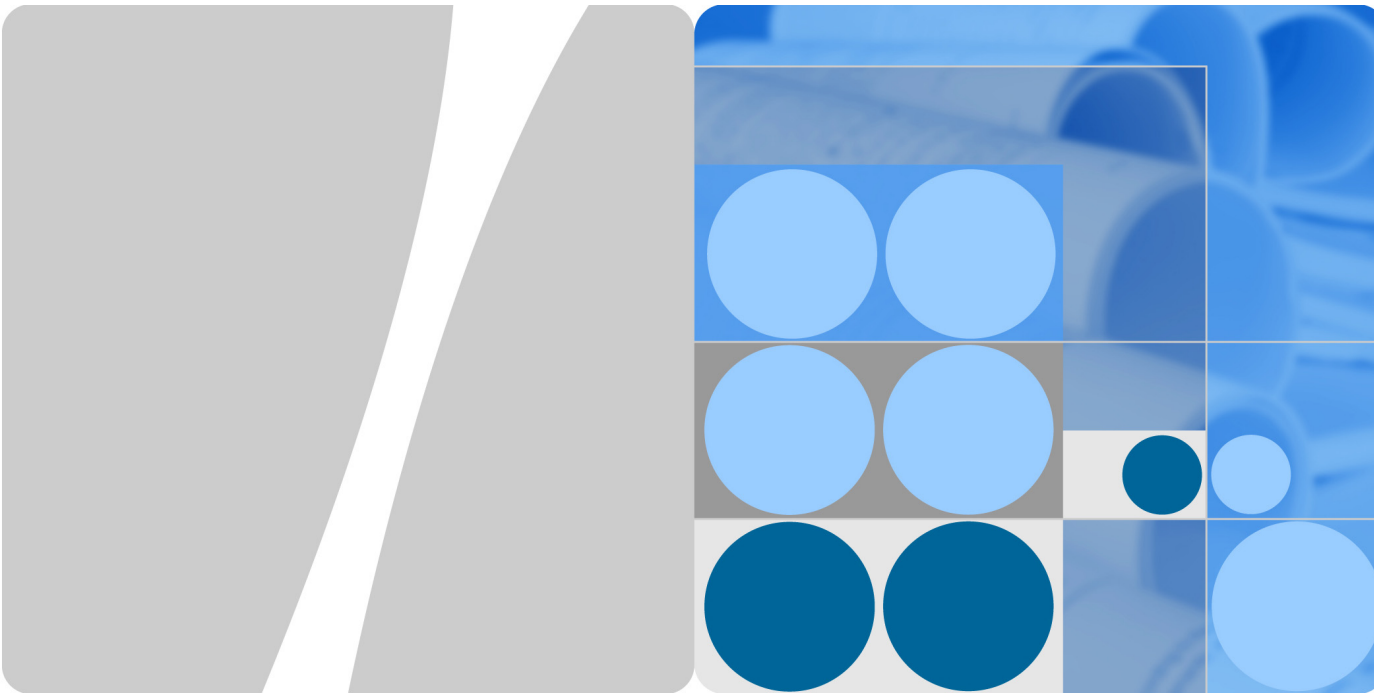


# Specification



## HUAWEI MU509 LGA Module Specification

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MU509 Spec List

Feature & specification		Description	Category
	product model	MU509	Mandatory
	target market	Global	Mandatory
	Dimensions	30mm×30mm×2.5mm	Mandatory
	Weight	<15g	Recommend
Version	Data Only		Mandatory
	Telematics version	added audio function base on data only version	Optional
Module Type	External interface	116pins LGA	Mandatory
Performance &Protocol	Technical Standard	UMTS/WCDMA/GSM/GPRS/EDGE Specification Release '99 (3GPP R99) UMTS/WCDMA Specification Release 5 (3GPP R5) HSDPA and equalizer; 3.6 Mbps GSM/GPRS/EDGE Specification Release 4 (3GPP R4) GPRS/EDGE Multislot Class 12, Release 4 DTM Multislot Class 11	Mandatory
	Operating Frequency	HSDPA/UMTS 2100/900 or HSDPA/UMTS 2100/850 or HSDPA/UMTS 1900/850 and GSM/GPRS/EDGE 850/900/1800/1900	Optional
	Data Rate	GSM CS: UL 14.4kbps/DL 14.4kbps GPRS:UL 85.6kbps/DL 85.6kbps EDGE: DL 236.8 kbps/UL: 236.8 kbps WCDMA CS: UL 64kbps/DL 64kbps WCDMA PS: UL 384kbps/DL 384kbps UL/DL HSDPA: UL Mbps/DL 3.6Mbps	Mandatory
	Static receiving sensitivity	WCDMA/HSDPA: Compliant with 3GPP TS 05.05(R99) GSM/GPRS/EDGE 850 MHz/900 MHz/1800 MHz/1900 MHz: Compliant with 3GPP TS 05.05 (R99)	Mandatory
	Max. transmitter power	WCDMA/HSDPA: +24dBm (Power Class 3) GSM/GPRS 850M/900MHz: +33dBm (Power Class 4) GSM/GPRS 1800MHz/1900MHz: +30dBm (Power Class 1) EDGE 850M/900MHz: +27dBm (Power Class E2) EDGE 1800MHz/1900MHz: +26dBm (Power Class E2)	Mandatory
	Maximum power consumption	Average power consumption <= 2.5W	Recommend
	Power supply	DC power input range 3.3 Volts to 4.2 Volts	Recommend
	Module Peak current	3.8V/2750mA	Recommend
	TCP/IP	Onboard TCP/IP stack access via AT commands	Mandatory
	SMS	Supporting MO and MT Point-to-point and cell broadcast Supporting formats of TEXT and PDU	Mandatory

Feature & specification		Description	Category
	OS Support	Supporting Windows CE、Windows XP、Windows 7 and Linux(2.6.18 later)	Mandatory
	AT command Sets	Hayes 3GPP TS 27.007 and 27.005 Huawei extended AT command	Mandatory
	Language	English( can be customized)	Recommend
Hardware	Chipset	Qualcomm QSC6270	Mandatory
	USIM/SIM	support SIM/USIM,standard 6 PIN SIM card interface support 3V SIM card and 1.8V SIM card	Mandatory
	Low power mode	Deep sleep current consumption is less than 3mA	Mandatory
	UART	1×8 serial interfaces	Optional
	USB	USB 2.0 full speed	Mandatory
	Audio	Data only version don't support this function Telematics version support this function	Optional
Accessories	User manual	including HUAWEI MU509 Module Quick Start in the PDF format and the Setup program	Optional
Approvals & Certification	CE		Mandatory
	FCC		Mandatory
	GCF		Optional
	PTCRB		Optional
	RoHS		Mandatory
Environmental	Operating Temperature	-20 to 70° C	Mandatory
	Storage Temperature	-40 to 85° C	Mandatory
	Humidity	5%~ 95%	Mandatory

PIN#	Pin name		Description	Direction	DC Charateristics(V)		
	Normal	MUX			Min	Type	Max
1	NC		No connect,please keep open	-	-	-	-
2	NC		No connect,please keep open	-	-	-	-
3	NC		No connect,please keep open	-	-	-	-
4	NC		No connect,please keep open	-	-	-	-
5	PCM_SYNC	GPIO	PCM interface sync	-	-	2.6	-
6	PCM_DIN	GPIO	PCM I/F data in	-	-	2.6	-
7	PCM_DOUT	GPIO	PCM I/F data out	-	-	2.6	-
8	PCM_CLK	GPIO	PCM interface clock	-	-	2.6	-
9	NC		No connect,please keep open	-	-	-	-
10	NC		No connect,please keep open	-	-	-	-
11	WAKEUP_IN	GPIO	External system to wake up Module	Input	-	2.6	-
12	VBAT		power supply input	Input	3.3	3.8	4.2
13	VBAT		power supply input	Input	3.3	3.8	4.2
14	NC		No connect,please keep open	-	-	-	-
15	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
16	NC		No connect,please keep open	-	-	-	-
17	NC		No connect,please keep open	-	-	-	-
18	NC		No connect,please keep open	-	-	-	-
19	NC		No connect,please keep open	-	-	-	-
20	NC		No connect,please keep open	-	-	-	-
21	NC		No connect,please keep open	-	-	-	-
22	NC		No connect,please keep open	-	-	-	-
23	NC		No connect,please keep open	-	-	-	-
24	NC		No connect,please keep open	-	-	-	-
25	NC		No connect,please keep open	-	-	-	-
26	NC		No connect,please keep open	-	-	-	-
27	NC		No connect,please keep open	-	-	-	-
28	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	1.8	-
29	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	1.8	-
30	NC		No connect,please keep open	-	-	-	-
31	VCC_EXT2		2.6V power ouput	Output	-	2.6	-
32	VCC_EXT1		1.8V power ouput	Output	-	1.8	-
33	NC		No connect,please keep open	-	-	-	-
34	SIM_VCC		power supply for SIM card	Output	-	1.8/2.85	-
35	NC		No connect,please keep open	-	-	-	-

PIN#	Pin name		Description	Direction	DC Charateristics(V)		
	Normal	MUX			Min	Type	Max
36	NC		No connect,please keep open	-	-	-	-
37	NC		No connect,please keep open	-	-	-	-
38	MIC2_P		(Only telematics version support audio,data only version don't support this function) positive pole of the input of audio interface 2	Input	-	-	-
39	MIC2_N		(Only telematic version support audio,data only version don't support this function) Negative pole of the input of audio interface 2	Input	-	-	-
40	MIC1_P		(Only telematics version support audio,data only version don't support this function) positive pole of the input of audio interface 1	Input	-	-	-
41	MIC1_N		(Only telematics version support audio,data only version don't support this function) Datas only version not suppot audio, Negative pole of the input of audio interface 1	Input	-	-	-
42	NC		No connect,please keep open	-	-	-	-
43	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
44	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
45	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
46	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
47	NC		No connect,please keep open	-	-	-	-
48	GND		Ground	-	-	-	-
49	GND		Ground	-	-	-	-
50	GND		Ground	-	-	-	-
51	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-

PIN#	Pin name		Description	Direction	DC Charateristics(V)		
	Normal	MUX			Min	Type	Max
52	GND		Ground	-	-	-	-
53	GND		Ground	-	-	-	-
54	GND		Ground	-	-	-	-
55	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
56	GND		Ground	-	-	-	-
57	GND		Ground	-	-	-	-
58	GND		Ground	-	-	-	-
59	GND		Ground	-	-	-	-
60	NC		No connect,please keep open	-	-	-	-
61	NC		No connect,please keep open	-	-	-	-
62	NC		No connect,please keep open	-	-	-	-
63	NC		No connect,please keep open	-	-	-	-
64	NC		No connect,please keep open	-	-	-	-
65	NC		No connect,please keep open	-	-	-	-
66	NC		No connect,please keep open	-	-	-	-
67	NC		No connect,please keep open	-	-	-	-
68	NC		No connect,please keep open	-	-	-	-
69	NC		No connect,please keep open	-	-	-	-
70	SIM_DET	GPIO	SIM insert or remove detect.	-	-	2.6	-
71	WAKEUP_OUT	GPIO	module to wake up the external system.	-	-	-	-
72	NC		No connect,please keep open	-	-	-	-
73	UART_DSR	GPIO	UART Data Set Ready	-	-	2.6	-
74	UART_RTS	GPIO	UART ready for receive signal	-	-	2.6	-
75	UART_DCD	GPIO	UART Data Carrier Detect	-	-	2.6	-
76	UART_TX		UART transmit data output	-	-	2.6	-
77	UART_RING	GPIO	UART Ring Indicator	-	-	2.6	-
78	UART_RX		UART receive data input	-	-	2.6	-
79	UART_DTR	GPIO	Data Terminal Ready	-	-	2.6	-
80	UART_CTS	GPIO	UART clear to send signal	-	-	2.6	-
81	POWER_ON_OFF		System power-on or power-off	Input	-	VBAT	-
82	NC		No connect,please keep open	-	-	-	-

PIN#	Pin name		Description	Direction	DC Charateristics(V)		
	Normal	MUX			Min	Type	Max
83	NC		No connect,please keep open	-	-	-	-
84	NC		No connect,please keep open	-	-	-	-
85	USB_DM		Full-speed USB D-	Input/Output	-	-	-
86	USB_DP		Full-speed USB D+	Input/Output	-	-	-
87	NC		No connect,please keep open	-	-	-	-
88	SIM_RESET		SIM reset	Output	-	1.8/2.85	-
89	SIM_DATA		SIM data	Input/Output	-	1.8/2.85	-
90	SIM_CLK		SIM clock	Output	-	1.8/2.85	-
91	LED_STATUS		Status indicator SINK current source Driver current: 10 mA	Output	-	-	-
92	NC		No connect,please keep open	-	-	-	-
93	NC		Reserved PIN,can't be used,must left open.	-	-	-	-
94	NC		No connect,please keep open	-	-	-	-
95	NC		No connect,please keep open	-	-	-	-
96	EAR_OUT_N		(Only telematics version support audio,data only version don't support this function) Negative pole of the output of Earphone interface	Output	-	-	-
97	EAR_OUT_P		(Only telematics version support audio,data only version don't support this function) Positive pole of the output of Earphone interface	Output	-	-	-
98	SPKR_OUT_P		(Only telematics version support audio,data only version don't support this function) Positive pole of the output of speaker interface	Output	-	-	-
99	SPKR_OUT_N		(Only telematics version support audio,data only version don't support this function) Negative pole of the output of speaker interface	Output	-	-	-
100	RESIN_N		Reset modlue.	Input	-	1.8	-



PIN#	Pin name		Description	Direction	DC Charateristics(V)		
	Normal	MUX			Min	Type	Max
101	LED_MODE		Mode indicator SINK current source Driver current: 10 mA	Output	-	-	-
102	NC		No connect,please keep open	-	-	-	-
103	NC		No connect,please keep open	-	-	-	-
104	NC		No connect,please keep open	-	-	-	-
105	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
106	GND		Ground	-	-	-	-
107	MAIN_ANT		RF main antenna interface	-	-	-	-
108	GND		Ground	-	-	-	-
109	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	-	-
110	GND		Ground	-	-	-	-
111	NC		No connect,please keep open	-	-	-	-
112	GND		Ground	-	-	-	-
113	GPIO		General I/O pins,the function of these pins have not been defined.	Input/Output	-	2.6	-
114	GND		Ground	-	-	-	-
115	NC		No connect,please keep open	-	-	-	-
116	GND		Ground	-	-	-	-

