

Operational Description

1. GDM1202

The GDM1202 is a part of the GCT Bluetooth product family. It is a DSP processor with the functionality of both baseband controller providing the Bluetooth™ functionality for high data rate, short-distance wireless communication in the free 2.4GHz ISM band and digital audio decoder such as MP3 or AC3. Together with GDM100X 2.4GHz radio transceiver IC and an external flash memory, it provides a fully compliant Bluetooth system for data and voice communications. GDM1202 consists of BlueRF™ RXMODE2/3, 3-wires radio interface, Bluetooth™ baseband and bit processor, GCT proprietary 32-bit hybrid RISC/DSP embedded processor with 48bit resolution, and USB / UART / PCM / DAC / I2S / SPDIF / SMC standard interfaces.

The on-chip 32-bit hybrid RISC/DSP embedded processor is powerful enough to support full rate Bluetooth data communications as well as full rate digital audio decoding and includes large enough embedded SRAM up to 128KByte to support several applications without external memory, which results in cost-effective and low-power consumption systems. In combination with GCT own optimized Bluetooth™ baseband, embedded protocol stacks and audio decoder firmware, it provides a complete cost-effective SOC embedded solutions such as portable MP3 decoder, wireless high quality speaker system or headset.

2. GDM1002

The GDM1002 is a part of the GCT Bluetooth product family. It is a short-range microwave-frequency radio transceiver for Bluetooth links that operates in the 2.4 GHz ISM band. The device consists of a fully integrated 2.4 GHz radio transceiver with GFSK modem. This radio IC is based on GCT's proprietary radio architecture employing direct conversion scheme, which offers superior channel selectivity, and is implemented in CMOS technology, which provides low cost integrated RF and baseband solutions for Bluetooth applications.

The GDM1002 incorporates the complete receive and transmit components including PLL, VCO, LNA, up/down converter, channel select filters, and digital GFSK modem.

3. STw5094

STw5094 is a low power Stereo Audio DAC device with Headphones Amplifiers for

high quality MP3 and FM radio listening. The STw5094 includes also an high performance low power combined PCM CODEC / FILTER tailored to implement the audio front-end functions required by low voltage low power consumption digital cellular terminals with added MP3 and FM radio listening.

STw5094 offers a number of programmable functions accessed through an I2C-bus compatible interface. The STw5094 Stereo Audio DAC section is suited for MP3, or any other audio stereo source, listening. It supports all the MP3 rates from 8kHz to 48kHz. The audio data serial interface is I2S compatible and can be programmed to handle 16 to 24 bit word length input data. The internal D to A converters work with 18bit input resolution. The Stereo Headphones drivers can also be used for FM Radio listening via an auxiliary stereo analog input. A Loudspeaker driver can also be used for monophonic group listening.

The STw5094 Voice Codec section can be configured either as a 14-bit linear or as an 8-bit companded PCM coder. The Frame Synchronism frequency of the Voice Codec can be either the standard 8kHz value or the extended 16kHz one. In addition to the Stereo Audio DAC and CODEC / FILTER functions, STw5094 includes a Tone / Ring / DTMF generator that can be used both in Audio Listening mode and in Voice Codec mode, a sidetone generation, a buzzer driver output and a remote control function tailored to handle an external on-hook off-hook button.

STw5094 Voice Codec fulfills and exceeds D3 / D4 and CCITT recommendations and ETSI requirements for digital handset terminals. The Stereo Audio DAC part fulfills and exceeds the requirements for MP3 quality and FM radio quality listening. Main applications include digital mobile phones, as cellular and cordless phones, with added low-power high-quality MP3 and / or FM radio listening features, or any battery powered equipment that requires Stereo Audio DAC with Headphones drivers operating at low single supply voltage.

4. 16Mbits FLASH M29W160DB

The M29W160D is a 16 Mbit (2Mb x8 or 1Mb x16) non-volatile memory that can be read, erased and reprogrammed. These operations can be performed using a single low voltage (2.7 to 3.6V) supply. On power-up the memory defaults to its Read mode where it can be read in the same way as a ROM or EPROM.

The memory is divided into blocks that can be erased independently so it is possible to preserve valid data while old data is erased. Each block can be protected

independently to prevent accidental Program or Erase commands from modifying the memory. Program and Erase commands are written to the Command Interface of the memory. An on-chip Program/Erase Controller simplifies the process of programming or erasing the memory by taking care of all of the special operations that are required to update the memory contents.

The end of a program or erase operation can be detected and any error conditions identified. The command set required to control the memory is consistent with JEDEC standards.

The blocks in the memory are asymmetrically arranged, see Figures 6 and 7, Block Addresses. The first or last 64 Kbytes have been divided into four additional blocks. The 16 Kbyte Boot Block can be used for small initialization code to start the microprocessor, the two 8 Kbyte Parameter Blocks can be used for parameter storage and the remaining 32K is a small Main Block where the application may be stored.

Chip Enable, Output Enable and Write Enable signals control the bus operation of the memory. They allow simple connection to most microprocessors, often without additional logic.

The memory is offered in SO44, TSOP48 (12 x 20mm) and TFBGA48 (8 x 9mm, 0.8mm pitch) packages. The memory is supplied with all the bits erased (set to '1').

5. SRAM GS74116A

The GS74116A is a high speed CMOS Static RAM organized as 262,144 words by 16 bits. Static design eliminates the need for external clocks or timing strobes. The GS operates on a single 3.3 V power supply and all inputs and outputs are TTLcompatible. The GS74116A is available in a 6 x 10 mm Fine Pitch BGA package, 400 mil SOJ and 400 mil TSOP Type-II packages.

6. FM Philips TEA5767

The TEA5767HN is a single-chip electronically tuned FM stereo radio for low-voltage application with fully integrated IF selectivity and demodulation. The radio is completely adjustment-free and only requires a minimum of small and low cost external components. The radio can be tuned to the European, US and Japanese FM bands.