

UM680A

Automotive-grade Multi-GNSS
Dual-frequency High-precision RTK
Positioning Module



Automotive
Grade

22.0 x 17.0 x 2.6 mm



Product Characteristics

- » Supports concurrent operation of GPS, BDS, GLONASS and Galileo
- » Supports A-GNSS to reduce the TTFF
- » GNSS chip qualified according to AEC-Q100 and production process conforms to IATF16949
- » Anti-jamming design to ensure the module working stably in complex electromagnetic environment
- » Centimeter-level positioning accuracy & raw data output

Applications



Intelligent
Driving



P-BOX



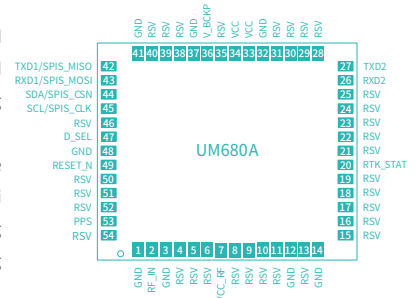
T-BOX

Ordering Information

Supply at multiples of 250 pieces

Brief Introduction

UM680A is a high-precision GNSS dual-frequency navigation module developed by Unicore for the intelligent driving market. Based on the proprietary multi-system dual-frequency high-performance SoC-UC6580A, the module supports multi-system dual-frequency joint positioning or single-system standalone positioning with centimeter-level accuracy.



Physical Specifications

Dimensions	22.0 x 17.0 x 2.6 mm
Package	54 pin, LGA
Operating Temperature	-40°C ~ +85 °C/105 °C
Storage Temperature	-40°C ~ +85 °C/105 °C

Electrical Specifications

Voltage	2.7 V ~ 3.6 V DC
LNA	2.7 V ~ 3.3 V, < 100 mA
Power Consumption ¹	240 mW

Interfaces

2 × UART (LVTTTL)

1 × I²C*

1 × SPI*

1 × 1PPS (LVTTTL)

Functional Characteristics

Passive Antenna, Active Antenna, AGNSS *

Note: * Supported by specific firmware.

¹ Open sky, continuous tracking

² 68% at 30 m/s for dynamic operation, open sky

Performance Specifications

Channel	96 channels, based on UFirebird II
Frequency	GPS L1C/A, L5 BDS B1I, B1C*, B2a GLONASS G1* Galileo E1, E5a QZSS L1, L5 NavIC L5* SBAS L1C/A
Modes	Single-system standalone positioning Multi-system joint positioning
Time to First Fix (TTFF)	Cold Start: < 26 s Hot Start: < 2 s Reacquisition: < 2 s
Single Point Positioning (RMS)	Horizontal: 1.5 m (open sky) Vertical: 2.5 m (open sky)
RTK (RMS)	Horizontal: 1 cm + 1 ppm (open sky) Vertical: 2 cm + 1 ppm (open sky)
Velocity Accuracy(RMS) ²	0.05m/s
1PPS	20 ns BDS+GPS+GLONASS+Galileo
Sensitivity	Tracking -162 dBm Cold Start -147 dBm Hot Start -157 dBm Reacquisition -158 dBm
Data Update Rate	1 Hz / 5 Hz / 10 Hz
Correction	RTCM V3.V
Data Format	NMEA 0183, Unicore