



Technical Specification Document

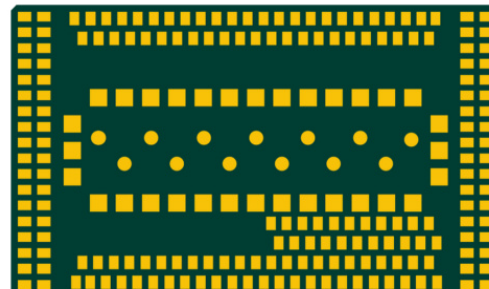
C10QM

LTE Cat 1 / 2G Module



Cavli C-Series C10QM Module

LTE Cat 1/ 2G Module



C10QM is the series of LTE Cat 1 modules with 2G fall back supporting 3GPP release 10 designed for IoT and M2M applications. It delivers a maximum data rate of 10 Mbit/s DL & 5 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. C10QM supports integrated GNSS with Qualcomm® location Gen8C engine (GPS, GLONASS, BeiDou/ Compass, Galileo and QZSS), for precise and dependable positioning. C10QM supports VoLTE and SMS over IMS/SG/CS and supports wide set Internet protocols and industry-standard interfaces.

They come in 3 variants - C10QM-EA for the Europe and Asia market, C10QM-NA for the North America market and C10QM-EAJ for the Europe, Asia and Japan market . With optional integrated eSIM powered by Cavli Hubble platform, it provides global connectivity that helps to further reduce the time to market. C10QM is ideal for IoT applications such as asset tracking, e-mobility, data loggers, fleet management and environmental monitoring.

Key features



LTE Cat 1



eSIM



Cavli Hubble
Platform



Integrated GNSS



USB 2.0
Interface



2G fallback



LGA Form Factor
Design



VoLTE Support



SMS over
IMS/SG/CS



OpenSDK
Support

	C10QM-EA	C10QM-NA	C10QM-EAJ
Basic Information			
Region	EMEA, APAC	North America	EMEA, APAC, Japan
CPU	ARM Cortex-A7 @ 1.3 GHz	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	256 MB RAM 256/512 MB Flash
OS	Linux 4.14	Linux 4.14	Linux 4.14
Package	LGA	LGA	LGA
Pin Count	233	233	233
Dimensions	37 x 21.8 x 2.8 mm	37 x 21.8 x 2.8 mm	37 x 21.8 x 2.8 mm
Weight	TBD	TBD	TBD
Operating Temperature	-30 °C to +85 °C	-30 °C to +85 °C	-30 °C to +85 °C
Radio Frequency Bands			
RAT	Cat 1 GSM	Cat 1 GSM	Cat 1 GSM
Transmission Rates	Cat 1: DL 10 Mbps & UL 5 Mbps GSM (2G): DL 236.8 Kbps & UL 236.8 Kbps	Cat 1: DL 10 Mbps & UL 5 Mbps GSM (2G): DL 236.8 Kbps & UL 236.8 Kbps	Cat 1: DL 10 Mbps & UL 5 Mbps GSM (2G): DL 236.8 Kbps & UL 236.8 Kbps
LTE Band List GSM Band List	B1/ B3/ B5/ B8/ B40 900/ 1800MHz	B2/ B4/ B5/ B7/ B12/ B13/ B17/ B25/ B26 /B66 900/ 1800MHz	B1/ B3/ B5/ B7/ B8/ B18/ B19/ B20/ B26/ B28/ B38/ B40/ B41 900/ 1800MHz
3GPP Release	10	10	10
GNSS Capability			
GNSS (GNA Variant)	GPS/ GLONASS/ BeiDou/ Galileo SBAS + QZSS Capable	GPS/ GLONASS/ BeiDou/ Galileo SBAS + QZSS Capable	GPS/ GLONASS/ BeiDou/ Galileo SBAS + QZSS Capable
TTFF	Hot - 1, Warm - 24, Cold - 28	Hot - 1, Warm - 24, Cold - 28	Hot - 1, Warm - 24, Cold - 28
Network Protocols			
Internet Protocols	TCP(S), HTTP(S), MQTT(S), FTP(S), UDP, PPP	TCP(S), HTTP(S), MQTT(S), FTP(S), UDP, PPP	TCP(S), HTTP(S), MQTT(S),FTP(S), UDP, PPP
Interfaces			
UART	x3	x3	x3
USB 2.0 (HS)	x1	x1	x1
SDIO 3.0	x1	x1	x1
SDC	x1	x1	x1
USIM (DSSS) (1.8V / 3.0V)	x1	x1	x1
Network Status Indicator	x1	x1	x1
Power ON Status Indicator	x1	x1	x1
SGMII	x1	x1	x1
ADC	x2	x2	x2
I2C ²	x1	x1	x1

¹Optional

² Needs SDK

³In Progress

	C10QM-EA	C10QM-NA	C10QM-EAJ
SPI ²	x1	x1	x1
GPIO ²	x9	x9	x9
LCD	x1	x1	x1
PCM ²	x1	x1	x1
JTAG	x1	x1	x1
Main ANT	x1	x1	x1
GNSS ANT	x1	x1	x1

Electrical Characteristics

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	Range: 3.6 V to 4.5 V Typical: 3.8 V
TxD Peak	970 mA	TBD	TBD
TxD Idle	60 mA	TBD	TBD
GNSS	90 mA	90 mA	90 mA

Enhanced Features

VoLTE	Yes	Yes	Yes
SMS - IMS	Yes	Yes	Yes
SMS - SG	Yes	Yes	Yes
SMS - CS	Yes	Yes	Yes

Driver Support

USB Driver	RNDIS/ CDC-ECM/ RMNET/ MBIM/ DUN	RNDIS/ CDC-ECM/ RMNET/ MBIM/ DUN	RNDIS/ CDC-ECM/ RMNET/ MBIM/ DUN
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Certifications

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	Global : GCF ³ Europe : CE ³ UK : UKCA ³ Taiwan : NCC ³ South Korea: KC ³
Carrier	TBD	Verizon ³ /AT&T ³ /TMobile ³	TBD
Others	RoHS / REACH	RoHS / REACH	RoHS / REACH

Other Features

Integrated GNSS	Optional	Optional	Optional
Integrated eSIM + Cavli Hubble Global Connectivity and Device Management Platform	Optional	Optional	Optional
miniPCle Form Factor	Optional	Optional	Optional

¹Optional

²Needs SDK

³In Progress



Product Variants

Variant Name	Region	RAM	Flash	Integrated eSIM
C10QM-EA-22GNN	EMEA, APAC	256 MB	256 MB	✗
C10QM-EA-22GNH	EMEA, APAC	256 MB	256 MB	✓
C10QM-NA-24GNN	EMEA, APAC	256 MB	512 MB	✗
C10QM-NA-24GNH	EMEA, APAC	256 MB	512 MB	✓
C10QM-NA-22GNN	North America	256 MB	256 MB	✗
C10QM-NA-22GNH	North America	256 MB	256 MB	✓
C10QM-EA-24GNN	North America	256 MB	512 MB	✗
C10QM-EA-24GNH	North America	256 MB	512 MB	✓
C10QM-EAJ-22GNN	EMEA, APAC, Japan	256 MB	256 MB	✗
C10QM-EAJ-22GNH	EMEA, APAC, Japan	256 MB	256 MB	✓
C10QM-EAJ-24GNN	EMEA, APAC, Japan	256 MB	512 MB	✗
C10QM-EAJ-24GNH	EMEA, APAC, Japan	256 MB	512 MB	✓

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