

M893 User's Guide

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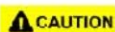
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FCC RF EXPOSURE INFORMATION

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this phone complies with the FCC guidelines and these international standards.



Operating Requirements

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antennas or transmitters. Please maintain 20 cm separation distance from the antenna to meet FCC RF exposure compliance requirements.

For more information about RF exposure, please visit the FCC website at www.fcc.gov

NOTE: Read the “Safety” section prior to using your WISMO Quik Q2338 Series Module.

1. A Summary

1.1 Document Contents

This document is a summary of M893(one of YISO's wireless modem)'s hardware and software specifications. Contents are as followings.

- Product summary and features : Describes about the M893's main features and provide pictures of product.
- Specification : Describes about the Environment specifications, Hardware, Software and Mechanism specifications.
- Modem Interface : Describes about the 100 pins for interface.

1.2 Revision History

Version	Date	Descriptions
V1.0	December 28, 2007	Initial Release

1.3 Pictures of Product

- M893 Module

[Top]



Antenna Cable Connector
MM9329-2700(murata)

[Bottom]



RF Test Cable Connector
MM8430-2600 RA1(murata)

3. Specifications

3.1 General Specifications

3.1.1 Environmental

- Relative Humidity : 5%~95%
- Storage Temperature : -30 °C ~ 60 °C
- Operation Temperature : -20 °C ~ +50 °C
- Vibration Stability : 1.5G peak 5 to 500Hz

3.1.2 Hardware

- CDMA Protocol : CDMA 1x-EVDO
- Power Consumption : 3.6V/700mA (Max Power)
- IF Receiving Chip : RFL6000, RFR6000
- IF Transfer Chip : RFT6100
- Chipset : Qualcomm MSM6500
- Interface
 - ❖ Interface Connector(100 Pins)

3.1.3 Software

- Data Service : IS-878P1,P2 and IS-835-B
- Baud Rate
 - ❖ DM : Default 230,400bps (variable)
- Transmitting
 - ❖ Forward-2.4Mbps
 - ❖ Reverse-153.6kbps
- SMS (IS-637) : MO,MT Support
- NAM : 5 NAM
- Product Support Tool : PST
- DM : Qualcomm CAIT

3.2 Electronic Specifications

3.2.1 Transmitter

- Type of Multiplexing : Duplexer
- Normal Output Power : 0.3W
- Frequency Range : 824.70 ~ 848.31MHz (Cellular)
1851.25 ~ 1908.75MHz (USPCS)
- Frequency Stability : Under defined Freq. $\pm 300\text{Hz}$ (Cellular), $\pm 150\text{Hz}$ (USPCS)
- Channel : 20ch(Cellular) , 42ch(USPCS)
- Channel Spacing : 1.23MHz(Cellular), 1.25MHz(USPCS)
- Occupied Frequency Bandwidth : Below 1.25MHz
- Oscillation Method : PLL SYNTHESIZER
- Local Oscillation Frequency : 954 ~ 980MHz(Cellular)
1720.87 ~ 1778.37MHz(USPCS)
- Antenna Impedance : 50 ohm

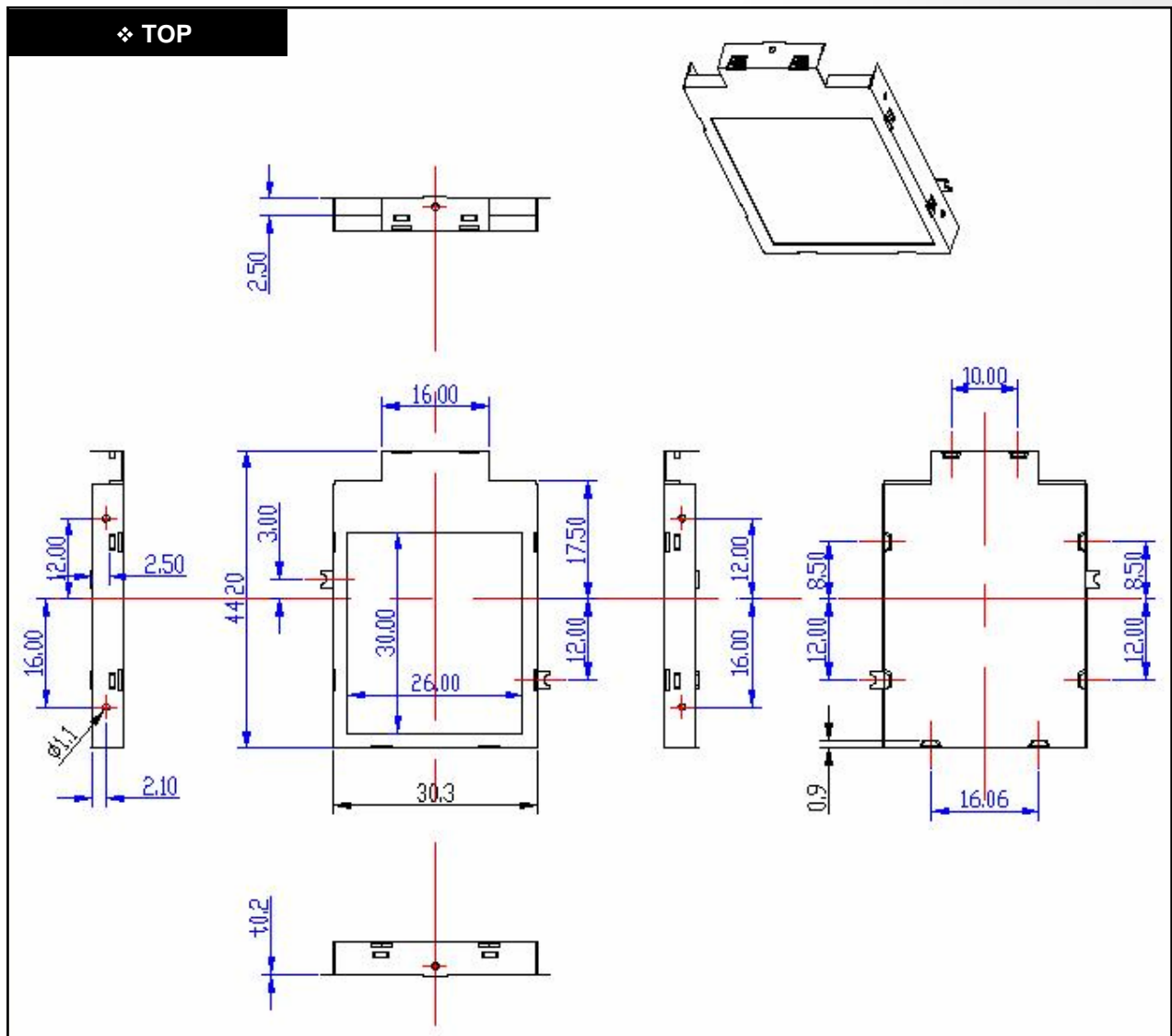
3.2.2 Receive Specifications

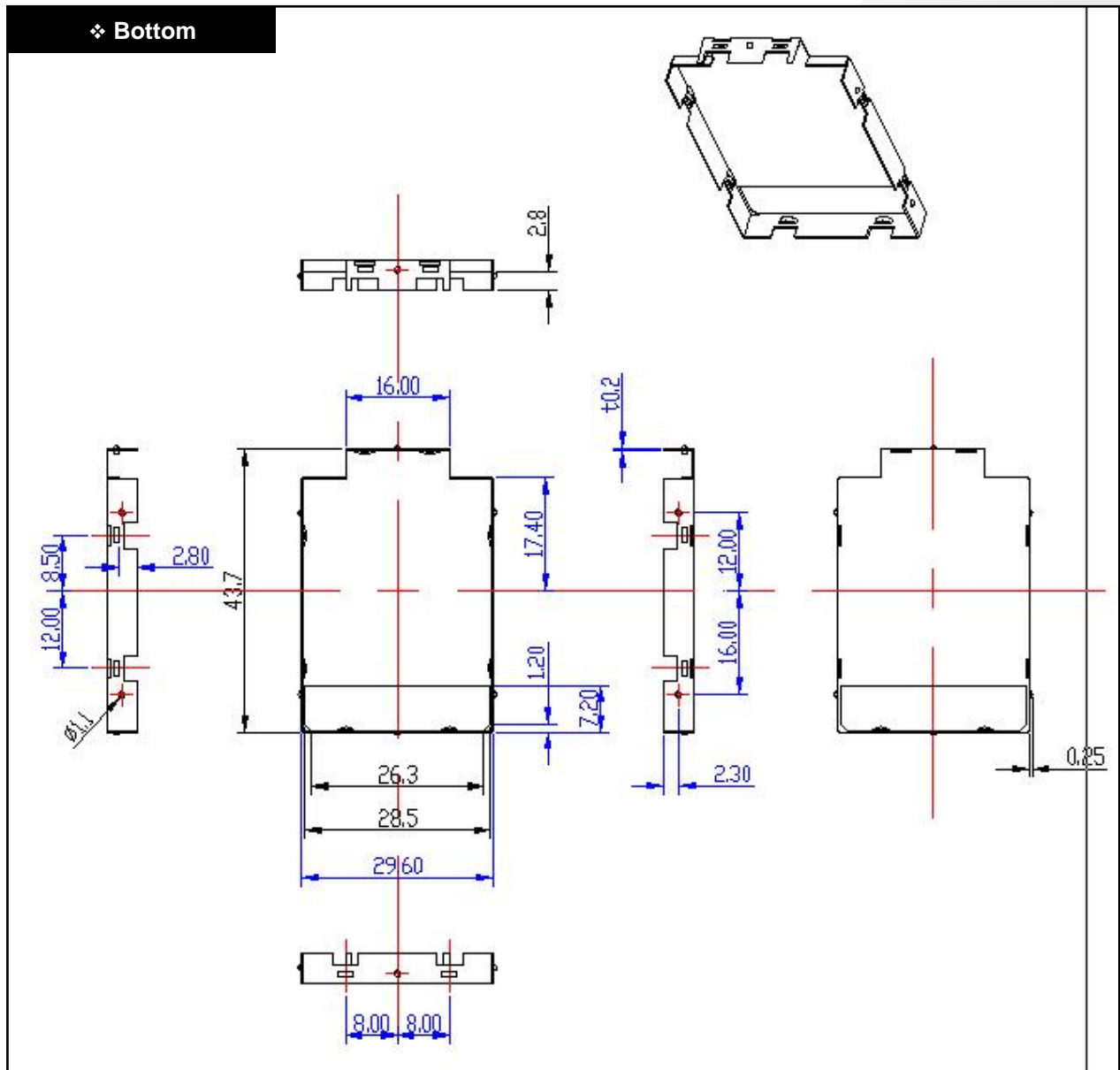
- Receive Method : Zero IF
- Frequency Range : 869.70 ~ 893.31MHz (Cellular)
1931.25 ~ 1988.75MHz(USPCS)
- Channel : 20 ch(Cellular) , 42ch(USPCS)
- Channel Spacing : 1.23MHz(Cellular), 1.25MHz(USPCS)
- Occupied Frequency Bandwidth : Below 1.25MHz
- Oscillation Method : PLL SYNTHESIZER
- Local Oscillation Frequency : 954 ~ 980MHz (Cellular)
1720.87 ~ 1778.37MHz (USPCS)
- Antenna Impedance : 50 Ω

3.3 Mechanical

- Dimension : 30 X 45 X 5 (mm)

- Mechanical Drawing



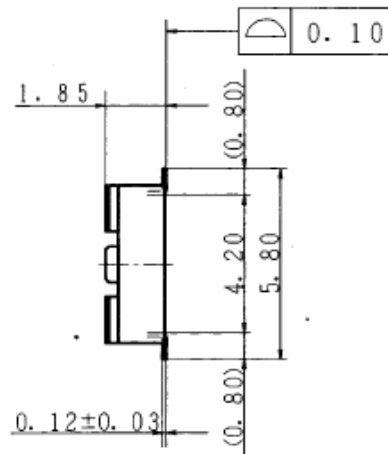
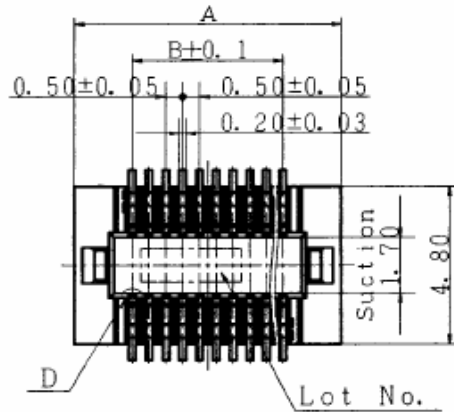


3.4 Interface Connector(100 Pins) Specifications

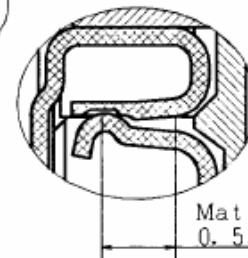
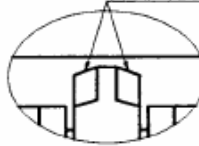
→ JIG or Interface part

Part No. AXK5F20545Y

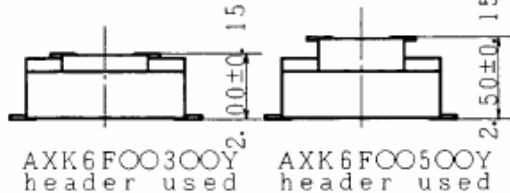
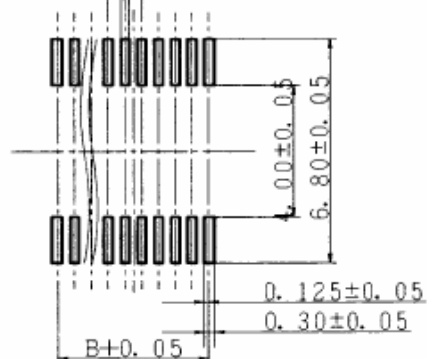
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Detail "D"

Contact with
both-ends chamferedMating area
0.55

Setting drawing

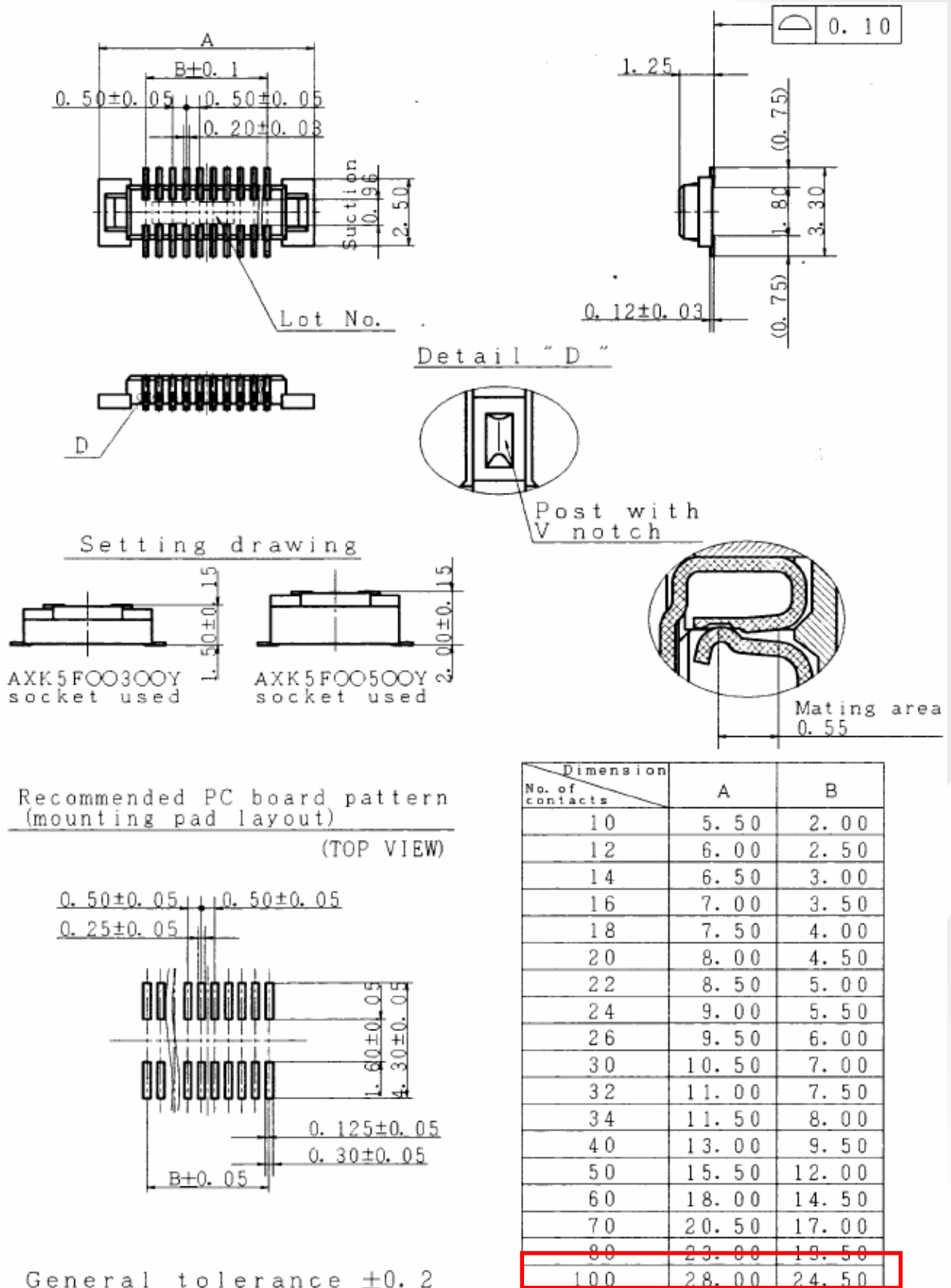
AXK6FOO300Y
header usedAXK6FOO500Y
header usedRecommended PC board pattern
(mounting pad layout)(TOP VIEW)
0.50±0.05 0.50±0.05
0.25±0.05General tolerance ± 0.2

Dimension No. of contacts	A	B
10	5.50	2.00
12	6.00	2.50
14	6.50	3.00
16	7.00	3.50
18	7.50	4.00
20	8.00	4.50
22	8.50	5.00
24	9.00	5.50
30	10.50	7.00
34	11.50	8.00
40	13.00	9.50
50	15.50	12.00
60	18.00	14.50
70	20.50	17.00
80	23.00	19.50
100	28.00	24.50

→ M893 Module part

Part No. AXK6F20345Y

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4. Modem Interface

4.1 Pin Assignments

V_BATT(4.2V)	100	1	VCHARE_DC
V_BATT(4.2V)	99	2	VCHARE_DC
GPIO	98	3	GPIO
GPIO	97	4	GPIO
GND	96	5	GND
/TRST	95	6	VREG_UIM
TDI	94	7	USB_VBUS
TDO	93	8	USB_D+
TMS	92	9	USB_D-
TCK	91	10	USB_ID
/RTCK	90	11	A2[01]
ringer	89	12	A2[20]
GPIO	88	13	EBI2_DATA[00]
GND	87	14	EBI2_DATA[01]
EAR1O_P	86	15	EBI2_DATA[02]
EAR1O_N	85	16	EBI2_DATA[03]
MIC1_P	84	17	EBI2_DATA[04]
MIC1_N	83	18	EBI2_DATA[05]
MIC2_P	82	19	EBI2_DATA[06]
HPH_R	81	20	EBI2_DATA[07]
HPH_L	80	21	GND
SPK_OUT_N	79	22	EBI2_DATA[08]
SPK_OUT_P	78	23	EBI2_DATA[09]
gpio	77	24	EBI2_DATA[10]
EAR_DETECT	76	25	EBI2_DATA[11]
GND	75	26	EBI2_DATA[12]
KEYSENSE0	74	27	EBI2_DATA[13]
KEYSENSE1	73	28	EBI2_DATA[14]
KEYSENSE2	72	29	EBI2_DATA[15]
KEYSENSE3	71	30	/LCD_CS
KEYSENSE4	70	31	/OE2
KYPAD_0	69	32	/WE2
KYPAD_1 / GPIO	68	33	/LCD_EN
KYPAD_2 / GPIO	67	34	LCD_BACK
KYPAD_3	66	35	GND
KYPAD_4	65	36	/POWER_ON
KYPAD_5	64	37	PS_HOLD
GND	63	38	/RSTOUT
I2C_SCL	62	39	/RST
I2C_SDA	61	40	/UART1_DCD
GPIO	60	41	/UART1_RFR
GPIO	59	42	/UART1_DTR
UIM_P_CLK	58	43	/UART1_CTS
UIM_P_RESET	57	44	/UART1_RI
UIM_P_DATA	56	45	UART1_TXD
GPIO	55	46	UART1_RXD
UART2_TXD	54	47	/UART1_DSR
UART2_RXD	53	48	GND
GPIO	52	49	VREG_MSME[1,8]
MOTOR_DRV	51	50	VREG_MSMP[26]

CDMA 1X EV-DO Module

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4.2 Pin descriptions

Pin No.	YISO Defined	Pad Type	Example Defined	I/O Type	Level	Description
1	VCHARE_DC	V	EXTERNAL DC	POWER_IN	3.4 ~ 4.1 Vdc	Adaptor or Battery Power
2	VCHARE_DC	V	EXTERNAL DC	POWER_IN	3.4 ~ 4.1 Vdc	Adaptor or Battery Power
3	GPIO	BS-PU	GPIO			
4	GPIO	BS-PU	LED_GRN	OUT	Active High	Phone Status Indicator by PDA LED
5	GND	V	GND	GND		
6	VREG_UIM	V	RUIM_POWER	OUT	OUT/POWER	VCC Power Supply for R-UIM Card
7	USB_VBUS	IS-PU	USB_VBUS	POWER	5V	
8	USB_D+	BS-PU	USB_D+	IN/OUT	DATA	USB Differential Data(+)
9	USB_D-	BS-PU	USB_D-	IN/OUT	DATA	USB Differential Data(-)
10	USB_ID	DI	USB_ID / TP			
11	A2[01]					
12	A2[20]	BS-PP	LED_RED	OUT	Active High	Phone Status Indicator by PDA LED
13	EBI2_DATA[00]					
14	EBI2_DATA[01]					
15	EBI2_DATA[02]					
16	EBI2_DATA[03]					
17	EBI2_DATA[04]					
18	EBI2_DATA[05]					
19	EBI2_DATA[06]					
20	EBI2_DATA[07]					
21	GND	V	GND	GND		
22	EBI2_DATA[08]					
23	EBI2_DATA[09]					
24	EBI2_DATA[10]					
25	EBI2_DATA[11]					
26	EBI2_DATA[12]					
27	EBI2_DATA[13]					
28	EBI2_DATA[14]					
29	EBI2_DATA[15]					
30	LCD_CS	BS-PP	LED_BLUE	OUT	Active High	Phone Status Indicator by PDA LED
31	/OE2					
32	/WE2					
33	LCD_EN USB_CTL_N	BS-PP	CDMA_USB_READY	OUT	Active High	CDMA USB Status Ready Indicator
34	LCD_BACK	BS-PP	CDMA_ACTIVE	OUT	Active High	CDMA Active Status to PDA
35	GND	V	GND	GND		
36	POWER_ON	DI	PHONE_ON	IN	Active High	CDMA Module Power On
37	PS_HOLD	BS-PP3	PS_HOLD	TP		
38	RSTOUT			TP		
39	RST		PHONE_RESET	IN	Active Low	CDMA Module RESET
40	UART1_DCD		TP			
41	UART1_RFR	BS-PP3	MSM_DP_RTS	OUT	Active Low	PDA IF / Ready To Receive
42	UART1_DTR	BS-PP3	MSM_DP_DTR	OUT	Active Low	PDA IF / Data Terminal Ready
43	UART1_CTS	BS-PP3	MSM_DP_CTS	IN	Active Low	PDA IF / Clear To Send
44	UART1_RI	BS-PP3	TP			
45	UART1_TXD	BS-PP3	MSM_DP_TXD	OUT	DATA	PDA IF / Tx Data
46	UART1_RXD	BS-PP3	MSM_DP_RXD	IN	DATA	PDA IF / Rx Data
47	UART1_DSR	BS-PP3	MSM_DP_DSR	IN	Active Low	PDA IF / Data Set Ready
48	GND	V	GND	GND		
49	VREG_MSME[1,8]	V	MSME_1.8V	POWER_OUT		
50	VREG_MSMP[26]	V	MSMP_2.6V	POWER_OUT		Power Output For External Device

CDMA 1X EV-DO Module

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51	MOTOR_DRV	BS-PP	CDMA_ON_JIG	IN	Active High	CDMA Module(High : CDMA Module Factory Mode, Low : PDA use Mode)
52	GPIO	BS-PP	PAD_WAKE_UP	OUT	Active High	PDA Wakeup from Suspend state for Call processing/SMS/Low Battery/Event
53	UART2_RXD		DM_RXD	IN	DATA	DM IF / Rx Data
54	UART2_TXD		DM_TXD	OUT	DATA	DM IF / Tx Data
55	GPIO	BS-PP	PDA_ACTIVE	IN	Active High	PDA Active / Sleep Status check to CDMA
56	UIM_P_DATA	DI/DO	RUIM_DATA	IN/OUT	DATA	RUIM Data
57	UIM_P_RESET	DO	RUIM_RESET	OUT	Active High	RUIM Reset
58	UIM_P_CLK	DO	RUIM_CLK	IN/OUT	CLK	RUIM Clock
59	GPIO	BS-PP	GPIO	IN/OUT		
60	GPIO	BS-PP	GPIO	IN/OUT		
61	I2C_SDA					
62	I2C_SCL					
63	GND	V	GND	GND		
64	KYPAD_5	BS-PP3	PCM_DATA_IN	IN	Active High	
65	KYPAD_4	BS-PP3	PCM_SYNC	OUT	Active High	
66	KYPAD_3	BS-PP3	PCM_CLK	OUT	Active High	
67	KYPAD_2 / GPIO	BS-PP3	PCM_DATA_OUT	OUT	Active High	
68	KYPAD_1 / GPIO	BS-PP				
69	KYPAD_0					
70	KEYSENSE4		SEND END KEY	IN	Active High	Send / End Key Detect of EXT EAR-MIC Device
71	KEYSENSE3		GPIO			
72	KEYSENSE2		KEY_DN	IN	Active High	Key Volume Down Detect on the Key Pad@Sleep Mode
73	KEYSENSE1		KEY_UP	IN	Active High	Key Volume Up Detect on the Key Pad@Sleep Mode
74	KEYSENSE0		GPIO			
75	GND	V	GND	GND		
76	EAR_DETECT	DI	EAR_DETECT	IN	Active Low	Checking the use of EXT Ear-mic Device at PDA
77	GPIO	BS-PP				
78	SPK_OUT_P	AO	RECEIVER OUT+	OUT	Analog	Audio differential output to PDA Audio Amplifier Direct SPK (Push)
79	SPK_OUT_N	AO	RECEIVER OUT-	OUT	Analog	Audio differential output to PDA Audio Amplifier Direct SPK (Pull)
80	HPH_L	AO	EAR_JACK-	OUT		
81	HPH_R	AO	EAR_JACK+	OUT		
82	MIC2_P	AI	MIC+	IN		
83	MIC1_N	AI	EXTERNAL MIC-	IN		
84	MIC1_P	AI	EXTERNAL MIC+	IN	Analog	Audio Input (High-Z, C-MIC Input)
85	EAR10_N	AO	RECEIVER-	OUT		
86	EAR10_P	AO	RECEIVER+	OUT		
87	GND	V	GND	GND		
88	GPIO	BS-PP	DM_CTS	IN	Active Low	DM IF / Clear To Send
89	Ringer		TP			
90	RTCK		TP			
91	TCK		TP			
92	TMS		TP			
93	TDO		TP			
94	TDI		TP			
95	TRST		TP			
96	GND	V	GND	GND		
97	GPIO	BS-PP	DM_RTS	OUT	Active Low	DM IF / Ready To Receive
98	GPIO	BS-PP	GPIO			
99	V_BATT(4.2V)	V	INTERNAL BATTERY	POWER_IN	3.2 ~ 4.5 Vdc	Adaptor or Battery Power
100	V_BATT(4.2V)	V	INTERNAL BATTERY	POWER_IN	3.2 ~ 4.5 Vdc	Adaptor or Battery Power

5.1 WARNING!

Read this information before use

- **Caution**

Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

- **FCC Compliance Information**

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received. Including interference that may cause undesired operation.

- **Information to User**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ tv technician for help.