Technical Specification Document

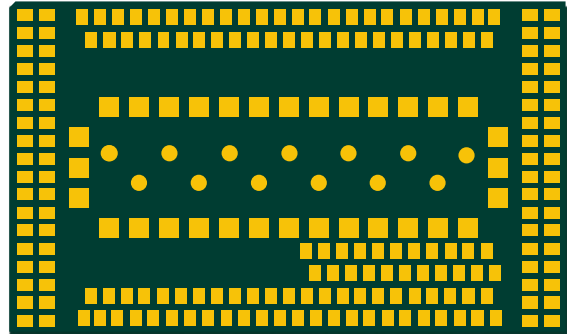# C20QM

LTE Cat 4 / 2G Module

Cavli
C Series

Cavli C-Series C20QM Module

LTE Cat 4/ 2G Module

C20QM is the series of LTE Cat 4 modules with 2G fall back supporting 3GPP release 10 designed for IoT and M2M applications. It delivers a maximum data rate of 150 Mbit/s DL & 50 Mbit/s UL. It has a compact LGA form factor which is pin compatible with C10GS LTE Cat 1/4 module which allows flexible migration. C20QM supports integrated GNSS with Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou/Compass, Galileo and QZSS), for precise and dependable positioning. C20QM supports VoLTE and SMS over IMS/SG/CS and supports wide set Internet protocols and industry-standard interfaces.

They come in 2 variants - C20QM-EA for the Europe and Asia market and C20QM-NA for the North America market. With optional integrated eSIM powered by Cavli Hubble platform, it provides global connectivity that helps to further reduce the time to market. C20QM is ideal for IoT applications such as asset tracking, e-mobility, data loggers, fleet management and environmental monitoring.

Key features

4G LTE	**eSIM**	🌐	📡	🔌
LTE Cat 4	eSIM	Cavli Hubble Platform	Integrated GNSS	USB 2.0 Interface
2G	**LGA**	**VoLTE**	**SMS**	
2G	Small Form Factor Design	VoLTE Support	SMS over IMS/SG/CS	

	C20QM-EA	C20QM-NA
Basic Information		
Region	EMEA, APAC	North America
CPU	ARM Cortex-A7 @ 1.3 GHz	ARM Cortex-A7 @ 1.3 GHz
Memory	256 MB RAM 256/ 512 MB Flash	256 MB RAM 256/512 MB Flash
OS	Linux 4.14	Linux 4.14
Package	LGA	LGA
Pin Count	233	233
Dimensions	37 x 21.8 x 2.8 mm	37 x 21.8 x 2.8 mm
Weight	TBD	TBD
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 4 GSM	Cat 4 GSM
Transmission Rates	Cat 4: DL 150 Mbps & UL 50 Mbps GSM (2G): DL 236.8 Mbps & UL 236.8 Mbps	Cat 4: DL 150 Mbps & UL 50 Mbps GSM (2G): DL 236.8 Mbps & UL 236.8 Mbps
LTE Band List | GSM Band List	B1/ B3/ B5/ B8/ B20/ B40 | 900/ 1800MHz	B2/ B4/ B5/ B12/ B13/ B25/ B26/ B66 | 900/ 1800MHz
3GPP Release	10	10
GNSS Capability		
GNSS (GNA Variant)	GPS/ GLONASS/ BeiDou/ Galileo QZSS Capable	GPS/ GLONASS/ BeiDou/ Galileo QZSS Capable
Network Protocols		
Internet Protocols	TCP(S), HTTP(S), MQTT(S), FTP(S), UDP, WS(S), PPP, SNMP	TCP(S), HTTP(S), MQTT(S), FTP(S), UDP, WS(S), PPP, SNMP
Interfaces		
UART	x3	x3
USB 2.0 (HS)	x1	x1
SDIO 3.0	x1	x1
USIM (DSSS) (1.8V / 3.0V)	x1	x1
JTAG	x1	x1
Network Status Indicator	x1	x1
Power ON Status Indicator	x1	x1
SGMII	x1	x1
I2C [2]	x1	x1

	C20QM-EA	C20QM-NA
SPI [2]	x1	x1
ADC	x2	x2
LCD	x1	x1
GPIO [2]	x9	x9
PCM [2]	x1	x1
Main ANT	x1	x1
GNSS ANT	x1	x1
Diversity ANT	x1	x1

Electrical Characteristics

	C20QM-EA	C20QM-NA
Operating Voltage	Range: 3.6 V to 4.5 V Typical: 3.8 V	Range: 3.6 V to 4.5 V Typical: 3.8 V
TxD Peak	TBD	TBD
TxD Idle	TBD	TBD
GNSS (Fix)	TBD	TBD

Enhanced Features

	C20QM-EA	C20QM-NA
VoLTE	Yes	Yes
SMS - IMS	Yes	Yes
SMS - SG	Yes	Yes
SMS - CS	Yes	Yes

Driver Support

	C20QM-EA	C20QM-NA
USB Driver	TBD	TBD

Certifications

	C20QM-EA	C20QM-NA
Regulatory	Global: GCF [3] Europe: CE [3] UK: UKCA [3] Taiwan: NCC [3] South Korea: KC [3]	Global: GCF [3] North America: PTCRB [3] America: FCC [3] Canada: IC [3]
Carrier	TBD	Verizon [3] /AT&T [3] /TMobile [3]
Others	RoHS / REACH	RoHS / REACH

Other Features

	C20QM-EA	C20QM-NA
Integrated GNSS	Optional	Optional
Integrated eSIM + Cavli Hubble Global Connectivity and Device Management Platform	Optional	Optional
miniPCIe Form Factor	Optional	Optional

Product Variar ts

Variant Name	Region	Flash Size	Integrated eSIM
C20QM-EA-22GNN	EMEA, APAC	256 MB	✘
C20QM-EA-22GNH	EMEA, APAC	256 MB	✓
C20QM-NA-22GNN	North America	256 MB	✘
C20QM-NA-22GNH	North America	256 MB	✓
C20QM-EA-24GNN	EMEA, APAC	512 MB	✘
C20QM-EA-24GNH	EMEA, APAC	512 MB	✓
C20QM-NA-24GNN	North America	512 MB	✘
C20QM-NA-24GNH	North America	512 MB	✓

For more information

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