or 3 dB, depending on LC or standard current mode)
 - Poor output IP3
 - 32 dBm LC mode
 - 35.5 dBm standard current mode
- WITH RF input tuning (shunt 10 pF, series reduced to 15 pF):
 - Excellent input match (better than 16 dB RL) 330 MHz to 340 MHz
 - Moderate gain: 6 dB
 - Good output IP3
 - 37.4 dBm LC mode
 - 39.9 dBm standard current mode