

CC1020

Reliability Report

CONCLUSION

The CC1020 meets the Chipcon 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 CC1020 is based on the Chipcon SmartRF[®]-02 platform. It is designed in an industry standard 0.35 μ m mixed signal 3.3V CMOS process with 2 poly layers and 4 metal layers.

Package reliability

Moisture Sensitivity Level:	JEDEC Level 3
Temp Cycling	-65/150°C, 1000 cycles
Thermal Shock Test	-65/150°C, 500 cycles
HAST	130°C/85% r.h. 168 hrs.
Autoclave	121°C / Sat. steam, 15 PSI, 168 hrs

Transfer to production

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

Production test limits extraction based on statistical methods.

ESD test according to Mil. Std. 883E 3015 Human Body Model.

Minimum immunity level: 1kV: all combination of pins, except: 500V all RF pins, except: 400V at AVDD_RF1 to AVDD_LNA and AVDD_RF1 to Pin 21.

Latch-up testing according to JEDEC 17.

Minimum immunity level: \pm 100mA at all pins. VDD abs. max. rating + 20% at all supply pins.

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

1.4 years at 85°C, FIT less than 40 (at room temp).

(*) based on test of 20 devices at 125°C in 1070 hours, 0 failures.

Production test

Wafer sort, +85°C (not yet implemented)

Final test, +25°C

QA sampling (+25°C)

Tape & Reel specification

Package: QFN 32 - RoHS Compatible

Tape Width: 16,0mm

Component Pitch: 12,0mm

Hole Pitch: 4,0mm

13inch tape with 4000 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 device CC1020 meets Chipcon qualification standards and has an acceptable level of reliability.

Revision history

- 1.0 Initial document
- 1.1 Updated no. of units delivered (Echo version)
- 1.2 Updated wrt. Pb-free package qualification data

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