

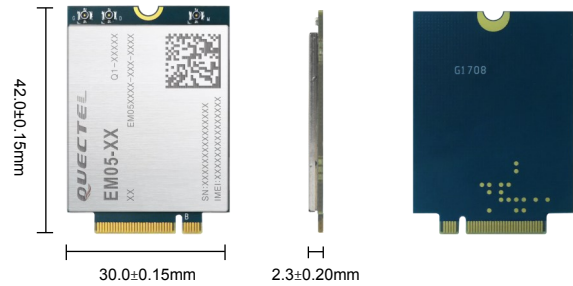


**THE DATASHEET OF
EM05EFA-512-SGAS**



Quectel EM05 Series

IoT/M2M-optimized LTE Cat 4 M.2 Modules



Quectel EM05 is an LTE category 4 module adopting standard M.2 (NGFF) form factor. The space-saving M.2 form factor allows EM05 to be easily integrated into smaller and thinner devices. With maximum data rates up to 150Mbps downlink and 50Mbps uplink, it is optimized specially for M2M and IoT applications.










EM05 contains three variants: EM05-CE, EM05-E and EM05-CML, which can provide data connectivity on LTE-FDD, LTE-TDD, DC-HSDPA, HSPA+, HSDPA, HSUPA, WCDMA and CDMA networks.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows 7/8/8.1/10, Linux and Android, DFOTA, etc.) extend the applicability of the module to a wide range of M2M applications such as industrial router, industrial PDA, rugged tablet PC, video surveillance and digital signage.



Key Benefits

- ✓ LTE Cat 4 module optimized for broadband IoT/M2M applications
- ✓ Worldwide LTE and UMTS/HSPA+ coverage
- ✓ Standard M.2 (NGFF) form factor ideal for manufacturers to easily integrate wireless connectivity into devices
- ✓ Support DFOTA and DTMF
- ✓ MIMO technology meets demands for data rate and link reliability in wireless communication systems

 4G LTE LTE Cat 4 Max 150Mbps (DL) Max 50Mbps (UL)	 3G HSPA+ Max 42Mbps (DL) Max 5.76Mbps (UL)	 M.2 M.2 Package
 USB 2.0 High Speed Interface	 DFOTA DFOTA	 AT Quectel Enhanced AT Commands
 Embedded Abundant Protocols	 USB Drivers	 Multi-constellation GNSS

Quectel EM05 Series

LTE Cat 4	EM05-CE	EM05-E	EM05-CML
Region/Operator	China/Thailand/India	Europe/Australia/New Zealand	China
Dimensions (mm)	(42.0±0.15) × (30.0±0.15) × (2.3±0.20)	(42.0±0.15) × (30.0±0.15) × (2.3±0.20)	(42.0±0.15) × (30.0±0.15) × (2.3±0.20)
Temperature Range			
Operation Temperature	-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Frequency Bands			
LTE-FDD	B1/B3/B5/B8	B1/B3/B7/B8/B20/B28	\
LTE-TDD	B38/B39/B40/B41	B38/B41	B38/B39/B40/B41
WCDMA	B1/B8	B1/B8	\
EVDO/CDMA	BC0	\	\
GNSS (Optional)	GPS, GLONASS, BeiDou/Compass, Galileo, QZSS	GPS, GLONASS, BeiDou/Compass, Galileo, QZSS	GPS, GLONASS, BeiDou/Compass, Galileo, QZSS
Certifications			
Regulatory	SRRC/CCC/NAL	CE/RCM	SRRC/CCC/NAL
Others	WHQL/RoHS Compliant	WHQL/RoHS Compliant	WHQL/RoHS Compliant
Data Transmission			
LTE-FDD data rate (Mbps)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	\
LTE-TDD data rate (Mbps)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)
DC-HSPA+ data rate (Mbps)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	\
WCDMA data rate (Kbps)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	\
EVDO data rate (Mbps)	3.1 (DL)/ 1.8 (UL)	\	\
1X Advanced data rate (Kbps)	307.2 (DL)/ 307.2 (UL)	\	\
Interfaces			
(U)SIM	x 1	x 1	x 1
USB 2.0	x 1	x 1	x 1
Control and Indication Signals	W_DISABLE1#, LED#, WOWWAN#, DPR*	W_DISABLE1#, LED#, WOWWAN#, DPR*	W_DISABLE1#, LED#, WOWWAN#, DPR*
Antenna Interfaces	Main, Rx-diversity, GNSS	Main, Rx-diversity, GNSS	Main, Rx-diversity, GNSS
Audio Digital (PCM&I2C) (Optional)	x 1	x 1	x 1
Voice			
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
Echo Arithmetic	Echo cancellation/Noise suppression	Echo cancellation/Noise suppression	Echo cancellation/Noise suppression
Enhanced Features			
DFOTA	●	●	●
QMI/RmNet	●	\	\
Audio Playback/Audio Recording*	Optional	Optional	Optional
QuecLocator®	●	●	●
QuecFile	●	●	●
SMS	●	●	●
(U)SIM Card Detection	●	●	●
Drivers			
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS Driver	Windows 7/ 8/ 8.1/ 10	\	\
MBIM Driver	Windows 8/8.1/10, Linux 3.18~5.4	Windows 8/8.1/10, Linux 3.18~5.4	Windows 8/8.1/10, Linux 3.18~5.4
GobiNet Driver	Linux 2.6~5.4	\	\
QMI_WWAN Driver	Linux 3.4~5.4	\	\
Electrical Features			
Supply Voltage Range	3.135V~4.4V, 3.3V Typ.	3.135V~4.4V, 3.3V Typ.	3.135V~4.4V, 3.3V Typ.
Power Consumption	5.0µA @Power off 3.3mA @LTE Sleep, PF=128 3.0mA @LTE Sleep, PF=256 20mA @Idle	5.0µA @Power off 3.3mA @LTE Sleep, PF=128 3.0mA @LTE Sleep, PF=256 20mA @Idle	5.0µA @Power off 3.3mA @LTE Sleep, PF=128 3.0mA @LTE Sleep, PF=256 20mA @Idle

Notes:

- * means under development
- means supported

Looking for pricing, stock, or lifecycle information?

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- ⊖ [View EM05EFA-512-SGAS on WIN SOURCE](#)
- ⊖ [Quectel Information](#)

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- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management