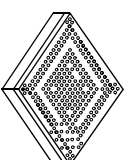




MC13783



Package Information
Plastic Package
10 × 10 mm package

Ordering Information

Device	Device Marking or Operating Temperature Range	Package
MC13783	-30 to +85 °C	MAPBGA-247

MC13783

Power Management and Audio Circuit

1 Introduction

The MC13783 is a highly integrated power management and audio component dedicated to handset and portable applications covering GSM, GPRS, EDGE, and UMTS standards. The MC13783 implements high-performance audio functions suited to high-end applications such as smartphones and UMTS handsets.

The MC13783 provides the following key benefits:

- Full power management and audio functionality in one module optimizes system size.
- High level of integration reduces the power management and audio system bill of materials.
- Versatile solution offers large possibilities of flexibility through simple programming (64 registers of 24-bit data).
- Implemented DVS saves significant battery resources in every mode (compatibility with a large number of processors).
- Dual channel voice ADC improves intelligibility.

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The detailed block diagram of the MC13783 in [Figure 1](#) shows the wide functionality of the MC13783, including the following features:

- Battery charger interface for wall charging and USB charging
- 10 bit ADC for battery monitoring and other readout functions
- Buck switchers for direct supply of the processor cores
- Boost switcher for backlight and USB on the go supply
- Regulators with internal and external pass devices
- Transmit amplifiers for two handset microphones and a headset microphone
- Receive amplifiers for earpiece, loudspeaker, headset and line out
- 13 bit Voice CODEC with dual ADC channel and both narrow and wide band sampling
- 13 bit Stereo recording from an analog input source such as FM radio
- 16 bit Stereo DAC supporting multiple sample rates
- Dual SSI audio bus with network mode for connection to multiple devices
- Power control logic with processor interface and event detection
- Real time clock and crystal oscillator circuitry
- Dual SPI control bus with arbitration mechanism
- Multiple backlight drivers and LED control including funlight support
- USB FS/L/S transceiver with OTG and CEA-936-A Carkit support
- Touchscreen interface

The main functions of the MC13783 are described in the following sections. A detailed block diagram is shown in [Figure 1, on page 3](#).

