QT60240 TEMPERATURE TEST

1 Introduction

This document outlines the results of the temperature test for QT60240. This test and its results shall apply to the QT60000 chip family that includes QT60160, QT60240, Q60168, QT60248, QT60486, and custom parts as QT12C01~QT12C05, QT6C01~QT6C14, QT8C01.

The selection and application of such tests accomplishes two goals:

- Monitoring development and production quality
- Predicting product performance in the customer application

Temperature tests are not intended for the exact re-creation of application conditions. They are intended more for the purpose of establishing whether or not the test samples are produced according to, and meet the requirements.

Code under review: QT60240 rev 8

Test Date(s): 12th October 2006

2 References

IEC 60068-2-1: 1993 Tests Ab - Cold test

IEC 60068-2-2: 1974 Tests Bb – Dry Heat

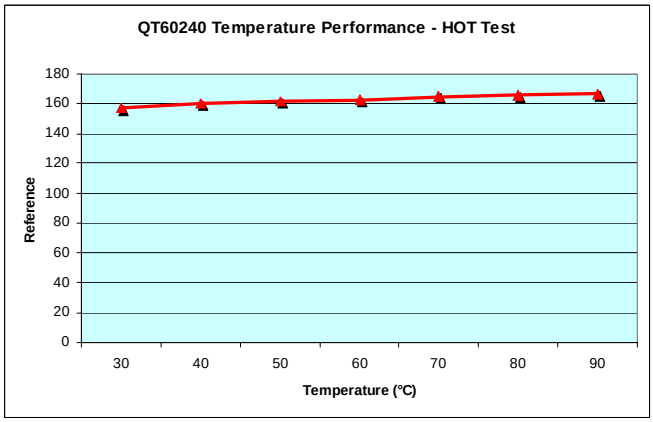
3 Temperature Test Method

1. The test was conducted using the E6240 evaluation board.
2. Test laboratory of TUV Product Services, Titchfield, Southampton.
3. Equipment used:
   a. Temperature chamber: Climatec TE2124.
   b. Data logger: QRG QM-Btn software.
   c. Temperature logger: PICO Multilogger thermometer.
   d. Actuation device: Servo motor driven by a USB driver circuit.
4. The temperature test has following test sequence:
   a. Visual inspection before temperature test.
   b. Function test before temperature test.
   c. Stabilise the temperature with typical dwell time of 1 minute.
   d. Function test at each temperature test step.
   e. Gradually change the temperature (change rate = 1K/min.) with 5°C step.
5. The test sample was energized. A finger touch actuator mechanism was used to simulate a touch sense.
6. At every function test, the signal strength (also known as delta) at idle state (no detection) was recorded for a typical period of 1 minute. After this, a touch was held for one second and then released for one second. The touch/release sequence was repeated for a typical period of 1 minute and the signal strength recorded.
7. PASSED-criteria are:

   Visual inspection and function test, before and after the real temperature test, must be passed and measuring and test values must be within specification. Delta should not change by a quarter of its detection threshold.

4 Test Results

Free Run mode. Hot temperature range - +30°C to +90°C.



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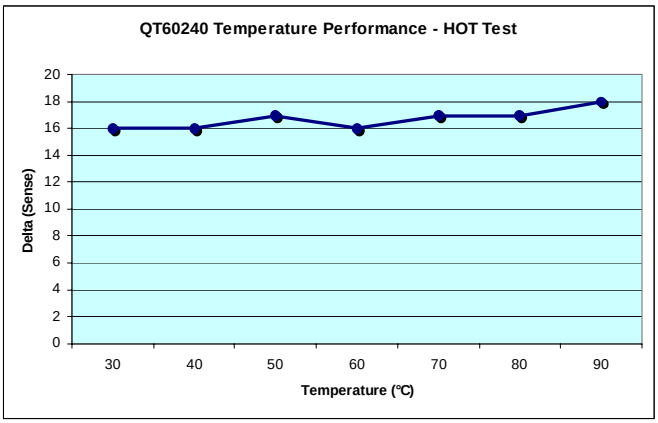
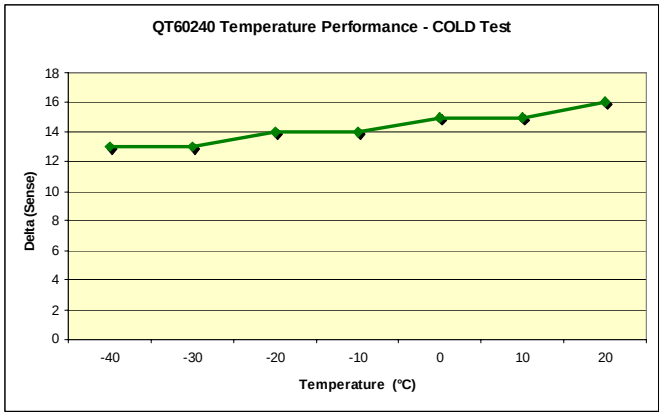
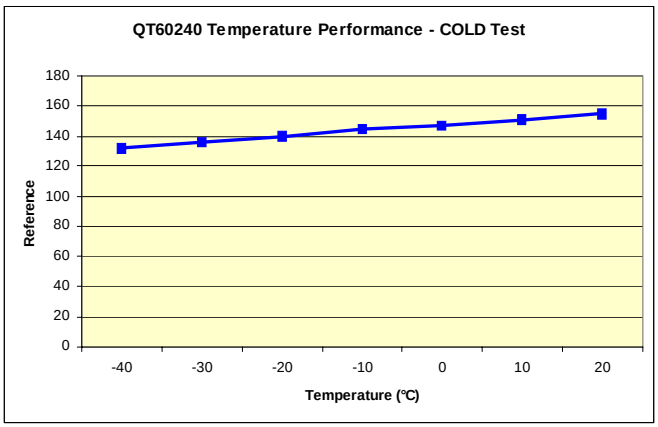




Free Run mode. Cold temperature range - -40°C to +20°C.



5 Summary

Test result: Passed

The reference and delta are stable over the temperature range of –40°C to +90°C.