

CC1100

Reliability Report

CONCLUSION

The CC1100 meets the Texas Instruments Norway's product reliability qualification standards based on the procedures and tests documented in the following.

Design phase

Design is made for robustness using extensive corner simulations for:

- Process variations
- Minimum/maximum operating temperature
- Minimum/maximum operating voltage
- Minimum/maximum process limitations

Process

The CC1100 is based on the Texas Instruments Norway SmartRF[®]-04 platform. It is designed in an industry standard 0.18µm mixed signal CMOS process with 1 poly layer and 4 metal layers.

Package reliability (20lead QLP - Pb free)

Moisture Sensitivity Level	JEDEC Level 3
Temp Cycling	-65/150°C, 1000 cycles
High Temp Storage Test	150°C, 500 hrs.
PCT	121°C / 100% RH, 15psig, 168 hrs

ESD and Latch-Up

Latch-up testing according to EIA/JESD-78, class I.

Minimum immunity level: ± 100mA at all pins. VDD abs. max. rating x1.5 at all supply pins.

ESD test according to JEDEC STD 22, method A114, Human Body Model.

ESD level < 500V.

Transfer to Production

First Article Inspection (testing at -40/+25/+85°C)

Production test limits extraction based on statistical methods.

Accelerated lifetime test. Minimum expected lifetime (*): 10 years at 58°C,

1.4 years at 85°C, FIT of approx. 60 (at room temp) with 60% confidence level.

(*) based on test of 9 devices at 125°C and 1 device at 25°C for 1070 hours, 0 failures. Devices from lot D64398.01, D64398.02, D64398.03 and D64398.04.

Production test

Final test +25 °C

QA sampling +85 °C

Tape & Reel specification

Package: QLP 20 - Pb free

Tape Width: 12,0mm

Component Pitch: 8,0mm

Hole Pitch: 4,0mm

13 inch tape with 2500 pcs.

Carrier tape and reel is in accordance with EIA specification 481.

Solderability

Recommended soldering profile is according to IPC/JEDEC J-STD-020C July 2004

Summary

The above data show that CC1100 meets the Texas Instruments Norway's product reliability qualification standards and has an acceptable level of reliability.

Revision history

1.0 Initial version

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		Applications	
Amplifiers	amplifier.ti.com	Audio	www.ti.com/audio
Data Converters	dataconverter.ti.com	Automotive	www.ti.com/automotive
DSP	dsp.ti.com	Broadband	www.ti.com/broadband
Interface	interface.ti.com	Digital Control	www.ti.com/digitalcontrol
Logic	logic.ti.com	Military	www.ti.com/military
Power Mgmt	power.ti.com	Optical Networking	www.ti.com/opticalnetwork
Microcontrollers	microcontroller.ti.com	Security	www.ti.com/security
RFID	www.ti-rfid.com	Telephony	www.ti.com/telephony
Low Power Wireless	www.ti.com/lpw	Video & Imaging	www.ti.com/video
		Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2007, Texas Instruments Incorporated