



Technical Specification Document

C42GM

Cat M1 & NB-IoT Module



Cavli C-Series C42GM Module

Cat M1 & NB1/NB2 Module



C42GM is a Cat M1/ NB-IoT Module compliant with 3GPP Release 14 specifications. C42GM has an ultra-low power consumption and a compact form factor of 26.5 x 22.5 x 2.3 mm which makes it ideal for space and power constrained applications. C42GM has support for bands globally. It also supports Sigfox LPWAN technology. The module supports optional integrated GNSS and eSIM powered by Cavli Hubble Global Connectivity and Device Management Platform.

C42GM is perfect for applications such as Asset Tracking, Vehicular Telemetry System, Smart City, Health care, Smart Home, Retail, Safety devices, Industrial and agricultural intelligent monitoring etc.

Key features



Cat-M1/NB-IoT



Integrated GNSS



eSIM



Cavli Hubble Platform



CAN Interface



DRX & eDRX modes



USB 2.0 Interface



Sigfox Protocol

C42GM - M1		C42GM - NB1/NB2
Basic Information		
Region	Global	Global
CPU	ARM Cortex R4 @ max 1.5GHz	ARM Cortex R4 @ max 1.5GHz
Memory	2 MB RAM + 16/ 32 MB Flash	2 MB RAM + 16/ 32 MB Flash
OS	Zephyr	Zephyr
Package	LGA	LGA
Pin Count	102	102
Dimensions	26.5 x 22.5 x 2.3 mm	26.5 x 22.5 x 2.3 mm
Weight	3.6 g (approx)	3.6 g (approx)
Operating Temperature	-30°C to +75°C	-30°C to +75°C
Extended Operating Temperature	-40°C to +85°C	-40°C to +85°C
Radio Frequency Bands		
RAT	Cat M1	Cat NB2 / NB1
Transmission Rates (Peak)	Cat M1: DL 588Kbps & UL 1119Kbps	Cat NB2:DL 127Kbps & UL 158.5Kbps LTE Cat NB1:DL 20Kbps & UL 60Kbps
LTE Band List	B1/ B2/ B3/ B4/ B5/ B6/ B8/ B10/B12/ B13/ B14/ B15/ B16/ B17/ B18/ B19/ B20/ B24/ B25/ B26/ B27/ B28/ B39/ B54/ B65/ B66/ B68/ B71/ B90	B1/ B2/ B3/ B4/ B5/ B6/ B9/ B8/ B10/B12/ B13/ B14/ B15/ B16/ B17/ B18/ B19/ B20/ B24/ B25/ B26/ B27/ B28/ B39/ B54/ B65/ B66/ B68/ B71/ B90
3GPP Release	14	14
GNSS Capability		
Constellations	GPS / BEIDOU	GPS / BEIDOU
Time Taken for First Fix (@130dBm)	Cold start: < 28s Reacquisition: ≤ 1s	Cold start: < 28s Reacquisition: ≤ 1s
Accuracy	Horizontal Positioning accuracy: < 2.0 m CEP50 Vertical Positioning accuracy: < 3.0m CEP50 Velocity accuracy: < 0.01m/s(without aid) Timing accuracy: 1PPS	Horizontal Positioning accuracy: < 2.0 m CEP50 Vertical Positioning accuracy: < 3.0m CEP50 Velocity accuracy: < 0.01 m/s (without aid) Timing accuracy: 1PPS
Sensitivity	Cold start: -147 dBm Reacquisition: -158 dBm Tracking: -160 dBm	Cold start: -147 dBm Reacquisition: -158 dBm Tracking: -160 dBm
Network Protocols		
Internet Protocols	HTTP(S), MQTT(S)	HTTP(S), MQTT(S)
Radio Protocol(s)	Sigfox	Sigfox
Hardware Protocol(s)	CAN	CAN

* Optional

** Needs SDK. Not available currently

*** In Progress

Interfaces		
UART	x3	x3
USB 2.0	x1	x1
USIM (DSSS) (1.8V / 3.0V)	x1	x1
JTAG	x1	x1
Network Status Indicator	x1	x1
Power ON Status Indicator	x1	x1
I2C**	x1	x1
PCM**	x1	x1
SDIO 3.0(Host Only) (4-bits)	x1	x1
ADC**	x2	x2
SPI**	x1	x1
GPIO**	x8	x8
Main ANT	x1	x1
GNSS ANT*	x1	x1
CAN Bus	x1	x1

Electrical Characteristics		
Operating Voltage	Range: 3.1V to 4.2V Typical: 3.6V	Range: 3.1V to 4.2V Typical: 3.6V
TxD Idle	199 mA	199 mA
DRX Mode (Avg)	1.65 mA	1.65 mA
eDRX Mode (Avg)	1.078 mA	0.85 mA
Power Saving Mode	3.9 µA	3.9 µA

Driver Support		
USB Driver	Windows 7 and above, Linux Kernal 3.14 - 5.15	Windows 7 and above, Linux Kernal 3.14 - 5.15

Certifications		
Regulatory	Europe: CE N.A: FCC Sigfox verified	Europe: CE NA: FCC Sigfox verified
Carrier	Verizon*** /AT&T*** /T-Mobile***	Verizon*** /AT&T*** /T-Mobile***
Others	RoHS/REACH	RoHS/REACH

Other Features

Integrated GNSS

Optional

Optional

Integrated eSIM + Hubble

Connectivity and Device

Management Access

Optional

Optional

Mini-PCIe Form Factor

Optional

Optional



Product Variants

Variant Name	Region	Integrated eSIM	Internal GNSS	Flash Size
C42GM-M16S0N	Global	✗	✗	16MB
C42GM-M16S0H		✓	✗	16MB
C42GM-M16GNN		✗	✓	16MB
C42GM-M16GNH		✓	✓	16MB
C42GM-M32S0N		✗	✗	32MB
C42GM-M32S0H		✓	✗	32MB
C42GM-M32GNN		✗	✓	32MB
C42GM-M32GNH		✓	✓	32MB
C42GM-N16S0N		✗	✗	16MB
C42GM-N16S0H		✓	✗	16MB
C42GM-N16GNN		✗	✓	16MB
C42GM-N16GNH		✓	✓	16MB
C42GM-N32S0N		✗	✗	32MB
C42GM-N32S0H		✓	✗	32MB
C42GM-N32GNN		✗	✓	32MB
C42GM-N32GNH		✓	✓	32MB

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For more information

Contact : sales@cavliwireless.com | Visit : www.cavliwireless.com

