

## NV08C-CSM

NV08C-CSM is an integrated satellite navigation receiver GLONASS+GPS+GALILEO+SBAS for use in various LBS and M2M applications demanding low cost, low power consumption and uncompromised performance such as: fleet management in-car and handheld personal navigation asset and personal tracking anti theft systems surveillance and security systems WiFi, WiMAX, GSM, CDMA base station time synchronization



- GPS, GLONASS, GALILEO, BeiDou, SBAS L1 signals
- Compact 20x26x2,5 mm design for SMT assembly
- Navigation and Time synchronization applications
- 32 GNSS tracking channels
- Assisted GNSS option supported
- Various Dead Reckoning options
- 200K correlators ensures small TTFF and high signal sensitivity
- RAIM support
- NMEA 0183(IEC 1162), BINR, RTCM SC 104 data protocols
- 24 mW @ Low Power Time-to-Time Fix (TTTF) Mode
- Extended operating temperature –40 to +85°C

Description:

The NV08C-CSM is an integrated satellite navigation receiver. The device's key feature is its ability to work with both global navigation satellite systems (GNSS) that have been deployed so far in the world – GPS and GLONASS. The GALILEO and BeiDou as well as SBAS systems are also fully supported.

The NV08C-CSM device was developed for use in various LBS and M2M applications demanding low cost, low power consumption and uncompromised performance such as:

fleet management

in-car and handheld personal navigation asset and personal tracking

anti theft systems

surveillance and security systems

WiFi, WiMAX, GSM, CDMA base station time synchronization

The NV08C-CSM offers high sensitivity and high performance of GNSS signal acquisition and tracking combined with low power consumption and small size. The assisted GPS/GLONASS/GALILEO and advanced power saving modes are supported. Separate GPS and GLONASS RF channels provide better noise immunity in urban and industrial environment, railway stations and other places with high interference level. Multiple satellites available from GNSS constellations ensure higher availability of navigation signal in urban canyons compared to any single constellation solution. For system integrator the NV08C-CSM provides a variety of interfaces, flexible power supply options, power supply for optional active antenna. A very compact and complete GNSS receiver can be integrated on a low cost 2 or 4-layer PCB with a minimal number of external passive parts.

GNSS signals:

- Number of channels: 32
- Satellite access mode: All-in-view
- GPS/GALILEO/SBAS: L1 1575.42MHz
- GLONASS: L1 1597.5-1609.5MHz

Navigation Features:

- Accuracy (RMS)\*
  - horizontal autonomous mode 2.5 m

- differential mode 1 m
- height 3 m
- velocities 0.05 m/s
- time (1PPS)  $\pm 25$  ns
- Time to First Fix\*:
  - reacquisition <1 s
  - hot start <3 s
  - cold & warm start 30 s
- Sensitivity:
  - tracking and reacquisition  $-160$  dBm
  - cold start  $-143$  dBm
- Supported:
  - vehicle dynamics velocity 500 m/s
  - acceleration 5g
  - altitude 18000 m
- Coordinate system: WGS-84, PZ-90 SK-42, SK-95

\* typical values

RF functionality:

- LNA Built-In (SW controlled for power saving)
- RF structure Two RF FE chains: GPS/GALILEO/BeiDou/SBAS L1 GLONASS L1
- Antenna type Active<sup>1</sup>
- Internal Clock 26 MHz TCXO

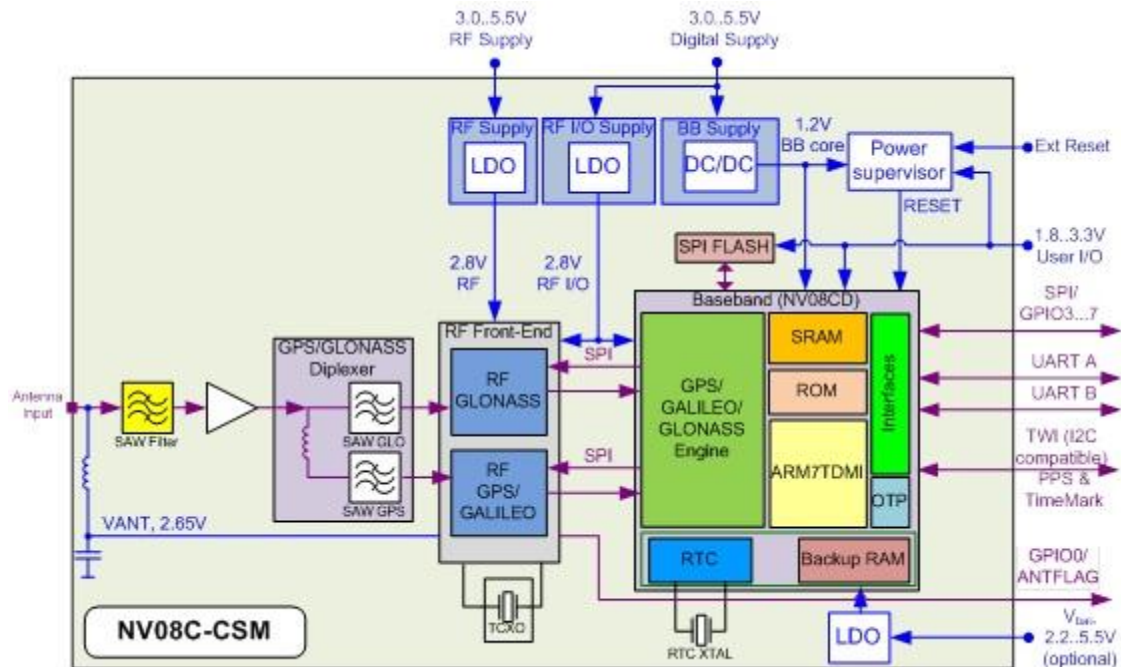
Recommended active antenna: GPS\GLONASS L1, 35MHz Bandwidth, 20dB Gain, NF 2dB, Attenuation 35dB @  $f_c \pm 70\text{MHz}$

Environmental data:

- Operating temperature  $-40$  to  $+85^{\circ}\text{C}$
- Maximum operating humidity 98% @  $40^{\circ}\text{C}$

Data Interface:

- Data update/output rate 1, 2, 5, 10 Hz
- Data output rate in TTTF mode (1-60 s)-1
- Supported protocols
  - IEC1162 (NMEA 0183)
  - BINR (proprietary)
  - RTCM SC 104
- Host data interface:
  - 2x RS-232E I/O ports (1.8...3.3V CMOS-level)
  - 2x SPI TWI (I2C compatible)
  - 1PPS output (CMOS level)
- Data exchange rate up to 230'400 bit/s



- Power supply voltage 3.0...5.5V
- Digital I/O voltage level 1.8...3.3V
- Backup supply 1.2V, 4  $\mu$ A
- Power consumption
  - GPS only time-to-time fix mode @ 1s\* 18 mW
  - GNSS time-to-time fix mode @ 1s\* 24 mW
  - GPS only tracking&navigation mode\* < 120 mW
  - GNSS tracking&navigation mode\* < 180 mW