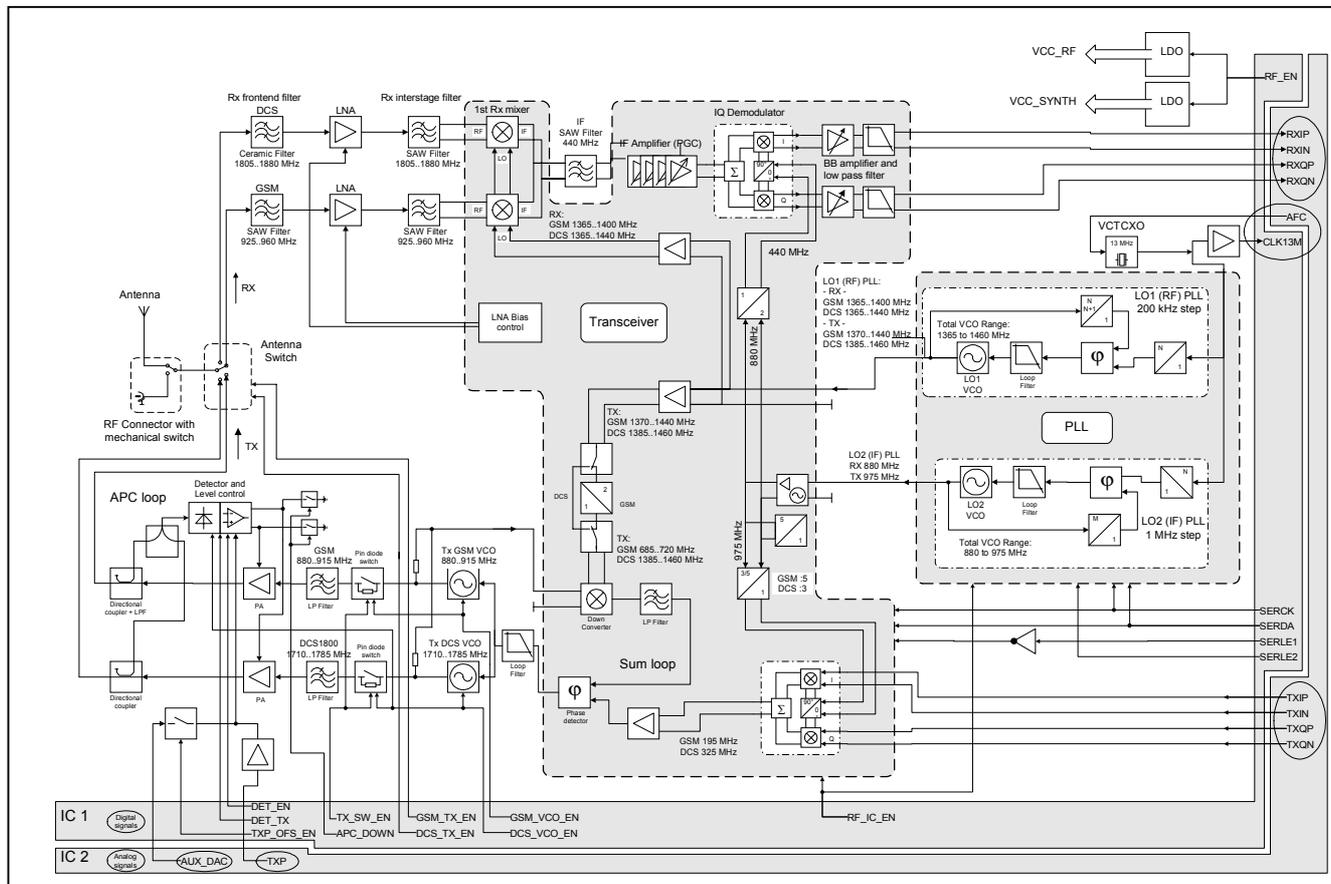


Descripcion y Funcionamiento de un Celular GSM SONY Diagramas

Diagrama en Bloques del Sistema de RF



6.1.1 General RF Indications

The radio part of the CMD-J5/J16 handles the air interface according to the GSM specifications. It is the main contributor for the dualband functionality for E-GSM 900 and DCS 1800.

Receiver

The receiver consists of two separated RF paths for GSM and DCS 1800 each.

On the transmission line between the antenna switch of the RF part and the antenna there is the RF connector including a mechanical switch to connect an external antenna for accessory use. The integrated mechanical switch switches between the helix antenna and the external RF antenna connection. As long as a plug is connected the antenna is deactivated and all RF signals go across the connector.

The GMSK (Gaussian-filtered minimum shift keying) modulated 900 MHz / 1800 MHz signal received by the antenna is filtered, gained and downconverted into the baseband via an intermediate frequency of 440 MHz.

The 440 MHz filter is followed by a tuneable amplifier and IQ demodulator. Behind the demodulator there are additional base band amplifiers and low pass filters.

The In Phase (I) and Quadrature (Q) signal outputs are balanced each.

A 13 MHz voltage-controlled-temperature-compensated crystal oscillator (VCTCXO) generates the clock frequency for the PLL and baseband part.

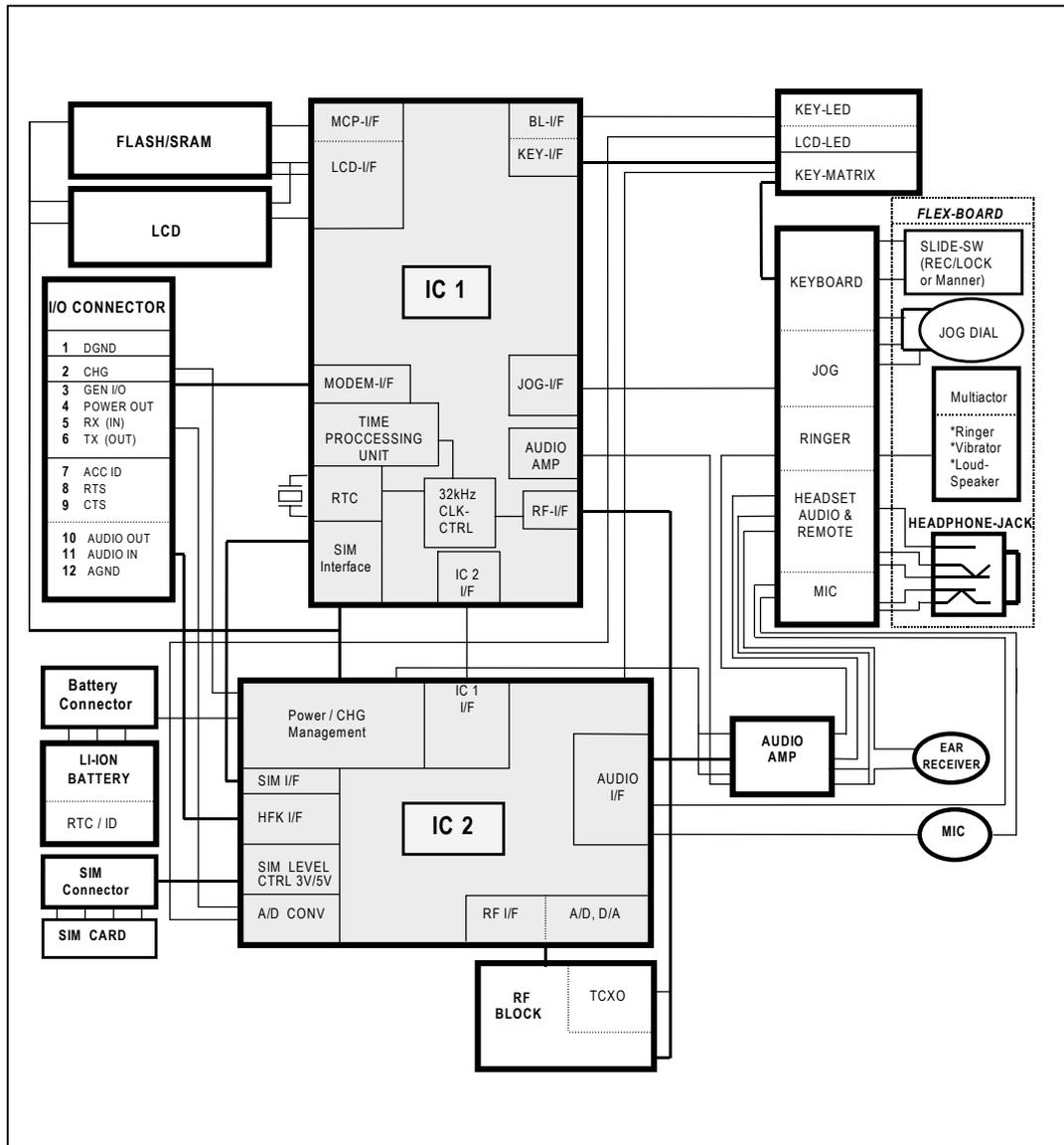
Transmitter

In the transmit direction the digitally GMSK-modulated baseband signal is upconverted to the transmit frequency in the 900 MHz / 1800 MHz band via an intermediate frequency of 195 MHz (GSM) / 325 MHz (DCS 1800) by means of an IQ modulator and the subsequent sum loop.

All RF and IQ signals are balanced signals in order to suppress crosstalk effects. According to GSM recommendations transmitter and receiver are never active at the same time.

(TDMA system "Time Division Multiple Access").

6.2 Block Diagram - Baseband



6.2.1 General Baseband Indications

The Baseband part consists of two chips, a digital chip IC 1 and an analog one IC 2.
The CMD-J5/J16 external memory size is 32 Mbits Flash ROM and 4 Mbit SRAM.

IC 1

The application of IC 1 is the management of the GSM baseband processes through the GSM layer 1, 2 and 3 protocols as described in the ETSI standard with a specific attention to the power consumption in both GSM dedicated and idle modes.

It is a chip that implements:

- the digital baseband processes of the CMD-J5/J16 and combines a Digital Signal Processing (DSP) with its program and data memories,
- a Micro-Controller core with emulation facilities and an internal RAM memory,
- a clock squarer cell,
- several compiled ports and equivalent CMOS gates.

Full support for Full-Rate, Enhanced Full-Rate and Half-Rate speech coding is given.

IC 2

IC 2 is the platform of the A/D-D/A converter for the interfacing and processing of baseband I/Q signals and voice signals.

It includes:

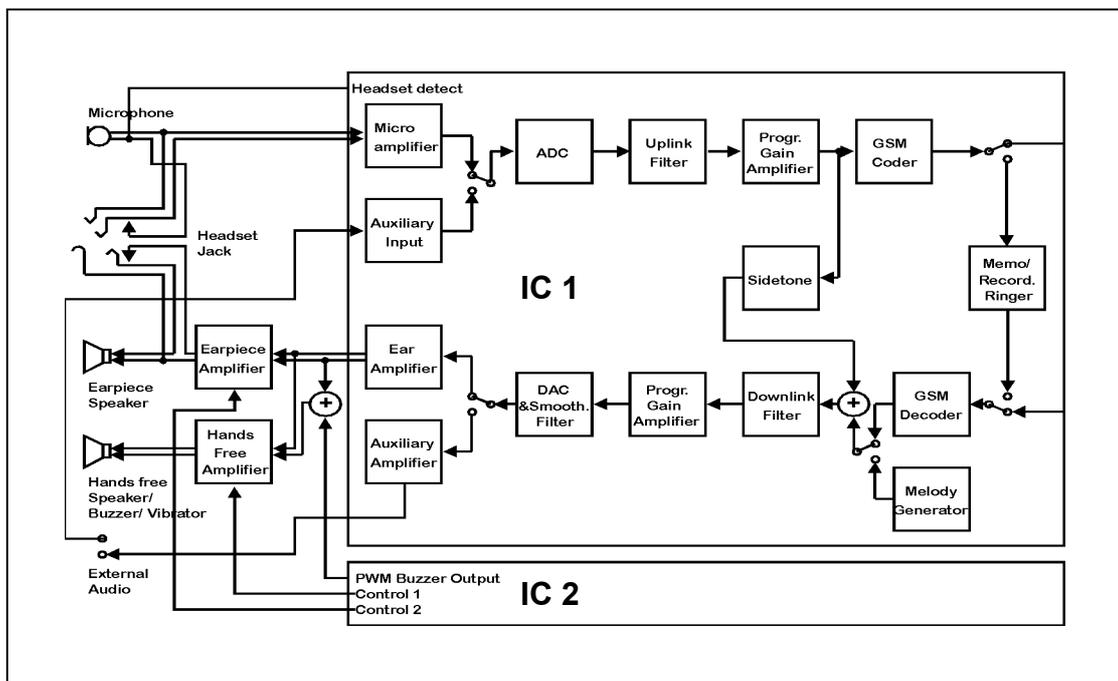
- the complete set of baseband functions to perform the interface and processing of voice signals,
- interface for processing of baseband components as In Phase (I) and Quadrature (Q) signals which support single slot and multi slot mode,
- associated auxiliary RF control features,
- supply voltage regulation,
- battery charging control and
- switch ON/OFF system analysis.

Further, IC 2 includes also on chip voltage reference, under voltage detection and power -on reset circuits.

IC 2 interfaces with the digital baseband device through a set of digital interfaces dedicated to the main functions of IC 1:

1. A baseband serial port (BSP) and a voiceband serial port (VSP) to communicate with the DSP.
2. A micro- controller serial port (USP) to communicate with the micro controller core of IC 1.
3. A time serial port (TSP) to communicate with the processing unit for real time control.

6.3 Block Diagram - Audio



6.3.1 General Audio Indications

Multiactor (Loudspeaker /Ringer Vibrator)

This device is a combined electrodynamic vibration exciter with an additional membrane to improve frequency response and enhance ringer level.

The system is tuned to the vibration frequency around 130 Hz.

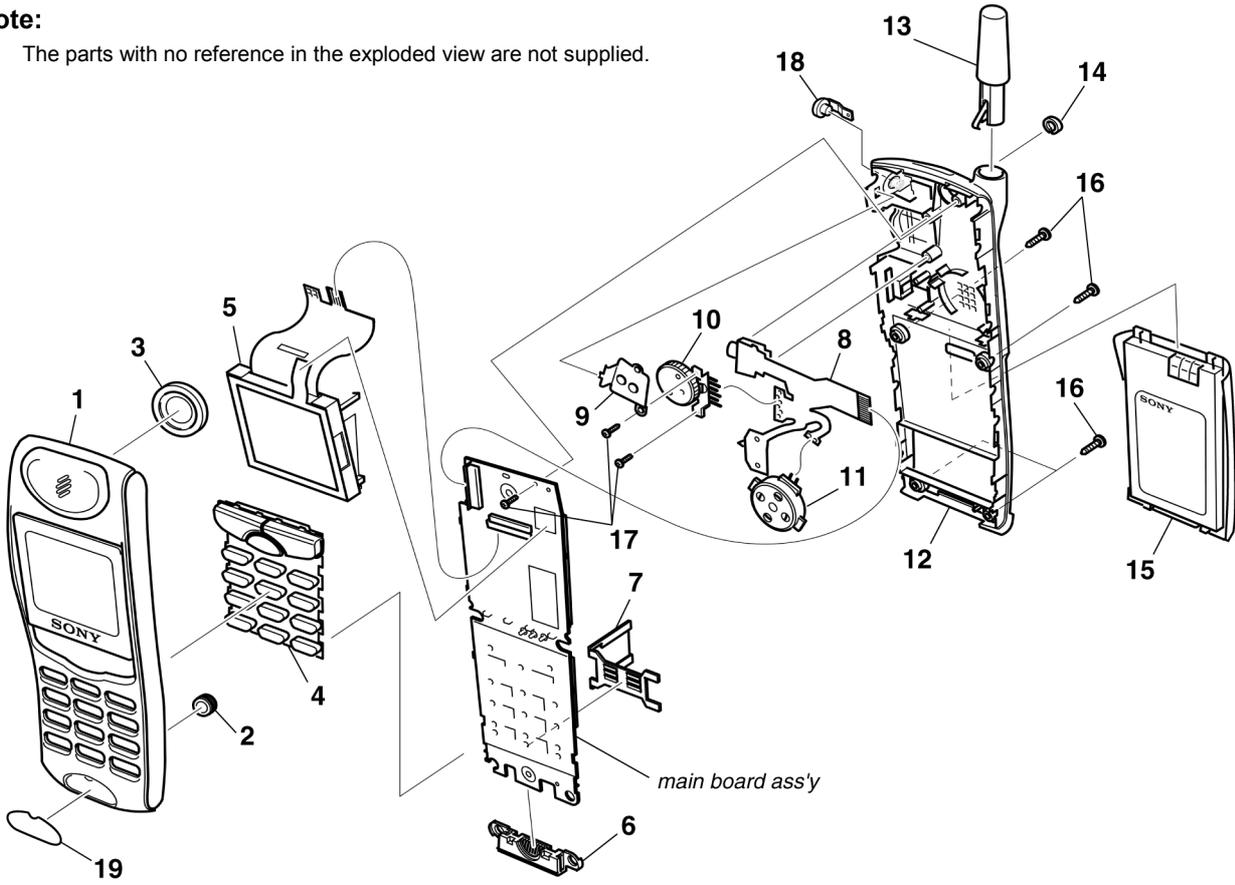
Headset Connector (Headphone Jack)

The headset is connected directly to the circuit to the built in microphone and earpiece. The connector is a 4-pole jack with 2 switches.

SECTION 7 SPARE PARTS AND ACCESSORIES LIST

Note:

- The parts with no reference in the exploded view are not supplied.



Ref. No.	Part No.	Description	Remark
1	A-3649-251-A	CABINET, UPPER SUB-ASSY (HONG KONG/PHILIPPINE)	
1	A-3649-263-A	CABINET, UPPER SUB-ASSY (MALAYSIA)	
1	A-3649-313-A	CABINET, UPPER SUB-ASSY (TAIWAN)	
2	1-542-441-21	MICROPHONE	
3	A-3649-063-A	RECEIVER ASSY	
4	3-045-009-01	RUBBER KEY	
5	A-3622-451-A	LCD ASSY	
6	1-794-665-11	CONNECTOR HOUSING	
7	1-793-605-22	SIM CONNECTOR	
8	A-3622-453-A	FLEX MOUNT	
9	3-225-215-01	PLATE, JACK	
10	1-418-426-21	ROTARY ENCODER	
11	1-529-799-21	MULTIACTOR	
12	A-3649-053-B	CABINET, LOWER SUB-ASSY	
13	1-754-151-41	HELICAL ANTENNA	
14	3-225-211-01	CAP, RF	
15	1-756-116-21	BATTERY PACK, 640	
16	3-929-548-01	SCREW (1.7x6), +PTT	
17	3-224-788-01	SCREW (DIA1.4x4.5), PRECISION	
18	3-225-214-02	CAP, JACK	
19	3-225-210-01	BADGE, PRINTING (CMD-J5)	
19	3-225-210-21	BADGE, PRINTING (CMD-J16)	

Ref. No.	Part No.	Description	Remark
ACCESSORIES & PACKING MATERIALS *****			
	1-476-203-11	AC ADAPTOR EU	QN-3AC1 (MALAYSIA)
	1-476-204-11	AC ADAPTOR UK	QN-3AC2 (HONG KONG)
	1-476-206-12	AC ADAPTER (CABLE)	QN-3TC (TAIWAN/PHILIPPINE)
	1-757-783-11	AC POWER-SUPPLY CORD SET	(TAIWAN)
	1-823-596-11	CORD SET, POWER (PHILIPPINE)	
	3-221-976-21	MANUAL, INSTRUCTION (CHINESE, TRADITIONAL)	(HONG KONG)
	3-221-976-81	MANUAL, INSTRUCTION (TAIWANESE)	(TAIWAN)
	3-221-976-91	MANUAL, INSTRUCTION (ENGLISH)	(MALAYSIA)
	3-227-528-21	GAMES LEAFLET (MALAYSIA/PHILIPPINE)	
	3-227-791-21	GAMES LEAFLET (HONG KONG, TAIWAN)	
	3-232-948-01	LIST, CHARACTER CORRESPOND	(TAIWAN)
	3-236-212-11	MANUAL, INSTRUCTION (ENGLISH)	(PHILIPPINE)