



C133 repair manual (V1.0)

2006、7



Contents

1.SPECI	FICATION	
1.1.	GENERAL SPECIFICATION	
1.2.	TRANSMITTER SECTION SPECIFICATION	
1.3.	R ECEIVER SECTION SPECIFICATION	
2.HARD	WARE BLOCK DIAGRAM	
2.1.	QUALCOMM MSM6000 CDMA HANDSET SOLUTION	
2.2.	LCD DISPLAY	
2.3.	Keypad	
2.4	MEMORY CONFIGURATION	
2.5	RUIM	
2.6	VIBRATOR	
2.7	ANTENNA	
2.8	B ATTERY	
2.9	BUZZER	
3.HARD	WARE CIRCUIT DESCRIPTION9	
3.1.	RF SECTION	
3.2.	LOGIC SECTION	
4.AFTER	A SALES SERVICE	
4.1	SERVICE LEVELS	
4.2	LEVEL 1 REPAIR	
4.3	LEVEL 2	
5 EXPLODING DIGRAM		
6 PCB LA	AYOUT AND PARTLIST19	



1. SPECIFICATION

1.1. General Specification

	General Performance
Standard	CDMA-2000 1X 800 MHz
Frequency Range	Band Class 0 (as per IS-2000/IS-98D)
Main Faaturas	CDMA 1x Voice & SMS
Main Features	(no data support)
Size	109.5 * 48.5 * 23.95 mm
Volume	92 cc
Weight	90 g
	CDMA (measured per Section 2.1 CDG
Talk Time	35):
	3.58 hrs (IS95 mode)
	3.0 hrs (1X mode)
Standby Time	CDMA (measure per Section 2.2.2C CDG
	35): 222 hrs (SCI=2)
Maximum Output Power	CDMA: 24dBm ERP
Vocoder	8k EVRC on MSM6000
Battery	Li-Ion (Integrated Type), 750 mAh
Graphics Display	Monochrome, 96 x 64 pixels
Keypad	16 keys + 4 -way Navigation System
Connectivity	Headset and Charger
Languages	English & other languages (TBD)
Text Input	Zi Predictive Text Input
Ringing Tones	10 defaults ringing tones
Antenna	Integrated Antenna
Vibrator	Internal / Built-in Vibrator
LED Backlight (Green)	Keypad and LCD Iluminance
Mamony	16 Mbit Flash (AM29DL162DT-70WCI),
Memory	4Mbit SRAM
SMS	20 messages with up to 256 bytes payloads
	100 entries supporting 1 name of 32 bytes
Phone Book	associated with 3 telephone number of 32
	bytes each
R-UIM	3V, Direct
	Battery monitor and protection circuit
Power Management	inside the main PCB, plus PTC on battery
	case
Microphone	Differential pair
Receiver	Differential pair



1.2. Transmitter Section Specification

Frequency Range	824 ~ 849MHz
LO Frequency Range	1648 ~ 1698MHz
Output Power (CDMA mode)	24dBm ERP
Frequency Stability	± 300Hz

1.3. Receiver Section Specification

Frequency Range	869 ~ 894MHz	
LO Frequency Range 1738 ~ 1788MHz		~ 1788MHz
Consitivity	Radiated Mode	-104dBm
Sensitivity	Conducted Mode	-108dBm
Single Tone	-30dBm	@ ± 900KHz

2. HARDWARE BLOCK DIAGRAM

The hardware block diagram is illustrated in Figure 2-1. Take note that the PCS module in Figure 2-1 is not implemented in ZTE C133 handset. The description of each module will be explained in the following subsections.



Figure 2-1: Illustration of the sub-system interconnect & block diagram



2.1. Qualcomm MSM6000 CDMA Handset Solution

2.1.1. Qualcomm MSM6000 Mobile Station Modem

Features:

- RadioOneTM Zero Intermediate Frequency (ZIF) /Direct Conversion Architecture;
- CDMA2000 1x Release 0;
- Supports IS-95-A and IS-95-B compliant CDMA and AMPS subscriber units;
- Voice Centric (EVRC 8 kbps);
- 8x Searcher, plus an independently controlled 16x Searcher;
- 2-way Short Message Service (SMS);
- Radio Link Protocol 3 (RLP3);
- Support for Fast Power Control (both forward and reverse links);
- P-Rev 6 compliant;
- Integrated voice CODEC;
- Integrated general-purpose ADC for subscriber unit monitoring;
- Battery;
- Embedded QDSP2000[™] digital signal processor core;
- Programmable general-purpose input/output (GPIO);
- Integrated R-UIM (CDMA SIM) Controller for direct interface to R-UIM card;
- Supports low-power, low-frequency crystal to enable TCXO shutoff;
- Low V_{dc} power consumption during operation;
- Software-controlled power management features;
- 208-ball FBGA packaging;
- Enhanced I/O support for faster RS-232.

2.1.2. Power Management Integrated Circuit PM6000

Features:



- Complete power management, housekeeping, and user interface functions for wireless devices ;
- CDMA and non-CDMA handsets, modems, PC cards, PDAs, etc ;
- Fully compatible with QUALCOMM's radioOne Zero-IF chipset;
- Input power management;
- Output voltage regulation;
- Integrated handset-level housekeeping functions, reduces external parts count, size and cost;
- Integrated handset-level user interfaces;
- IC-level interfaces;
- Highly integrated functionality in a small package.

2.1.3. Battery Protection Circuit

Features:

- Protect the battery from over voltage from the DC adapter (including incorrect charger use). If charged at incorrect voltage the phone will not accept to charge;
- Protect the battery against overly high current discharge;
- When the battery cell voltage is lower than 2.4V, it will stop battery cell discharge.

2.1.4. RF Transmitter

Features:

- Integral to QUALCOMM's radioOne[™] Zero-IF (ZIF) chipset that eliminates receive and transmit intermediate frequencies, thereby reducing component count, space and cost;
- Designer familiarity with earlier QUALCOMM transmitter ICs simplifies and expedites handset implementations using the RFT6100 IC;
- Single- or dual-band operation: Cellular and/or PCS;
- Single- or multi-mode operation: Cellular-FM, Cellular-CDMA, and/or PCS-CDMA
- Full up-conversion from analog baseband to RF;



- Transmit signal path circuit;
- Supports all handset LO generation circuits;
- Multiple driver amplifiers with integrated switch network allows split band PCS operation (eliminates external band-select switch);
- Greater than 85-dB transmit power control range;
- Power reduction features via MSM control extends handset talk-time;
- Low Power supply voltage (2.7 to 3.0);
- Available in a small, thermally efficient package (40 BCCP) ;

2.1.5. RF Receiver

Features:

- Integral to QUALCOMM's radioOneTM Zero-IF (ZIF) chipset that eliminates receive and transmit intermediate frequencies, thereby reducing component count, space and cost;
- Designer familiarity with earlier QUALCOMM transmitter ICs simplifies and expedites handset implementations using the RFR6000 IC;
- Single- or dual-band operation: Cellular and/or PCS;
- Single- or multi-mode operation: Cellular-FM, Cellular-CDMA, and/or PCS-CDMA;
- Full down-conversion from RF to analog baseband;
- Receive signal path circuits;
- Rx LO generation and distribution circuits;
- On-chip GPS VCO;
- Power reduction features control extends handset standby time;
- Low power supply voltage (2.7 to 3.0V), low power dissipation
- Available in a small, thermally efficient package (40 BCCP) ;

2.1.6. Power Amplifier

Features:

- Advanced 3rd Generation HBT Process;
- Input/ Output Internally Matched @ 50Ω;
- 28.5dBm Linear Output Power;



- 29dBm Linear Gain;
- 45mA Idle Current (Low Power Mode);
- CDMA2000 compatible.

2.2. LCD Display

The LCD display has a fixed resolution of LCD controller and LCD glass, which are 96 (W) x 64 (H) pixels. The construction is COG using as connection, flexible foil heat sealed to PCB.

2.3. Keypad

Keypad interface consists of 17 keys as follows as shown in Table 2-1 and Figure 2-2.

Name	Function		
Key 0-9, *, #	Alphanumeric, Chinese Stroke, and *, # keys/DTMF		
Select Key c Back space / Clear			
Select Key ok	Menu dependent functionality		
4 navigation keys	4-way navigation		
Send	Off hook		
End / On-OFF	ON hook / Power key		

Table 2-1: Keypad Interface Key





2.4 Memory Configuration

The memory configuration of the **ZTE C133** handset is shown in Table 2-2.

Parameter	Value	Comment				
	FLASH:					
Access Time	=< 110 ns	70ns currently used				
Memory Size	1M x 16 bit(16Mb)	Used for storing protocol stack, MMI, fonts and voice ASR.				
Boot Code Sector	Тор					
SRAM :						
Access Time	=< 110 ns	70ns currently used.				
Memory Size	256k x 16 bit(4Mb)					

 Table 2-2: Memory Configuration

2.5 RUIM

Interface to the Subscriber Interface Module (RUIM) is through the MSM. The interface supports only 3 Volts RUIM.

2.6 Vibrator

A motor or vibrator device is supported within the handset to provide silent alert capability. Vibrator driving circuit is on the PM6000 chip.

2.7 Antenna

Antenna radiator is attached to the rear housing. Spring contact legs of the antenna make connection to pads on the PCB when housing is assembled. Antenna material is Stainless steel. The antenna geometry is shown in Figure 2-3:



2.8 Battery

2.8.1 Battery Overview

The phone has been designed to operate using an integrated standard package Lithium Ion battery cell. Charging circuit for the 4.2Volt battery uses 4.1Volt as charge limit, to increase the battery cycle life.

2.8.2 Battery PTC

A PTC is permanently mounted on the wall of the battery casing in series with the voltage wiring. Purpose of the PTC is as a back-up safety circuit to protect against short circuits and extreme battery temperatures situations.PTC.

2.8.3 Battery Connection

Battery is embedded in phone and is not user replaceable. Battery wiring is connected to the phone PC board through a 3-pin connector.

2.9 Buzzer

The volume control of the buzzer is dependent on the duty cycle of PWM Modulation. The buzzer shall provide five different volume levels.

3. HARDWARE CIRCUIT DESCRIPTION

The detail description of each circuit section will be explain in the below subsections.

3.1. RF Section

3.1.1. Receiving Section

Received signals of 869-894MHz through antenna before being transmitted to the low noise amplifier terminal of receiving section go through the duplexer which receives 881 ± 12.5 MHz of frequency bandwidth during receiving and transmits only 836 ± 12.5 MHz of frequency bandwidth during transmitting. This unit attenuates image interfering the received signal and transmitting signals from the transmit section by around 56dB for proper reception. 12.5MHz.

The received signal passed through the Duplexer having 2.2dB of loss in the transient bandwidth passes through RFL6000 having 15.5dB of gain against a



reception frequency having 1.4dB of noise figure. If the strength of the received signal detected from RFR6000 is stronger than -85dBm slightly, it controls LNA input level of the received signal by switching ON/OFF, after controlling DC voltage with LNA-BYPASS signal at MSM of baseband section.

Signal which has gone through LNA goes through RF SAW Filter reducing at least 40dB additionally against the transmitting signal and the out-band signal. This filter has the bandwidth of 25MHz with the center frequency of 881.5 \pm 12.5MHz. CDMA signal goes through mixer IC, Down Converter having 25MHz bandwidth with 881MHz of center frequency. RFR6000 supports direct conversion i.e Zero IF receiver signal path, from RF to analog baseband without having to go through any IF stage.

3.1.2. Transmitting Section

CDMA transmitting signal output from baseband goes through RFT6100. In order to control the transmitting power accurately, the gain is changed by the TX_AGC_ADJ controlled by baseband MSM. Greater than 85dB gain control range is realized using an MSM-adjusted pulse density modulation (PDM) signal that is RC low-pass filtered.

Output signal is up-converted to the RF output range of 824~849MHz from analog baseband after being mixed with UHF_LO (1752MHz) local oscillator frequency.

RF SAW Filter with frequency band of 836.5 ± 12.5MHz connected to PAM (Power Amp Module).

Output from the output amplifier is transmitted to the transmitting port of Duplex Filter through the isolator. Isolator is omitted in this design. SAW Duplexer provides attenuate minimum 55dB to the transmitting noise generated in the receiving band.

3.1.3. PLL Section

Synthesizer is divided into VCTCXO, VCO, and PLL frequency synthesizer. VCTCXO is a temperature compensation crystal oscillator controlled by TRK-LO-ADJ output from MSM of baseband, provides a reference frequency of 19.2 MHz to Divider in the frequency synthesizer PLL in RF section and simultaneously provides this reference frequency to RX. Control pin for the fine voltage control of VCTCXO is pre-adjusted at the factory through DAC of baseband in case of CDMA; it is controlled by TRK-LO-ADJ signal of MSM producing reference frequency based on the "OFF AIR" correction. This signal is smoothed into voltage input controlling TCXO oscillator by RC low pass filter having 1 ms time constant.

In CDMA mode, the accuracy is in the range of 0.5ppm assuming the accuracy of the base station.

When RF operates, the reference frequency of 19.2MHz is supplied to the phase comparator after being divided by 14 BIT divider in synthesizer.

VCO output is input to the phase comparator through 18-bit divider after being feedback to PLL in order to supply the comparison input to this phase comparator and this comparison output is transmitted to the voltage control pin of VCO phase through the manual RC loop filter via the charge pump. VCO corresponding to this DC voltage is produced.

Programming of dividing number to PLL synthesizer is made of 3 serial interface (data, clock, and latch enable) from MSM of baseband section. If unlock situation is detected, SYNTH_LOCK output is provided and hardware internal LOCK to block the transmitting is the baseband section.

3.2. Logic Section

3.2.1. MSM 6000 (Mobile Station Modem)

MSM6000 performs all digital-processing functions of CDMA/FM/PCS cellular phone.

The MSM6000 is device that adds the mixed signal functions of an audio CODEC and transmit (Tx) Digital to Analog Converters. The subsystems within the MSM6000 include a CDMA processor, a Digital FM processor, a multi-standard Vocoder, an integrated CODEC with earpiece and microphone amplifiers, general-purpose ADC for system monitoring, an ARM7TDMI microprocessor, and a RS-232 serial interfaces supporting forward link MDR data communications of 14.4 Kbps.

The MSM6000 performs baseband digital signal processing and executes the subscriber unit system software. It is the central interface device of the subscriber unit, providing interfaces and control signals to the RF and baseband section, control to the audio circuits, a glue-less memory interface, and the required user interfaces. The MSM6000 also contains complete digital modulation and demodulation systems for both CDMA and AMPS cellular standards, as specified in IS-95-B.

The subscriber unit system software is executed by an ARM7TDMI embedded microprocessor and controls most of the functionality of the subscriber unit. The user interface of the subscriber unit typically includes the keypad, LCD display, and ringer. These are under the direct control of the MSM6000. As the subscriber changes modes of operation, the MSM6000 will power down unused circuits in order to dynamically minimize power consumption.

With the integrated microphone and earpiece amplifiers, the MSM6000 interfaces directly to the microphone and earpiece and greatly reduces the audio interface into a few passive components. The intergrated CODEC converts an analog audio signal, either differential or single-ended, from the microphone into digital signals for the MSM6000's Vocoder. The integrated CODEC also converts digital audio data from the Vocoder into an analog signal, either differential or single-ended, for the earpiece. The internal Vocoder supports EVRC, QCLEP 13K Vocoders, along with implementing two echo cancellers, one for the earseal (ESEC) and an acoustic echo canceller (AEC) for carkit applications. The vocoder also supports digital FM(DFM), DTMF generation and detection, Advanced Noise Suppression, audio AGC control, and automatic volume control (AVC). The MSM6000 has an auxiliary Pulse Code Modulation (PCM) interface and programmable Tx and Rx 13-Tap compensation filters to support an auxiliary linear, mu-Law CODEC.

The MSM6000 is fabricated in an advanced submicron CMOS process. The device operates between 2.3 and 3.0 Volts for low power consumption increasing both standby and talk time.MSM6000.

3.2.2. Memory Circuit

Operation functions of peripheral memory devices of MSM:

a. FLASH Memory

As a 16MBit-memory device it contains S/W and program for each device.

You can change program by using of download program..

b. SRAM

Its capacity is 4MBit and in this memory stored are internal flag information,

call-processing data, and timer data from FLASH to SRAM by MCU.

c. KEY PAD

Store signal of SCAN 0-6 and four input port of MSM KEY 0-3 are used for key input and formed a key Matrix. Power key is not related to Matrix and 20 keys including this are available.

d. LCD Module

LCD display is composed of 7 icons and 64 x 96 pixels monochrome in 15 characters with 5 lines. And support double rate character. Controller is built in the module and all data are handled by 8-bit parallel. Temperature compensation circuit is built in for proper working under the unfavorable working condition like $-20^{\circ}c \sim +70^{\circ}c$.

3.2.3. Audio Section

a. TX AUDIO PATH

Voice signal generated from MIC is transmitted to MSM. The microphone interface used one differential microphone inputs, one differential auxiliary input and a two-stage audio amplifier. The gain for the first stage amplifier can be set to -2dB, +6dB, +8dB or +16dB. The gain of the second stage amplifier is set externally. Additional filtering for the microphone is designed into the external gain circuit in order to enhance the audio performance of the transmit channel.

b. RX AUDIO PATH

The RX audio path contains a programmable gain stage, with a range of +12dB to -84dB, before the audio front end of the QDSP2000 and after to the Digital-to-Analog conversion.

The receive path is digitally filtered with an ITU G.712 compliant filter. The filter response has a flat passband out to 3400Hz and offers attenuation of at least 14dB at 3.98kHz to allow adequate image rejection.

The receive path can be directed to either one of two earphone amplifiers or the auxiliary output. The outputs earphone1 (EAR1OP, EAR1ON) and Auxiliary out (AUXOP, AUXON) are differential outputs. Earphone2 (EAR20) is a single-ended output stage designed to drive a headset speaker. Selection of the active amplifier is accomplished by sending the QDSP2000 Codec configuration command (AMP_SEL). The earphone amplifiers that are not selected are disabled and the output is in a high-Z state.

3.2.4. Power Circuit Section

If PWR key is pressed with battery power on, ON_SW_SENSE of MSM senses whether PWR key is pressed.

Once this signal is detected, MSM turns on the TR with high signal and maintains the self-keeping circuit.

Each LDO (6EA) is stabile supply power by input battery power (3.6V).

3.2.5. Other Circuits

a. Key Tone Activation Circuit

Amplifying the Ringer signal of MSM to the IC speaker AMP generates Key tone.

b. Vibration Circuit

In the mode of vibration, MSM activates TR to activate motor for vibration.

c. Ear Jack Circuit

This block is arranged for the external ear phone through Ear Jack. Once ear Jack is connected, internal MIC and Speaker are switched to earphone and communication through earphone is possible.

4. AFTER SALES SERVICE

4.1 Service Levels

There are 3 service levels. Level 1 is a product level troubleshooting; hence there is no need to open the handset.

Level 2 requires the opening of the handset and replacing mechanical and electro mechanic components.

Level 3 is board level repair and this requires a complete set of troubleshooting equipments, and technical knowledge of the product.

4.2 Level 1 repair

Level 1 repair consists of everything, which can be performed without opening the handset.

4.2.1Diagnostic:

- Get all the pertinent information of the phone from the customer.
- Ensure the phone and charger is available if testing is needed.
- What is the complaint or nature of the problem?
- When was the handset bought?
- When was the problem occurs?
- What is the root-cause of the problem?
- What are the symptoms that cause the problem?
- Charge the handset for at least an hour.
- Check whether the handset power-up normally.
- Observe the information displayed on the LCD screen.
- Follow the LCD screen display.
- Load the software upgrade if necessary.
- If the problem cannot be solved at level 1 and we can determine that it is a mechanical problem by visual inspection, we should proceed to Level 2 repair.

If the phone failure is due water, drop or other mechanical damage, the customer have to sign a document stating they are willing to cover the repair cost before being repaired or else the customer should be given back the phone without repairing.

If the problem is related to the accessories (Charger, headset), check the accessories.

If no problem is being found, the customer can be proposed to update the phone to the latest firmware.

4.2.2 Equipment and Software Tools:

- PC with RS-232 port.
- Download program running on PC
- Download cable with jig.
- A phone charger.

4.3 Level 2

Level 2 repairs consists the most common problems relating to cosmetics, mechanical, LCD, audio, battery and interface connectors

4.3.1 Diagnostic:

Do Level 1.1 Servicing

Open the handset and do visual inspection to make sure everything has a good soldering condition. Replace defective parts as requested (front/back covers, keypad, speaker, buzzer, interface connectors, LED's).

If problem is not resolve by replacing these parts, connect the set to the interface board and re-download firmware.

Proceed with Level 3 troubleshooting.

4.3.2Assembly/Disassembly

Using T5 hex screwdriver to remove 6 screws located at the back of the phone. Two of the screws are located under the SIM door. Peel off portions of the label to locate the screw.



4.3.3 Replacing the LCD

The LCD has 2 screws by it sides; remove these screws using T5 screwdriver. Push up the tab of the Bessel to remove the LCD module.

4.3.4 LCD with Intermittent Problem

Check the soldering condition of the heat-seal cable. Make sure the condition is still well maintained.

To re-solder use a heat machine with the following setting:

If heat-seal machine is not available, use a thermal tape to cover portion of the HSC and the PCB for retouch. Set the soldering iron temperature to 300 degrees. Slowly roll the barrel of the iron applying constant pressure to the PCB and HSC. Care must be taken not to touch the expose part of the HSC, it is easily burned at this temperature. Without a thermal tape, another option is to set the iron temperature to 170 degrees or below.

This is enough to activate the bonding properties of the HSC without damaging it. Constant pressure must be applied.

4.3.5 Replacing Damaged LCD

Follow same procedure as above. Remove the Bessel and peel off the HSC. Then clean the PCB pattern using IPA. Make sure there is no bonding residue and the gold fingers are totally free of foreign materials. With HSC machine, align the edge of the cable using the enhanced display on the monitor. Proceed with the Sealing after alignment.

To manually solder HSC, follow procedure above after alignment.

4.3.6 Replacing Speaker

Remove the speaker on the holder using a tweezers. Clean the area under the speaker to ensure there is no dust or any material on the speaker firing direction. Get a new speaker, take out the adhesive cover and put it place by applying enough pressure.

4.3.7 Replacing the Microphone

Check the soldering condition of the microphone, do a retouch first. If still does not work properly, replace with a new one. The microphone trace width



are very small, do not apply too much heat on these terminal. Make the replacement as fast as possible.

4.3.8 Replacing Keypad

The keypad operates by shorting the keys using the carbon connection located underneath the rubber keypads. For intermittent operation, make sure the contact area is clean and no dust or grease is covering the carbon. Do not use IPA when cleaning the rubber keypad. Replace the keypad when necessary.

4.3.9 Replacing the LED Backlight

Replace defective LED with the correct part, do not apply too much heat when soldering. Make sure that the biasing resistors have not been changed.

4.3.10 Replacing the Buzzer

Remove the gasket, de-solder using a hot air gun. Too much heat will melt the plastics and hence destroy the buzzer. Put back the gasket; make sure it is properly aligned to the hole on the plastic cover.

4.3.11 Replacing the Vibrator

Remove the vibrator on the back cover. Apply 3volts across the terminal, if it doesn't operate, replace with the same part. Make sure that the PCB contact points are clean

4.3.12 Replacing the SIM Switch

Use a heat gun to remove the defective switch. Make sure to replace with the exact part, this switch is dimension critical, replacing with other part would result to system malfunction.

4.3.13 Replacing the SIM Card Connector

Use a heat gun to remove the SIM card connector. Qualified technicians should only perform this operation since the plastic melts out quickly.

4.3.14 Replacing the Headset Jack and Charger Jack

Although this would be unlikely, use a heat gun to remove and replace. Care must be taken so as not to damage both the SIM card connector and switch.



5 EXPLODING DIGRAM

In the annex

6 PCB LAYOUT and PARTLIST

In the annex



20		VIBRATOR MOTOR, 3.8V		ODM0000053		
9	I	SIM CARD		STANDARD		
18		HOUSING, SIM DOOR		ODM0000013	109	/ 0
7		PRINTED LABEL, CARRIER		ODM00000570		
16	6	SCREW, PT_PLASTIC, I.8mm x 10mm, To	ORX 5	ODM00000049		
15		BACK HOUSING ASSY		ODM0000056	106	/ 107
4		LI-ION BATTERY ASSY		CUSTOMER SPECIFIC		
3		GASKET BATTERY		ODM00000018		
12		FRAME BATTERY		ODM00000017		
	I	PCBA, QB4_CDMA		CUSTOMER SPECIFIC		
10		KEYPAD ASSEMBLY (ZTE CI33)		ODM00001413-100		
9	I	LIGHT GUIDE		ODM0000028		
8		LCD MODULE		ODM0000025		
7		DISPLAY GASKET ASSEMBLY		ODM0000061-104		
6		BEZEL, DISPLAY		ODM0000027-100		
5		SPEAKER		ODM0000052		
4		GASKET AND DUST COVER, RECEIVER		ODM0000014		
3		HOUSING FRONT, FINISHED (ZTE CI33)		ODM00001418	101	/ 102
2		EMBLEM, ADHESIVE		ODM00001538-100		
Ι		EMBLEM, ZTE LOGO, FINISHED		ODM00001537-100		
ITEM	QTY	DESCRIPTIONS		PART NUMBER	VER	NO.
		BILL O	F MATERIALS	·		
CUSTON	MER:	CUSTOMER DESCRIP	TION:	CUSTOMER PART NUMBER	?:	REV:
			L			ХХ
6	$) \in$	E ZTE CI33	FLEXTR	ONICS DESIGN	, IN	C.
drwg l pro/e PHONE	_evel prt/as E4-MAI	DESIGN FLEXTRONICS DESIGN DATE ID-AUG-03 M FILENAME: N-ASSY.PRT	TITLE S	EE CHART		
PRO/E DRW FILENAME:			SIZE PART N	0. 		REV
0B4-7	7 T F - M A	IN-ASSY DRW	AL SEE CH	HART		

SCALE: 2.000

heet | of 2

Nos.	Item Number	Part Description	Qty	Ref Des
1	ODMCP00200001-100	Finished Goods, QB-4_CDMA Generic	-	
2	ODM0000039-100	Bulk-Pack Carton Box	0.1	
3	ODM00000524-100	Printed Label, Carton	1	
4	ODM0000040-100	Blank Label, Carton	0.1	
5	ODM00000041-100	Plastic Bag, Phone	1	
6	ODM00000042-100	Pretty Box	1	
7	ODM00000529-100	Printed Label, FGP Pretty Box	1	
8	ODM0000043-100	Blank Label, FGP Pretty Box	1	
9	ODM00000044-100	Accessories, QB-4_CDMA Generic	1	
10	ODMPW00101001-100	Complete adaptor, PH152040U1, Made in Brazil	1	
11	ODM00000708-102	Housing,Upper,PH152040, P6	1	
12	ODM00000709-100	Housing, Lower, PH152040U	1	
13	ODM00000712-100	LABEL, PRODUCT ID, PH152040U1, US - BRAZIL	1	
14	ODM00000713-100	Blank, LABEL, PRODUCT ID Artwork_PH152040U1, US - BRAZIL	1	
15	ODM00000714-100	PCBA, PH152040	1	
16	ODM00000715-100	PCB, PH152040	1	
17	ODM00000716-100	VAR,300VAC,V07K300	1	MOV1
18	ODM00000717-100	ANA,IC,DIP,TNY264P	1	IC1
19	ODM00000718-100	OPT,Coupler,DIP,K1010	1	U4
20	ODM00000719-100	FUSE,10,5%,1W,Wire_wound	1	FR1
21	ODM00000720-100	DIS,DIODE,IN4007,DO-41,Taping	5	D1,D2,D3,D4,D5
22	ODM00000721-100	DIS,DIODE,SCH,1N5819,DO-41,Taping	1	D6
23	ODM00000722-100	DIS,DIODE,Zen,MTZJT-774.7B, 2%	1	D8
24	ODM00000723-100	CAP,CER,Y1,1500P,Y5U,250VAC,20%,short leads	1	C5
25	ODM00000724-100	MAG,Ind,220UH,10%	1	L1
26	ODM00000725-100	XTRM, Transformer, TF-025	1	PTF1
27	ODM00000726-100	CABLE,DC, 3mm barrel, 2000mm L	1	
28	ODM00000727-100	CON,Spring-clip, PH152040	2	J1,J2
29	ODM00000728-100	ADHESIVE, Silicon, CSL-588	5	
30	ODM00000729-100	RES,1206,100K,5%	1	R12
31	ODM00000730-100	RES,0805,10K,5%	1	R1
32	ODM00000731-100	RES,0805,120,5%	1	R4
33	ODM00000732-100	RES,0805,6.2,5%	3	R8,R9,R10
34	ODM00000733-100	RES,0805,200,5%	1	R5
35	ODM00000734-100	RES,0805,2.2K,5%	1	R2

36	ODM00000735-100	RES,0805,0,5%	1	R3
37	ODM00000736-100	CAP,0805,0.1U,Y5V,50V,+80%/-20%	2	C4,C7
38	ODM00000737-100	DIS,TRANS,MMST2907A,SOT23	1	Q1
39	ODM00000738-100	CAP,8X11.5,4.7U,400V,20%,85C	1	C1
40	ODM00000739-100	CAP,6.3X11,2.2U,400V,20%,85C	1	C2
41	ODM00000740-100	CAP,6.3X11,220U,16V,20%,105C,Low-ESR	1	C6
42	ODM00000741-100	CAP,6.3X11,330U,10V,20%,105C,Low-ESR	1	C8
43	ODM00000742-100	CAP,CER,470P,Y5P,1KV,10%	1	C3
44	ODM0000046-100	User Manual	1	
45	ODM00000534-100	Printed Label, Charger	1	
46	ODM0000048-100	Complete Handset, QB-4_CDMA Generic	1	
47	ODM00000049-100	Screw, PT Plastic 1.8mm x 10mm, Torx	6	
48	ODM00000050-100	Keypad w/ Hard Key Cap	1	
49	ODM00000014-100	Gasket and Dust Cover, Receiver	1	
50	ODM00000017-100	Frame, Battery	1	
51	ODM0000018-100	Gasket, Battery	1	
52	ODM0000013-100	Housing, SIM Door	1	
53	ODM0000016-100	Li-ion Battery Assy, 750 mAH - Standard	1	
54	ODM0000052-100	SPEAKER, ELECTRO DYNAMIC 32 OHM 300HZ-3.4KHz	1	T1
55	ODM0000053-100	Vibrator Motor, 3.0V	1	K1
56	ODM00000570-100	Printed Label Carrier	1	
57	ODM0000056-100	Back Housing Assy	1	
58	ODM0000022-100	Housing, Back, 901501 (Black)	1	
59	ODM00000057-100	Antenna	1	
60	ODM00000051-100	Housing, Front, 901501 (Black)	1	
61	ODM0000058-100	Sub-Assy, QB-4_CDMA Generic	1	
62	ODM0000025-100	LCD MODULE	1	DS12
63	ODM0000026-100	Silver Tape Display	2	
64	ODM0000028-100	Light Guide	1	
65	ODM0000060-100	Bezel, Display	1	
66	ODM0000061-100	Display Gasket Assembly	1	
67	ODM0000062-100	Screw,PT Plastic, 1.5mm x 4mm, Torx	2	
68	ODM0000063-100	Microphone	1	GM1
69	ODM0000064-100	PCBA, Flextronics_CDMA QB4 Generics	1	
70	ODM0000065-100	PCB, PCB_CDMA QB4 Generic	1	
71	ODM0000066-100	RES,0402,1.5K,1%	1	R72

72	ODM0000067-100	RES.0402.10K.1%
73	ODM0000068-100	RES.0402.11.3K.1%
74	ODM0000069-100	RES.0402.1.18K.1%
75	ODM00000070-100	RES,0402,180K,1%
76	ODM00000071-100	RES,0402,2.00K,1%
77	ODM0000072-100	RES,0402,2.20K,1%
78	ODM0000073-100	RES,0402,22.1K,1%
79	ODM00000074-100	RES,0402,365,1%
80	ODM00000158-100	RES,0402,5.1K,1%
81	ODM00000159-100	RES,0402,510K,1%
82	ODM00000510-100	RES,0402,5.76K,1%
83	ODM0000078-100	RES,0402,0,5%
84	ODM0000079-100	RES,0402,10,5%
85	ODM0000080-100	RES,0402,100,5%
86	ODM0000081-100	RES,0402,1K,5%
87	ODM0000082-100	RES,0402,10K,5%
88	ODM0000083-100	RES,0402,100K,5%
89	ODM0000084-100	RES,0402,1.8K,5%
90	ODM0000085-100	RES,0402,20,5%
91	ODM0000086-100	RES,0402,20K,5%
92	ODM0000087-100	RES,0402,470,5%
93	ODM0000088-100	RES,0402,4.7K,5%
94	ODM0000089-100	RES,0402,47.0K,5%
95	ODM00000517-100	RES,0402,51,5%
96	ODM0000091-100	CAP,0402,2.2p,COG,50V,+/-0.25PF
97	ODM0000092-100	CAP,0402,100p,COG,50V,5%

98	ODM0000093-100	CAP,0402,27p,COG,50V,5%
99	ODM0000094-100	CAP,0402,47p,COG,50V,5%
100	ODM0000095-100	CAP,0402,8.2p,COG,50V,5%
101	ODM0000096-100	CAP,0402,1000p,X7R,50V,10%

2	B4.B5
2	B75.B76
1	R82
2	R2.R3
1	R1
4	R9,R10,R11,R92
2	R69,R70
1	R71
2	R83,R95
2	R8,R97
3	R84,R85,R86
10	C162,R28,R29,R30,R38,R46,R48,R90,
	R96,R101
9	R52,R53,R54,R55,R56,R57,R58,R59,R60
7	R12,R13,R14,R15,R16,R18,R22
4	R23,R24,R25,R26
3	R49,R50,R51
6	R66,R67,R68,R98,R99,R103
2	R64,R74
2	R61,R63
2	R77,R78
2	R88,R93
2	R27,R65
1	R87
1	R100
2	C167,C168
39	C3,C4,C5,C6,C7,C8,C9,C10,C11,C12,C13,
	C14,C15,C16,C17,C18,C19,C20,C21,C22,
	023,024,025,026,027,028,029,030,031
	,032,033,037,038,039,040,043,046,
0	
3	
3	6157,6158,6159

- 1 C166
- 8 C133,C134,C135,C136,C138,C140, C141,C142

102	ODM00000097-100	CAP,0402,220p,X7R,50V,10%	2	C153,C154
103	ODM0000098-100	CAP,0402,10000p,X7R,16V,10%	6	C105,C106,C107,C108,C109,C110
104	ODM0000099-100	CAP,0402,15000p,X7R,16V,10%	2	C57,C58
105	ODM00000100-100	CAP,0402,4700p,X7R,25V,10%	3	C56,C116,C173
106	ODM00000101-100	CAP,0603,0.68UF,Y5V,10V,+80/-20%	1	C115
107	ODM00000102-100	CAP,0805,1.0UF,X7R,10V,10%	1	C128
108	ODM00000103-100	CAP,0402,0.1UF,X5R,10V,10%	40	C59,C60,C61,C63,C64,C65,C66,C67,C68, C69,C70,C71,C72,C73,C74,C75,C76,C77, C78,C79,C80,C81,C82,C83,C85,C87,C88, ,C89,C90,C91,C92,C93,C95,C97,C101, ,C102,C103,C104,C130,C178
109	ODM00000104-100	CAP,0402,0.068UF,X5R,10V,10%	1	C155
110	ODM00000105-100	CAP,0805,2.2UF,X5R,10V,20%	3	C129,C161,C174
111	ODM00000106-100	CAP,0402,0.022UF,X7R,16V,10%	5	C111,C112,C113,C114,C156
112	ODM00000107-100	CAP,0402,2200P,X7R,50V,10%	1	C152
113	ODM00000108-100	CAP,0603,0.1UF,X7R,25V,10%	2	C99,C165
114	ODM00000109-100	CAP,0603,1UF,Y5V,10V,+80/-20%	4	C148,C149,C150,C151
115	ODM00000110-100	CAP,0603,0.47UF,Y5V,10V,+80/-20%	5	C143,C144,C145,C146,C147
116	ODM00000111-100	CAP,CASE R,10UF,TANT,6.3V,20%	2	C163,C164
117	ODM00000112-100	CAP,CASE B,33UF,TANT,10V,20%	1	C131
118	ODM00000113-100	CAP,CASE R,4.7UF,TANT,10V,20%	6	C122,C123,C124,C125,C126,C170
119	ODM00000114-100	MAG,Ind,0402,4N7	1	L9
120	ODM00000115-100	MAG,Ind,0402,10N	4	L3,L4,L5,R91
121	ODM00000116-100	MAG,Ind,0402,22N	1	L6
122	ODM00000117-100	MAG,Ind,0402,47N	1	L10
123	ODM00000118-100	MAG,Ind,0402,82N	2	L7,L8
124	ODM00000119-100	CRY,Filter SAW,B881.5	1	FL4
125	ODM00000120-100	CRY,Filter SAW,B836.5	1	FL2
126	ODM00000121-100	CRY,Filter SAW,B836.5/881.5	1	FL3
127	ODM00000122-100	ANA,IC RF Pow Amp,RF6000-2	1	AR1
128	ODM00000123-100	CRY,32.768KHz,SM-14J	1	Y1
129	ODM00000124-100	CRY,19.2 MHz,KT18B-DCV28C-19.200M-T	1	Y2
130	ODM00000125-100	CRY,1752MHz,YKS1MNG1752A	1	Y3
131	ODM00000126-100	DIS,Diode SWITCH,BAS16TT1,SOT416	2	CR1,CR2
132	ODM00000127-100	DIS,Diode Sch,MA4X714	1	CR7
133	ODM00000128-100	DIS,Diode Sch,MBRM120LT1	1	CR8

134	ODM00000129-100	DIS,Trans,DTC124EET1	4	Q1,Q2,Q3,Q4
135	ODM00000130-100	DIS,Trans,BC858BWT1,SOT323	1	Q11
136	ODM00000131-100	DIS,Trans,2SB1424T100Q	1	Q9
137	ODM00000132-100	DIS,Trans,MGSF1P02LT1,SOT23	1	Q6
138	ODM00000133-100	DIS,Trans,NTGS3441T1,TSOP-6	1	Q10
139	ODM00000134-100	DIS,Trans,NTQD6968R2	1	Q7
140	ODM00000135-100	DIS,Trans,MMBF2202PT1	1	Q8
141	ODM00000136-100	MEM,IC SRAM,CY62147CV30LL-70,BGA48A	1	U9
142	ODM00000511-100	Flash Programming Sub-assy	1	
143	ODM00000137-100	MEM,IC FLASH,AM29DL162DT70WCI,BGA48A	1	U8
144	ODM00000330-100	Firmware, Brasil	0	
145	ODM00000138-100	ANA,IC,BATT PORT,NCP802,SOT23-6	1	U7
146	ODM00000139-100	MCH,SIM SW,ESE22MH24	1	S21
147	ODM00000140-100	OPT,LED,HSMG-C265	11	DS1,DS2,DS3,DS4,DS5,DS6,DS7,DS8
				,DS9,DS10,DS11
148	ODM00000141-100	SUPPRESSOR, TVS CHIP 160PF @ 1MHz 26V 0.1J	1	CR9
149	ODM00000142-100	SUPPRESSOR, TRANSIENT VOLTAGE QUAD COM ANODE 6.2V	2	CR3,CR4
150	ODM00000143-100	ACO,Buzzer,SMT 232 2830	1	GM2
151	ODM00000144-100	RES,NTC,0603,NB21M00473JBA	1	RT1
152	ODM00000145-100	CON,RF,MM8430-2600RA1	1	S1
153	ODM00000146-100	CON,Headset Jack,7273EO51-001	1	J202
154	ODM00000147-100	CON,87437-0332	1	J203
155	ODM00000148-100	CON, DC Power Jack, WS-DCWSA10657	1	J2
156	ODM00000149-100	CON,SIM,1-338063-9	1	J204
157	ODM00000150-100	ANA,IC PMIC,C-CD90-V2373-1B	1	U2
158	ODM00000151-100	ANA,IC ZIF LNA,C-CD90-V2930-1E	1	U5
159	ODM00000152-100	ANA,IC DIGITAL MSM6000,C-CD90-V3050-2A	1	U1
160	ODM00000153-100	ANA,IC RFR6002,C-CD90-V4340-1C	1	U6
161	ODM00000154-100	ANA,IC RFT6102,C-CD90-V4370-1A	1	U4
162	ODM00000155-100	MTL,Shield, TX	1	SH1
163	ODM00000156-100	MTL,Shield, RX	1	SH2
164	ODM00000157-100	MTL,Shield, DIGITAL	1	SH3
165	ODM00000522-100	Water Evidence Label	1	