LEON-G100/G200

2.5G quad band GSM/GPRS modules

Highlights

- Full feature quad band GSM/GPRS, class 10
- Easy forward migration to u-blox LISA UMTS/HSPA and CDMA 1xRTT modules
- Lowest standby current: < 0.99 mA
- Extended temperature range: -40 to +85°C
- Simple integration of u-blox GPS/GNSS and A-GPS
- CellLocate™: location based on cellular network
- ISO 16750 qualification
- Manufactured in ISO/TS 16949 certified production sites

LEON-G100/G200:
18.9 x 29.5 x 3.0 mm

Product description

LEON-G100/G200 modules provide full feature quad band GSM/GPRS data and voice communication in a compact and cost optimized SMT form factor. LEON modules are fully qualified and certified and feature extremely low power consumption and a rich set of Internet protocols. They are ideally suited to M2M and automotive applications such as: Fleet management, Automatic Meter Reading (AMR), people and asset tracking, surveillance and security and Point of Sales (PoS) terminals.

LEON modules implement fully integrated access to u-blox GPS receivers. Wireless and GPS are controlled through a single serial port from any host processor, and A-GPS (AssistNow Online and AssistNow Offline) functionality is integrated.

The compact SMT package enables easy manufacturing, and simple forward migration to u-blox LISA UMTS/HSPA and CDMA 1xRTT modules and seamless GSM to UMTS and GSM to CDMA handover. This allows customers to take maximum advantage of their hardware and software investments, and provides very short time to market. An extensive set of national regulatory and operator certificates is available. RIL software for Android and Embedded Windows is available free of charge.

LEON modules are manufactured in ISO/TS 16949 certified sites. Each module is tested and inspected during production. The modules are qualified according to ISO 16750 – Environmental conditions and electrical testing for electrical and electronic equipment for road vehicles.

Product selector

Module	Bands	Interface					Audio		Functions												
	GSM/GPRS quad band	UART	SPI	USB	DDC for u-blox GPS	GPIO	Analog Audio	Digital Audio	Network indication	Antenna Supervisor	Jamming Detection	Embedded TCP/UDP	FTP, HTTP, SMTP	SSL	GPS/GNSS via Modem	AssistNow software	FW update via serial interface	FOTA	eCall / ERA-GLONASS	Battery charging	CellLocate
LEON-G100	•	1			1	4	2	1	•	•	•	•	•		•	•	•				•
LEON-G100 ECALL	•	1			1	4	2	1	•	•	•	•	•		•	•	•		•		•
LEON-G200	•	1			1	4	2	1	•	•	•	•	•		•	•	•	•		•	•

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Features

GSM	GSM 850 / 900 / 1800 / 1900 MHz 3GPP Release 99 PBCCH support
GPRS	Class 10, CS1-CS4 - up to 85.6 kb/s
CSD	GSM max 9.6 kb/s
Voice	HR / FR / EFR / AMR Echo cancellation Noise reduction
AT Commands	3GPP 27.005, 3GPP 27.007 u-blox AT command extension 3GPP 27.010 MUX protocol
SMS	MT/MO PDU / Text mode

Software features

Protocols	Embedded TCP/IP, UDP/IP, HTTP/FTP
Network	Jamming detection
GPS Interfaces	Direct access to u-blox GPS via LEON AssistNow software for fastest GPS Time-to-First-Fix CellLocate & Hybrid Positioning
AT commands	3GPP 27.005, 3GPP 27.007 u-blox proprietary AT command 3GPP 27.010 MUX protocol
Firmware upgrade	Via UART (Xmodem protocol) FOTA[1]
Special features	DTMF decoder inBand modem[2] eCall and ERA-Glonass support[2]

[1] LEON-G200 only
[2] LEON-G100 ECALL

Electrical data

Power supply	3.00 to 4.50 V (extended range)	
Power consumption	Power Off:	< 90 µA
	Idle mode[3]	
	DRX9:	< 0.99 mA
	DRX5:	< 1.60 mA
	GSM Voice:	< 300 mA
	GPRS Class 10:	< 410 mA

[3] GSM and GPRS attach

Interfaces

Antenna	50 Ω Antenna detection
Serial Port	1 UART 1 DDC (I²C) for GPS communication
Audio lines	2 audio analog 1 audio digital (I2S/PCM) interface
SIM	1.8 V and 3 V
GPIO	4, controllable over AT commands
RTC	Internal
A/D converter	1, accessible via AT commands[4]

[4] LEON-G100 only

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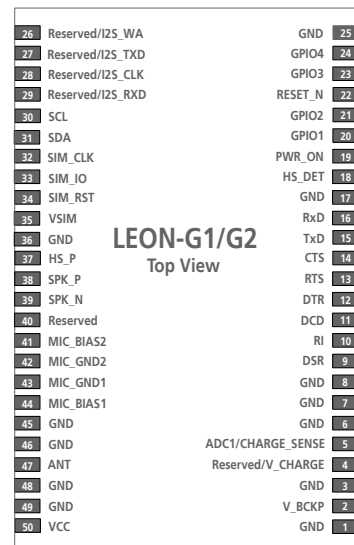
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Package

50 pin LCC (Leadless Chip Carrier): 18.9 x 29.5 x 3.0 mm, < 5 g

Pinout

Pin	Name		Name	Pin
26	Reserved/I2S_WA		GND	25
27	Reserved/I2S_TXD		GPIO4	24
28	Reserved/I2S_CLK		GPIO3	23
29	Reserved/I2S_RXD		RESET_N	22
30	SCL		GPIO2	21
31	SDA		GPIO1	20
32	SIM_CLK		PWR_ON	19
33	SIM_IO		HS_DET	18
34	SIM_RST		GND	17
35	VSIM		RxD	16
36	GND	**LEON-G1/G2** Top View	TxD	15
37	HS_P		CTS	14
38	SPK_P		RTS	13
39	SPK_N		DTR	12
40	Reserved		DCD	11
41	MIC_BIAS2		RI	10
42	MIC_GND2		DSR	9
43	MIC_GND1		GND	8
44	MIC_BIAS1		GND	7
45	GND		GND	6
46	GND		ADC1/CHARGE_SENSE	5
47	ANT		Reserved/V_CHARGE	4
48	GND		GND	3
49	GND		V_BCKP	2
50	VCC		GND	1

Environmental data, quality & reliability

Operating temperature -40 to +85°C (extended range)

RoHS compliant (lead-free)

Qualification according to ISO 16750

Manufactured in ISO/TS 16949 certified production sites

Certifications and approvals

R&TTE, CE, GCF, PTCRB, FCC, IC, NCC, ICASA, A-Tick, AT&T, Rogers, Orange. See website for latest approvals.

Support products

EVK-G20	Evaluation Kit for LEON-G100 / G200
RIL software	Android 2.3, Embedded Windows 6.x 7.x, Windows Mobile 6.5

Ordering information

LEON-G100-xxS[5]	Quad Band GSM/GPRS module
LEON-G100-71S	Quad Band GSM/GPRS module, ready for eCall / ERA-GLONASS
LEON-G200-xxS[5]	Quad Band GSM/GPRS module with extended feature set

[5] xx refers to firmware version.

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