ZL70123 Datasheet
MICS-Band RF Base Station Module (BSM)

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- Item 23. Made naming changes throughout the document for accuracy and consistency, including changing ZLE70103 ADK to ZL70103 ADK, ZL70123 to ZL70123 module, ZL70103 to ZL70103 transceiver, and CC2500 to either CC250 2.4-GHz RF Transceiver or CC2500 device.

This release was a preliminary datasheet. Such preliminary datasheets may be based on simulation or initial characterization and are subject to change.

1.3 Initial Release

Revision 1 of this document, dated November 2016, was the initial release of the datasheet. This release was a preliminary datasheet. Such preliminary datasheets may be based on simulation or initial characterization and are subject to change.

2 Overview

2.1 Introduction

The ZL70123 MICS-Band RF Base Station Module (BSM) is a complete, high-performance, easy-to-use RF module that is based on the ZL70103 MICS-band transceiver IC, which is used for implantable medical applications. The ZL70103 transceiver is designed to provide good performance while consuming extremely low power.

The ZL70123 is a next-generation base station module designed for use in external medical equipment to monitor and control implantable devices. A simplified replacement of its predecessor ZL70120 base station module, it is lower cost, smaller size, lower power, and includes improvements such as:

- Internal RSSI filter
- Improved sensitivity[1]:
  - 2FSK-fallback (200 kbit/s raw): −102 dBm
  - 2FSK-Barker5 (40 kbit/s raw): −107 dBm
  - 2FSK-Barker11 (18.18 kbit/s raw): −110 dBm
- Improved adjacent/alternate channel rejection
- Approximately 30% reduction in average/peak current
- Approximately 60% reduction in footprint

Figure 1, page 4, shows the ZL70123 block diagram. The ZL70123 module integrates additional circuitry and functionality required to deploy a complete radio solution for external applications in a MICS-band RF telemetry system. The ZL70123 module implements all RF-related functions and reduces the complexity of implementing a MICS-band base station to placing one single package on an application board.

2.2 Features and Specifications

The ZL70123 module features include:

- Complete MICS-band[2] RF telemetry radio solution
- Generic RF base station module designed to interact with implantable medical devices that are based on the ZL70101, ZL70102, and ZL70103 family of products
- Compact design and small size to fit any base station application
- Fully shielded package
- Rich functionality (access to the ZL70103 features)
- Designed to meet regulatory requirements (FCC, ETSI, etc.)
- RoHS compliance

1. *Measured at the 50-ohm ports of the module (RF400 and RF245) and based on a Packet Error Rate (PER) of 10%.*
2. *The MICS band is a subset of the designated MedRadio frequency band.*

2.2.1 Block Diagram

Figure 1 • **ZL70123 Block Diagram**