
Fujian LANDI Commercial Equipment Co., Ltd.

AC01116

Version : V1.02

Evolution follow-up

Date	Version	Author	Audit	Comment
2016-12-21	V1.00	Zhijun Wu		
2016-12-22	V1.01	Zhijun Wu		
2017-1-15	V1.02	Zhijun Wu		

1. General Description

AC01116 is a 4G module which is based on Qualcomm MSM8909-2 platform with built-in Android OS. It integrates variety of wireless communication mode, 165 PIN LCC, Dimension: 41mm *41 mm *2.8mm.

- ARM Cortex-A7, 1.1 GHz, 512KB L2 cache, 28nm
- Adreno 304 Graphics Processor
- 1GB LPDDR3 RAM+ 8GB eMMC Flash, External memory via SDC2, up to 32GB
- Support GSM/GPRS/EDGE, WCDMA/HSPA+ (42Mbps), LTE Cat 4
- Support WiFi 802.11b/g/n, BT2.1+EDR/3.0/4.0
- Support GPS/GLONASS/BEIDOU
- Android 5.x
- MIPI-DSI Interface, Support up to 720p
- MIPI-CSI Camera Interface, The main camera supports up to 8MP pixels, The secondary camera supports up to 3MP pixels
- Multi Audio Interface
- A rich set of interface, Support USB2.0 High Speed, SD 3.0 , 10bit ADC, UART、SPI、I2C、PWM、GPIO、Charge manage.

2. Summary of Features

CPU Specifications	
Application Processor	Quad ARM Cortex-A7 Processor, frequency up to 1.1 GHz ; 512KB L2 cache
Multimedia processor	QDSP6 v5, frequency up to 691MHz ; 768KB L2 cache
RAM Memory	1GB LPDDR3 RAM ; 32bits , Up to 533MHz
Flash Memory	8 GB eMMC Flash ; External memory via SDC2, up to 32GB
Modem Specifications	

AC01116	GSM B2/5/8
	WCDMA B1/2/4/5/8
	LTE-FDD B2/4/5/7/12/13/17/25/26, LTE-TDD B41
Sensitivity	GSM B5/8< -109dBm; GSM B2< -107dBm; WCDMA B1/2/4/5/8< -109dBm; LTE: B4<-100dBm; B12/13/17<-97dBm; B2/5/7/26<-98dBm; B25<-96.5dBm; B41<-97dBm;
Output Power Class	GSM/GPRS B5/8: Power Class 4 GSM/GPRS B2: Power Class 1 EDGE B2/5/8: Power Class E2 WCDMA/HSPA+: Power Class 3 LTE: Power Class 3
Connectivity	
WLAN	2.4G, Support 802.11b/g/n, Up to150Mbps Support Wake-on-WLAN (WoWLAN) Support ad-hoc mode Support WAPI SMS4 Support AP mode Support Wi-Fi Direct
Bluetooth	BT2.1+EDR/3.0/4.0 LE
GNSS	
GNSS	GPS/GLONASS/BeiDou GPS One

2.1 2G/3G/4G Frequency

Frequency	Uplink	Downlink
GSM B2	1850-1910MHz	1930-1990MHz
GSM B5	824-849MHz	869-894MHz
GSM B8	880-915MHz	925-960MHz
WCDMA B1	1920-1980MHz	2110-2170MHz
WCDMA B2	1850-1910MHz	1930-1990MHz
WCDMA B4	1710-1755MHz	2110-2155MHz
WCDMA B5	824-849MHz	869-894MHz

Frequency	Uplink	Downlink
WCDMA B8	880-915MHz	925-960MHz
LTE-FDD B2	1850-1910MHz	1930-1990MHz
LTE-FDD B4	1710-1755MHz	2110-2155MHz
LTE-FDD B5	824-849MHz	869-894MHz
LTE-FDD B7	2500-2570MHz	2620-2690MHz
LTE-FDD B12	699-716MHz	729-746MHz
LTE-FDD B13	777-787MHz	746-756MHz
LTE-FDD B17	704-716MHz	734-746MHz
LTE-FDD B25	1850-1915MHz	1930-1995MHz
LTE-FDD B26 _{note}	814-849MHz	859-894MHz
LTE-TDD B41	2496-2690MHz (FCC)	
	2570-2620MHz (ISED)	

Note1 : Band26 for FCC only

2.2 2G/3G/4G Specifications

Compliance with 3GPP

2.3 WIFI/BT Frequency

802.11b/g/n	2412-2462MHz
BT2.1+EDR/3.0/4.0	2402-2480MHz

2.4 WIFI/BT Specifications

Compliance with IEEE Std 802.11™-2012

Compliance with BT2.1+EDR/3.0/4.0

2.5 GPS/GLONASS/BeiDou Specifications

Acquisition Sensitivity	≤-144dBm
Signal Tracking Sensitivity	≤-159dBm
RF C/No	C/No≥40

2.6 Absolute Maximum Ratings

Parameter	Min	Typ.	Max
Operating	-25℃	25℃	75℃
Storage	-45℃		90℃

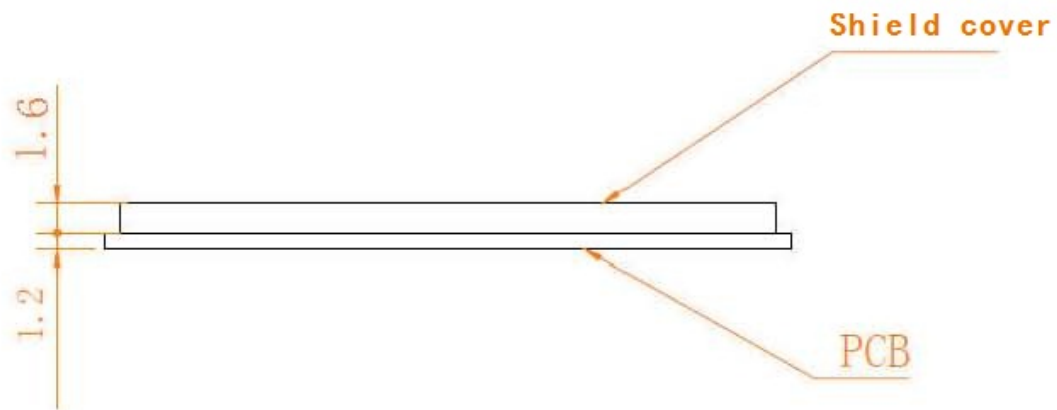
2.7 ESD

JEDEC JESD22-A114D (Human Body Model, Test conditions: 1.5K, 100 pF)	
M_VBAT	±2000V
GPIO	±2000V
Antenna Interface	±2000V
Others	±2000V

3. Mechanical Information

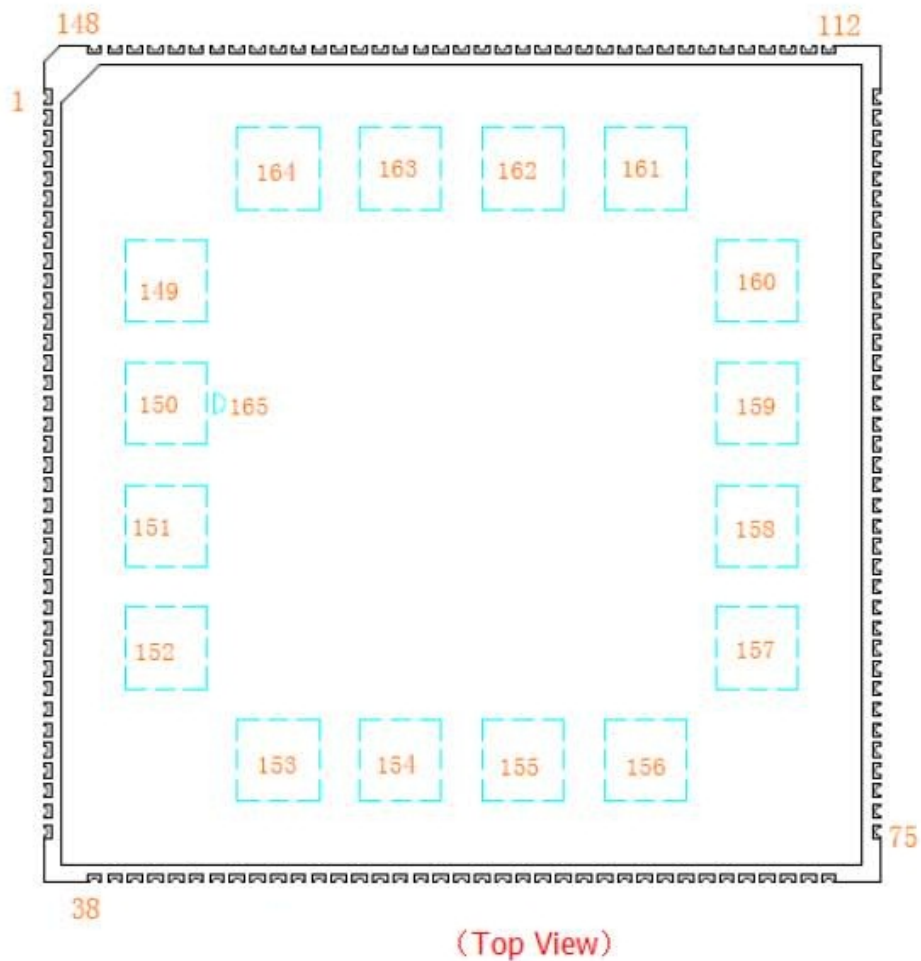
3.1 Dimension

Dimension	41mm*41mm*2.8mm
Footprint	165 Pin LCC



3.2 Pin Assignment

The following figure shows the pin assignment of the AC01116 module.



3.3 Pin Description

The following tables show the AC01116's pin definition.

Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
1	M_FORCE_USB_BOOT	38	M_GPIO_14	75	M_CAM0_MCLK	112	M_GPIO_95
2	NC	39	M_GPIO_23	76	M_CAM1_MCLK	113	M_GPIO_11
3	M_GND	40	M_GPIO_31	77	M_GND	114	M_GPIO_10
4	M_VBAT	41	M_TS_I2C_SCL	78	M_ANT-WIFI/BT	115	M_GPIO_9
5	M_VBAT	42	M_TS_INT_N	79	M_GND	116	M_GPIO_8
6	M_VBAT	43	M_TS_RST_N	80	M_CAM0_RST_N	117	M_GPIO_16
7	M_GND	44	M_WLED_PWM	81	M_CAM0_PWDN	118	M_GPIO_17
8	M_VBUS_USB_IN	45	M_GPIO_20/UART2_TX	82	M_CAM1_RST_N	119	M_GND
9	M_VBUS_USB_IN	46	M_GPIO_21/UART2_RX	83	M_CAM1_PWDN	120	M_ANT_GPS
10	M_GND	47	M_GPIO_111/UART2_CTS	84	M_CAM_I2C_SCL	121	M_GND
11	M_USB_DM	48	M_GPIO_112/UART2_RTS	85	M_CAM_I2C_SDA	122	M_VREG_L6_1P8
12	M_USB_DP	49	M_LCD_RST_N	86	M_GPIO_32	123	M_KEY_PWR_N
13	M_GND	50	M_LCD_TE	87	M_SENSORS_I2C_SCL	124	M_PWR_CHARGE_SEL
14	M_TC	51	M_GND	88	M_SENSORS_I2C_SDA	125	M_VBAT_SNS
15	M_GND	52	M_MIPI_DSI0_CLK_M	89	M_GPIO_5/UART1_RX	126	M_VRTC
16	M_USB_HS_ID	53	M_MIPI_DSI0_CLK_P	90	M_GPIO_4/UART1_TX	127	M_VBAT_THERM
17	M_UIM2_DETECT/GPIO_52	54	M_MIPI_DSI0_LANE0_M	91	M_KEY_VOL_UP_N	128	M_ADC_IN/PM_MPP_4
18	M_UIM2_RESET	55	M_MIPI_DSI0_LANE0_P	92	M_KEY_VOL_DOWN_N	129	M_VREG_L5_1P8
19	M_UIM2_CLK	56	M_MIPI_DSI0_LANE1_M	93	M_GND	130	M_VREG_17_2P85
20	M_UIM2_DATA	57	M_MIPI_DSI0_LANE1_P	94	M_ANT_TRX	131	M_GND
21	M_VREG_UIM2	58	M_MIPI_DSI0_LANE2_M	95	M_GND	132	M_ANT_DRX
22	M_UIM1_DETECT/GPIO_56	59	M_MIPI_DSI0_LANE2_P	96	M_GPIO_93	133	M_GND
23	M_UIM1_RESET	60	M_MIPI_DSI0_LANE3_M	97	M_GPIO_92	134	M_CDC_EAR_P
24	M_UIM1_CLK	61	M_MIPI_DSI0_LANE3_P	98	M_GPIO_88	135	M_CDC_EAR_M
25	M_UIM1_DATA	62	M_GND	99	M_GPIO_89	136	M_GND
26	M_VREG_UIM1	63	M_MIPI_CSI0_CLK_M	100	M_GPIO_0	137	M_CDC_HPH_R
27	M_GND	64	M_MIPI_CSI0_CLK_P	101	M_GPIO_98	138	M_CDC_HPH_REF
28	M_VREG_SDC_PWR	65	M_MIPI_CSI0_LANE0_M	102	M_GPIO_72	139	M_CDC_HPH_L
29	M_SDC2_CLK	66	M_MIPI_CSI0_LANE0_P	103	M_GPIO_70	140	M_CDC_HS_DET
30	M_SDC2_CMD	67	M_MIPI_CSI0_LANE1_M	104	M_GPIO_97	141	M_GND_MIC
31	M_SDC2_DATA0	68	M_MIPI_CSI0_LANE1_P	105	M_GPIO_110	142	M_MIC2_P
32	M_SDC2_DATA1	69	M_GND	106	M_ALSP_INT_N/GPIO_94	143	M_GND
33	M_SDC2_DATA2	70	M_MIPI_CSI1_CLK_M	107	M_MAG_INT_N/GPIO_36	144	M_MIC1_N
34	M_SDC2_DATA3	71	M_MIPI_CSI1_CLK_P	108	M_ACCL_INT2_N/GPIO_65	145	M_MIC1_P
35	M_SD_CARD_DET_N/GPIO_38	72	M_MIPI_CSI1_LANE0_M	109	M_ACCL_INT1_N/GPIO_96	146	M_GND
36	M_GND	73	M_MIPI_CSI1_LANE0_P	110	M_GPIO_58	147	M_SPKR_DRV_M
37	M_VIB_DRV_N	74	M_GND	111	M_GPIO_99	148	M_SPKR_DRV_P

Pin No.	Pin Name
149	M_GND
150	M_TS_I2C_SDA
151	M_CONN
152	M_GND
153	M_GND
154	M_GND
155	M_GND
156	M_GND
157	M_GND
158	M_TS_I2C_SDA
159	M_CONN
160	M_GND
161	M_GND
162	M_GND
163	M_GND
164	M_GND
165	M_TC

Pin No.	Pin Name	Type	Description
RF Interface			
94	M_ANT_TRX	I/O	2G/3G/4G antenna interface
132	M_ANT_DRX	I	4G diversity antenna interface
120	M_ANT_GPS	I	GPS antenna interface
78	M_ANT-WIFI/BT	I/O	WIFI/BT antenna interface
Power Supply			
4, 5, 6	M_VBAT	P	Main power supply, supply by battery
126	M_VRTC	P	3V backup power supply
122	M_VREG_L6_1P8	P	Provide 1.8V for external circuit
130	M_VREG_17_2P85	P	Provide 1.8V for external circuit, Controlled by SW
129	M_VREG_L5_1P8	P	Provide 1.8V output, not for external circuit
GND			
3, 7, 10, 13, 15, 27, 36, 51, 62, 69, 74, 77, 79, 93, 95, 119, 121, 131, 133, 136, 143, 146, 149, 152, 153, 154, 155, 156, 157, 160, 161, 162, 163, 164	M_GND	P	GND
USB Interface			
8, 9	M_VBUS_USB_IN	P	USB5V input
11	M_USB_DM	I/O	USB differential data bus.
12	M_USB_DP	I/O	USB differential data bus.
16	M_USB_HS_ID	I	USB ID detection

Pin No.	Pin Name	Type	Description
SIM Interface			
17	M_UIM2_DETECT/GPIO_52	I	SIM 2 Detection
18	M_UIM2_RESET	O	SIM2 Reset signal
19	M_UIM2_CLK	O	SIM 2 Clock signal
20	M_UIM2_DATA	I/O	SIM 2 Data signal
22	M_VREG_UIM2	P	Power supply for SIM 2 , 1.8V/2.95V
22	M_UIM1_DETECT/GPIO_56	I	SIM 1 Detection
23	M_UIM1_RESET	O	SIM1 Reset signal
24	M_UIM1_CLK	O	SIM1 Clock signal
25	M_UIM1_DATA	I/O	SIM1 Data signal
26	M_VREG_UIM1	P	Power supply for SIM 1 , 1.8V/2.95V
SDIO/SD Interface			
28	M_VREG_SDC_PWR	P	Power supply for SD card
29	M_SDC2_CLK	O	SDIO Clock signal
30	M_SDC2_CMD	I/O	SDIO cmd
31	M_SDC2_DATA0	I/O	SDIO data0
32	M_SDC2_DATA1	I/O	SDIO data1
33	M_SDC2_DATA2	I/O	SDIO data2
34	M_SDC2_DATA3	I/O	SDIO data3
35	M_SD_CARD_DET_N/GPIO_38	I	SD Card Detection
Touch screen interface			
150,158	M_TS_I2C_SDA	I/O	I2C data of touch screen
41	M_TS_I2C_SCL	O	I2C clock of touch screen
42	M_TS_INT_N	I	Touch screen interrupt signal
43	M_TS_RST_N	O	Touch screen reset signal
LCD Interface			
44	M_WLED_PWM	O	Backlight brightness adjustment , PWM control signal
49	M_LCD_RST_N	O	LCD reset
50	M_LCD_TE	I	LCD Tearing Effect signal
52	M_MIPI_DSI0_CLK_M	O	LCD MIPI signal
53	M_MIPI_DSI0_CLK_P	O	
54	M_MIPI_DSI0_LANE0_M	O	
55	M_MIPI_DSI0_LANE0_P	O	
56	M_MIPI_DSI0_LANE1_M	O	
57	M_MIPI_DSI0_LANE1_P	O	
58	M_MIPI_DSI0_LANE2_M	O	
59	M_MIPI_DSI0_LANE2_P	O	
60	M_MIPI_DSI0_LANE3_M	O	
61	M_MIPI_DSI0_LANE3_P	O	
Camera Interface			
63	M_MIPI_CSI0_CLK_M	I	MIPI signal of main camera
64	M_MIPI_CSI0_CLK_P	I	

Pin No.	Pin Name	Type	Description
65	M_MIPI_CSIO_LANE0_M	I	
66	M_MIPI_CSIO_LANE0_P	I	
67	M_MIPI_CSIO_LANE1_M	I	
68	M_MIPI_CSIO_LANE1_P	I	
70	M_MIPI_CSI1_CLK_M	I	MIPI signal of deputy camera
71	M_MIPI_CSI1_CLK_P	I	
72	M_MIPI_CSI1_LANE0_M	I	
73	M_MIPI_CSI1_LANE0_P	I	
75	M_CAM0_MCLK	O	Clock signal of main camera
76	M_CAM1_MCLK	O	Clock signal of deputy camera
80	M_CAM0_RST_N	O	Reset signal of main camera
81	M_CAM0_PWDN	O	Power down signal of main camera
82	M_CAM1_RST_N	O	Reset signal of deputy camera
83	M_CAM1_PWDN	O	Power down signal of deputy camera
84	M_CAM_I2C_SCL	O	I2C clock of camera
85	M_CAM_I2C_SDA	I/O	I2C data of camera
Key Interface			
91	M_KEY_VOL_UP_N	I	Volume "+"
92	M_KEY_VOL_DOWN_N	I	Volume "-"
123	M_KEY_PWR_N	I	Power ON/OFF
Sensor Interface			
87	M_SENSORS_I2C_SCL	O	I2C clock of sensor
88	M_SENSORS_I2C_SDA	I/O	I2C data of sensor
106	M_ALSP_INT_N/GPIO_94	I	Optical and proximity sensor interrupts input. /GPIO
107	M_MAG_INT_N/GPIO_36	I	Geomagnetic sensor interrupts input. /GPIO
108	M_ACCL_INT2_N/GPIO_65	I	Acceleration sensor interrupts input 2. /GPIO
109	M_ACCL_INT1_N/GPIO_96	I	Acceleration sensor interrupts input 1. /GPIO
ADC Interface			
125	M_VBAT_SNS	I	Battery voltage detection , maximum 4.5V
128	M_ADC_IN/PM_MPP_4	I	Universal ADC detection , maximum input 1.7V.
127	M_VBAT_THERM	I	Battery temperature detection
Audio Interface			
134	M_CDC_EAR_P	O	Receiver output, positive pole
135	M_CDC_EAR_M	O	Receiver output, negative pole
137	M_CDC_HPH_R	O	Right channel of Headset
138	M_CDC_HPH_REF	I	Virtual GND of Headset
139	M_CDC_HPH_L	O	Left channel of Headset
140	M_CDC_HS_DET	I	Headset detection
141	M_GND_MIC	P	GND of MIC
142	M_MIC2_P	I	Input of headset MIC
144	M_MIC1_N	I	Main microphone inputs, negative pole

Pin No.	Pin Name	Type	Description
145	M_MIC1_P	I	Main microphone inputs, positive pole
147	M_SPKR_DRV_M	O	Speaker output, negative pole
148	M_SPKR_DRV_P	O	Speaker output, positive pole
Motor Interface			
37	M_VIB_DRV_N	P,O	motor drive, motor negative
Others			
1	M_FORCE_USB_BOOT	I	Force USB boot signal
38	M_GPIO_14	I/O	GPIO
39	M_GPIO_23	I/O	GPIO
40	M_GPIO_31	I/O	GPIO
45	M_GPIO_20/UART2_TX	I/O	UART2_TX/GPIO
46	M_GPIO_21/UART2_RX	I/O	UART2_RX/GPIO
47	M_GPIO_111/UART2_CTS	I/O	UART2_CTS/GPIO
48	M_GPIO_112/UART2_RTS	I/O	UART2_RTS/GPIO
86	M_GPIO_32	I/O	GPIO
89	M_GPIO_5/UART1_RX	I/O	UART1_RX/GPIO
90	M_GPIO_4/UART1_TX	I/O	UART1_TX/GPIO
96	M_GPIO_93	I/O	GPIO
97	M_GPIO_92	I/O	GPIO
98	M_GPIO_88	I/O	GPIO
99	M_GPIO_89	I/O	GPIO
100	M_GPIO_0	I/O	GPIO
101	M_GPIO_98	I/O	GPIO
102	M_GPIO_72	I/O	GPIO
103	M_GPIO_70	I/O	GPIO
104	M_GPIO_97	I/O	GPIO
105	M_GPIO_110	I/O	GPIO
110	M_GPIO_58	I/O	GPIO
111	M_GPIO_99	I/O	GPIO
112	M_GPIO_95	I/O	GPIO
113	M_GPIO_11	I/O	GPIO
114	M_GPIO_10	I/O	GPIO
115	M_GPIO_9	I/O	GPIO
116	M_GPIO_8	I/O	GPIO
117	M_GPIO_16	I/O	GPIO
118	M_GPIO_17	I/O	GPIO
124	M_PWR CHARGE SEL	I	Connect to PMU for charge select
151、 159	M_CON		Two M_CON
14、 165	M_TC		Two M_TC
Reserved pin (NC)			
2	NC		

Pin No.	Pin name	Pin electrical properties	Voltage level	Homologous GPIO	Remark
1	M_FORCE_USB_BOOT	D,I	1.8V	GPIO_37	
2	NC				
3	M_GND	GND			
4	M_VBAT	P,I	3.5~4.2V		
5	M_VBAT	P,I	3.5~4.2V		
6	M_VBAT	P,I	3.5~4.2V		
7	M_GND	GND			
8	M_VBUS_USB_IN	P,I	5V		
9	M_VBUS_USB_IN	P,I	5V		
10	M_GND	GND			
11	M_USB_DM	A,I/O			
12	M_USB_DP	A,I/O			
13	M_GND	GND			
14	M_TC				
15	M_GND	GND			
16	M_USB_HS_ID	A,I			
17	M_UIM2_DETECT /GPIO_52	D,I D,I/O	1.8V	GPIO_52	
18	M_UIM2_RESET	D,O	1.8/2.95V	GPIO_51	
19	M_UIM2_CLK	D,O	1.8/2.95V	GPIO_50	
20	M_UIM2_DATA	D,I/O	1.8/2.95V	GPIO_49	
21	M_VREG_UIM2	P,O	1.8/2.95V		
22	M_UIM1_DETECT /GPIO_56	D,I D,I/O	1.8V	GPIO_56	
23	M_UIM1_RESET	D,O	1.8/2.95V	GPIO_55	
24	M_UIM1_CLK	D,O	1.8/2.95V	GPIO_54	
25	M_UIM1_DATA	D,I/O	1.8/2.95V	GPIO_53	
26	M_VREG_UIM1	P,O	1.8/2.95V		
27	M_GND	GND			
28	M_VREG_SDC_PWR	P,O	2.95V		
29	M_SDC2_CLK	D,O	1.8/2.95V		
30	M_SDC2_CMD	D,I/O	1.8/2.95V		
31	M_SDC2_DATA0	D,I/O	1.8/2.95V		
32	M_SDC2_DATA1	D,I/O	1.8/2.95V		
33	M_SDC2_DATA2	D,I/O	1.8/2.95V		
34	M_SDC2_DATA3	D,I/O	1.8/2.95V		
35	M_SD_CARD_DET_N /GPIO_38	D,I D,I/O	1.8V	GPIO_38	

Pin No.	Pin name	Pin electrical properties	Voltage level	Homologous GPIO	Remark
36	M_GND	GND			
37	M_VIB_DRV_N	P,O			
38	M_GPIO_14	D,I/O	1.8V	GPIO_14	
39	M_GPIO_23	D,I/O	1.8V	GPIO_23	
40	M_GPIO_31	D,I/O	1.8V	GPIO_31	
41	M_TS_I2C_SCL	D,O	1.8V	GPIO_19	
42	M_TS_INT_N	D,I	1.8V	GPIO_13	
43	M_TS_RST_N	D,O	1.8V	GPIO_12	
44	M_WLED_PWM	D,O	V_MPP_2	PM_MPP_2	
45	M_GPIO_20 /UART2_TX	D,I/O D,O	1.8V	GPIO_20	
46	M_GPIO_21 /UART2_RX	D,I/O D,I	1.8V	GPIO_21	
47	M_GPIO_111 /UART2_CTS	D,I/O D,I	1.8V	GPIO_111	
48	M_GPIO_112 /UART2_RTS	D,I/O D,O	1.8V	GPIO_112	
49	M_LCD_RST_N	D,O	1.8V	GPIO_25	
50	M_LCD_TE	D,I	1.8V	GPIO_24	
51	M_GND	GND			
52	M_MIPI_DSI0_CLK_M	A,O			
53	M_MIPI_DSI0_CLK_P	A,O			
54	M_MIPI_DSI0_LANE0_M	A,O			
55	M_MIPI_DSI0_LANE0_P	A,O			
56	M_MIPI_DSI0_LANE1_M	A,O			
57	M_MIPI_DSI0_LANE1_P	A,O			
58	M_MIPI_DSI0_LANE2_M	A,O			
59	M_MIPI_DSI0_LANE2_P	A,O			
60	M_MIPI_DSI0_LANE3_M	A,O			
61	M_MIPI_DSI0_LANE3_P	A,O			
62	M_GND	GND			
63	M_MIPI_CSI0_CLK_M	A,I			
64	M_MIPI_CSI0_CLK_P	A,I			
65	M_MIPI_CSI0_LANE0_M	A,I			
66	M_MIPI_CSI0_LANE0_P	A,I			
67	M_MIPI_CSI0_LANE1_M	A,I			
68	M_MIPI_CSI0_LANE1_P	A,I			
69	M_GND	GND			
70	M_MIPI_CSI1_CLK_M	A,I			
71	M_MIPI_CSI1_CLK_P	A,I			

Pin No.	Pin name	Pin electrical properties	Voltage level	Homologous GPIO	Remark
72	M_MIPI_CSI1_LANE0_M	A,I			
73	M_MIPI_CSI1_LANE0_P	A,I			
74	M_GND	GND			
75	M_CAM0_MCLK	D,O	1.8V	GPIO_26	
76	M_CAM1_MCLK	D,O	1.8V	GPIO_27	
77	M_GND	GND			
78	M_ANT-WIFI/BT	A,I/O			
79	M_GND	GND			
80	M_CAM0_RST_N	D,O	1.8V	GPIO_35	
81	M_CAM0_PWDN	D,O	1.8V	GPIO_34	
82	M_CAM1_RST_N	D,O	1.8V	GPIO_28	
83	M_CAM1_PWDN	D,O	1.8V	GPIO_33	
84	M_CAM_I2C_SCL	D,O	1.8V	GPIO_30	
85	M_CAM_I2C_SDA	D,I/O	1.8V	GPIO_29	
86	M_GPIO_32	D,I/O	1.8V	GPIO_32	
87	M_SENSORS_I2C_SCL	D,I/O	1.8V	GPIO_7	
88	M_SENSORS_I2C_SDA	D,I/O	1.8V	GPIO_6	
89	M_GPIO_5 /UART1_RX	D,I/O D,I	1.8V	GPIO_5	
90	M_GPIO_4 /UART1_TX	D,I/O D,O	1.8V	GPIO_4	
91	M_KEY_VOL_UP_N	D,I	1.8V	GPIO_90	
92	M_KEY_VOL_DOWN_N	D,I	1.8V	GPIO_91	
93	M_GND	GND			
94	M_ANT_TRX	A,I/O			
95	M_GND	GND			
96	M_GPIO_93	D,I/O	1.8V	GPIO_93	
97	M_GPIO_92	D,I/O	1.8V	GPIO_92	
98	M_GPIO_88	D,I/O	1.8V	GPIO_88	
99	M_GPIO_89	D,I/O	1.8V	GPIO_89	
100	M_GPIO_0	D,I/O	1.8V	GPIO_0	
101	M_GPIO_98	D,I/O	1.8V	GPIO_98	
102	M_GPIO_72	D,I/O	1.8V	GPIO_72	
103	M_GPIO_70	D,I/O	1.8V	GPIO_70	
104	M_GPIO_97	D,I/O	1.8V	GPIO_97	
105	M_GPIO_110	D,I/O	1.8V	GPIO_110	
106	M_ALSP_INT_N /GPIO_94	D,I D,I/O	1.8V	GPIO_94	
107	M_MAG_INT_N /GPIO_36	D,I D,I/O	1.8V	GPIO_36	

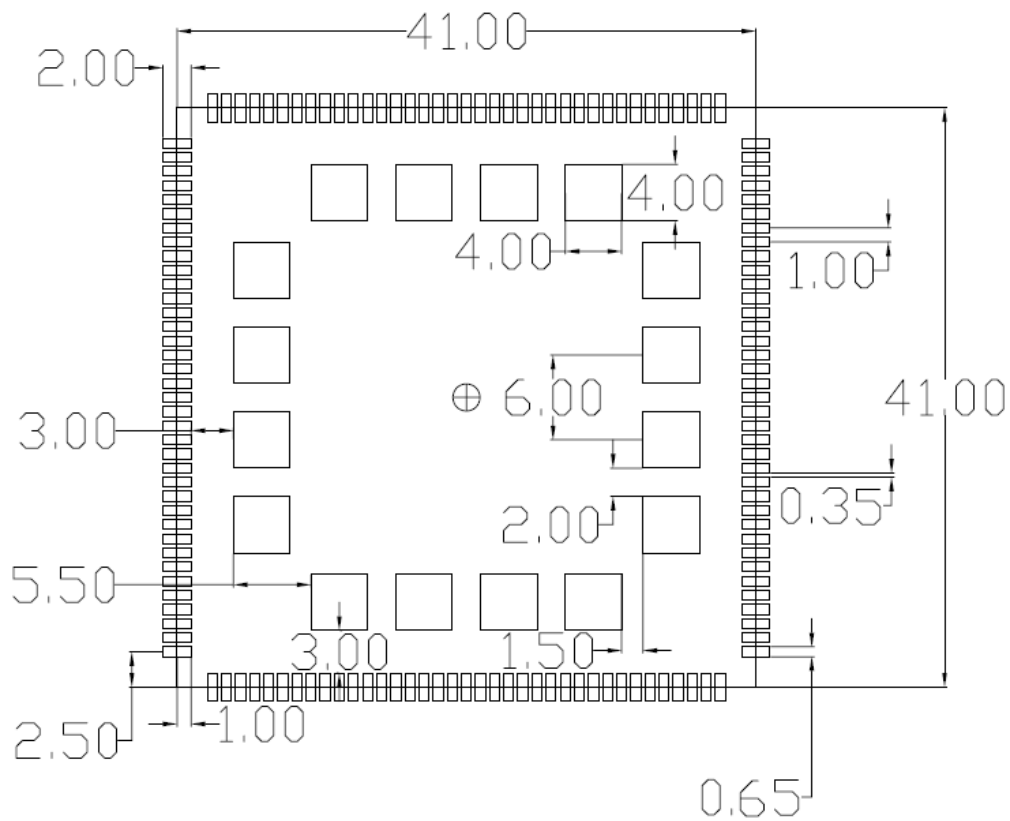
Pin No.	Pin name	Pin electrical properties	Voltage level	Homologous GPIO	Remark
108	M_ACCL_INT2_N /GPIO_65	D,I D,I/O	1.8V	GPIO_65	
109	M_ACCL_INT1_N /GPIO_96	D,I D,I/O	1.8V	GPIO_96	
110	M_GPIO_58	D,I/O	1.8V	GPIO_58	
111	M_GPIO_99	D,I/O	1.8V	GPIO_99	
112	M_GPIO_95	D,I/O	1.8V	GPIO_95	
113	M_GPIO_11	D,I/O	1.8V	GPIO_11	
114	M_GPIO_10	D,I/O	1.8V	GPIO_10	
115	M_GPIO_9	D,I/O	1.8V	GPIO_9	
116	M_GPIO_8	D,I/O	1.8V	GPIO_8	
117	M_GPIO_16	D,I/O	1.8V	GPIO_16	
118	M_GPIO_17	D,I/O	1.8V	GPIO_17	
119	M_GND	GND			
120	M_ANT_GPS	A,I			
121	M_GND	GND			
122	M_VREG_L6_1P8	P,O	1.8V		
123	M_KEY_PWR_N	D,I	1.8V		
124	M_PWR CHARGE SEL	D,I	1.8V	PM_OPT_1	
125	M_VBAT_SNS	A,I			
126	M_VRTC	P,I	3V		
127	M_VBAT_THERM	A,I			
128	M_ADC_IN/PM_MPP_4	A,I	1.8V	PM_MPP_4	
129	M_VREG_L5_1P8	P,O	1.8V		
130	M_VREG_17_2P85	P,O	2.85V		
131	M_GND	GND			
132	M_ANT_DRX	A,I			
133	M_GND	GND			
134	M_CDC_EAR_P	A,O			
135	M_CDC_EAR_M	A,O			
136	M_GND	GND			
137	M_CDC_HPH_R	A,O			
138	M_CDC_HPH_REF	A,I			
139	M_CDC_HPH_L	A,O			
140	M_CDC_HS_DET	A,I			
141	M_GND_MIC	GND			
142	M_MIC2_P	A,I			
143	M_GND	GND			
144	M_MIC1_N	A,I			
145	M_MIC1_P	A,I			

Pin No.	Pin name	Pin electrical properties	Voltage level	Homologous GPIO	Remark
146	M_GND	GND			
147	M_SPKR_DRV_M	A,O			
148	M_SPKR_DRV_P	A,O			
149	M_GND	GND			
150	M_TS_I2C_SDA	D,I/O	1.8V	GPIO_18	
151	M_CONN				
152	M_GND	GND			
153	M_GND	GND			
154	M_GND	GND			
155	M_GND	GND			
156	M_GND	GND			
157	M_GND	GND			
158	M_TS_I2C_SDA	D,I/O	1.8V	GPIO_18	
159	M_CONN				
160	M_GND	GND			
161	M_GND	GND			
162	M_GND	GND			
163	M_GND	GND			
164	M_GND	GND			
165	M_TC				

3.4 Label



4. Footprint



5. Directives and Standards

The AC01116 module is designed to comply with the FCC/ISED statements

FCC ID: 2AG6NAC01116/IC:23725-AC01116,

The host system using AC01116, should have label indicated

FCC ID: 2AG6NAC01116/IC:23725-AC01116

FCC/ISED Radiation Exposure Statement

This equipment complies with FCC/ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

If using a permanently affixed label, the modular transmitter must be labeled with its own FCC/ISED identification number, and, if the FCC/ISED identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following:

“Contains Transmitter Module FCC ID: 2AG6NAC01116/IC:23725-AC01116 or Contains FCC ID: 2AG6NAC01116/IC:23725-AC01116. Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization or must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization.

This device is to be used in mobile or fixed applications only. Antenna gain including cable loss must not exceed 1.43 dBi of frequency band 814-849 MHz, 3.0 dBi of frequency band 1850-1915MHz, 6.0 dBi of frequency band 1710-1755 MHz, 5.93 dBi of frequency band 699-716 MHz, 6.24 dBi of frequency band 777-787 MHz, 9.0 dBi of frequency band 2496-2690 MHz. The antenna(s) 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 operated in conjunction with any antenna or transmitter not described under this FCC/ISED number. The final product operating with this transmitter must include operating instructions and antenna installation instructions, for end-users and installers to satisfy RF exposure compliance requirements.

Cet appareil est Conforme aux limites d'exposition de rayonnement RF ISED établies pour un environnement non contrôlé. Cet émetteur ne doit pas être co - implanté ou fonctionner en conjonction avec toute autre antenne ou transmetteur. Cet équipement doit être installé et utilisé avec une distance minimale de 20cm entre le radiateur & votre corps.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Tous les changements ou modifications non expressément approuvée par le responsable de la conformité pourrait vider l'utilisateur est habilité à exploiter l'équipement.

FCC WARNING:

Any Changes expressly or modifications not approved by the party responsible for compliance

could void the user's authority to operate the equipment.

This device complies with part 15 of the 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.

Note: 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.

ISED WARNING:

This device complies with ISED licence - exempt RSS standard (s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISED licables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Innovation, Science and Economic Development Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Innovation, Science and Economic Development Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that, the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Innovation, la science et le développement économique, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par le Canada l'innovation, la science et le développement économique. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.