

FREQUENCY COMPONENTS AND ANTENNAS FOR GNSS APPLICATIONS



RAFLTRON

What is GNSS ?

GNSS stands for Global Navigation Satellite System. It includes GPS (US), Galileo (Europe), GLONASS (Russia) and Beidou (China) as the principle satellite systems. It provides users with positioning, navigation, and timing (PNT) services. The GNSS has functions to help locate such as :

Satellite Navigation: Uses signals from 24 orbiting satellites to pinpoint your location anywhere on Earth (with clear view).

Signal & Distance: Device measures time for signals to arrive, calculating distance from each satellite.

Triangulation: With distances from 3+ satellites, triangulates your precise position on Earth.

Frequency: Satellites transmit on L1 frequency (1575.42 MHz), L2 (1227.6 MHz) and L5 (1176 MHz) for improved accuracy.



What are the Benefits of GPS?

Location Services

GPS pinpoints your exact Earth location, powering navigation apps.
Using a GPS navigation app to find your way in an unfamiliar location.

Navigation Aid

GPS offers step-by-step guidance for efficient travel.
Using GPS while driving to ensure you stay on the right route.

Tracking and Monitoring

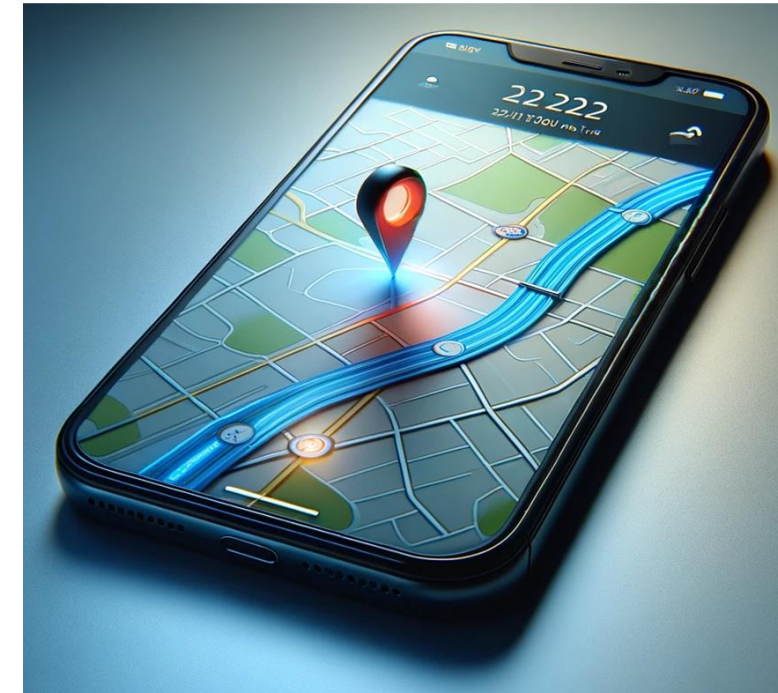
GPS enables real-time tracking, used in logistics and safety.
Monitoring the delivery status of your package through a mobile app.

Cartography and Mapping

GPS creates precise maps.
Creating detailed hiking maps with GPS.

Precise Timing

GPS synchronizes global time accurately.
Ensuring accurate timestamps for financial transactions.



GPS Applications



Automatic Farming Equipment

- GPS App is inserted in the equipment to enable vehicles and agricultural equipment to perform tasks independently.



Taxi Services

- GPS App allows taxis to pinpoint the customer's location and destination point.



Bicycle Rentals

- GPS App in the bicycle is used to prevent theft and to locate the bicycle itself. The GPS App in the phone will indicate the closest bicycle available.

GPS Applications



Geofencing

- The GPS App is used to create a virtual geographic boundary, enabling software to trigger a response when a mobile device enters or leaves a particular area.



Asset Tracking

- Asset tracking is the method used to track a company's physical assets by using GPS tags which broadcast their location.



Health, Safety
and Security

Safety and Security

- The GPS App checks employees' location to ensure their safety, especially in hazardous work environments.

Examples of GPS IC solutions and Applicable Raltron Products

STMicroelectronics - STA8089G

32.768 kHz Crystal

[RSE-32.768-12.5-H14-TR](#)

[RT1610-32.768-12.5-TR](#)

[RSM200S-32.768-12.5-TR](#)

24 MHz Crystal Clock Oscillator

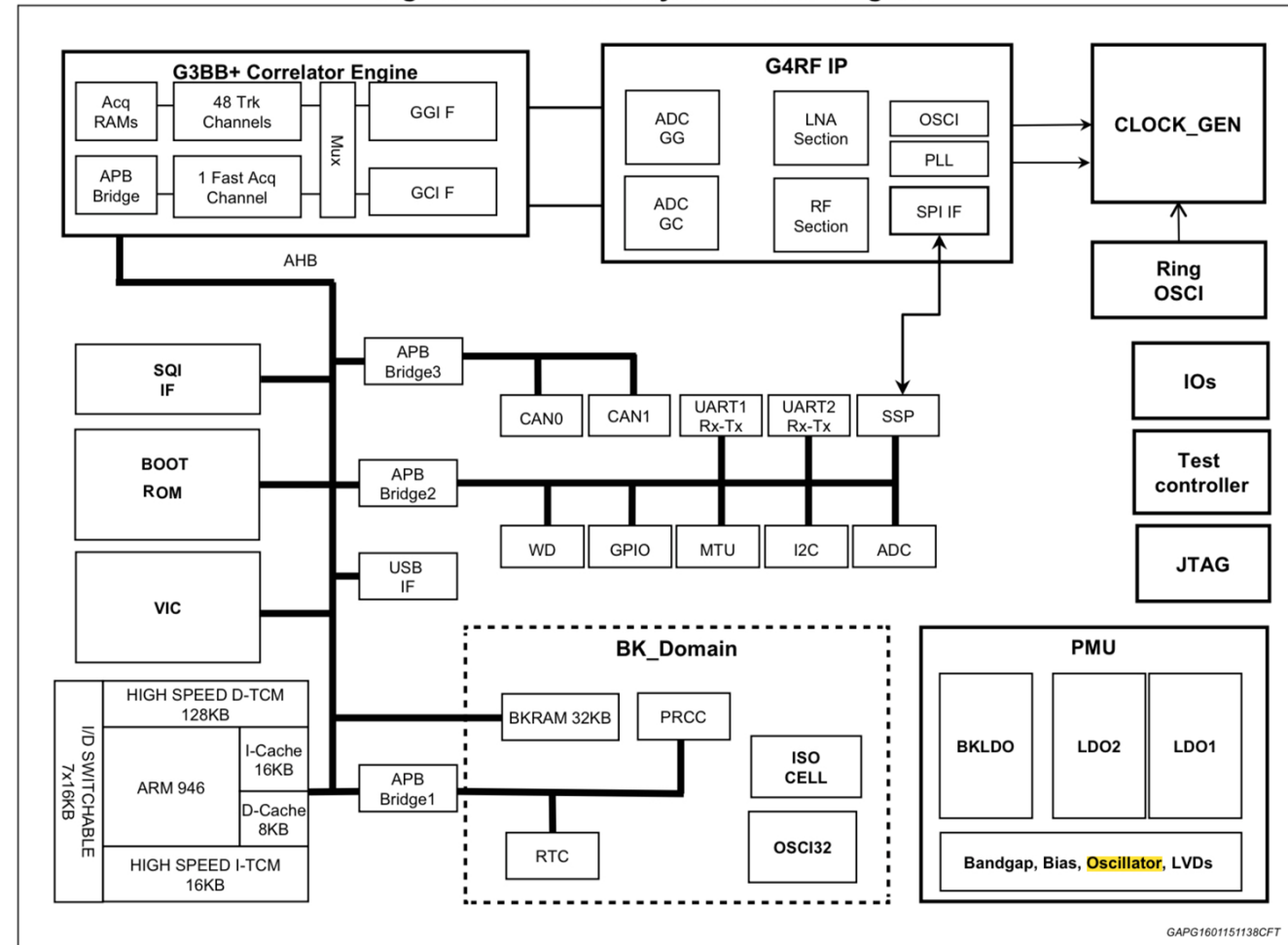
[RH100-24.000-9-1010-TR](#)

26 MHz Crystal Clock Oscillator

[R1612-26.000-8-F-2020-EXT-TR](#)

[R1612-26.000-10-F-1010-TR-NS1](#)

Figure 1. STA8089G system block diagram



GAPG1601151138CFT

Examples of GPS IC solutions and Applicable Raltron Products

Maxim Integrated - MAX2769

16 MHz Crystal Clock Oscillator

[R2016-16.000-10-1015-TR-NS1](#)

[R2016-16.000-12-1020-TR](#)

[R2016-16.000-18-3030-EXT-TR](#)

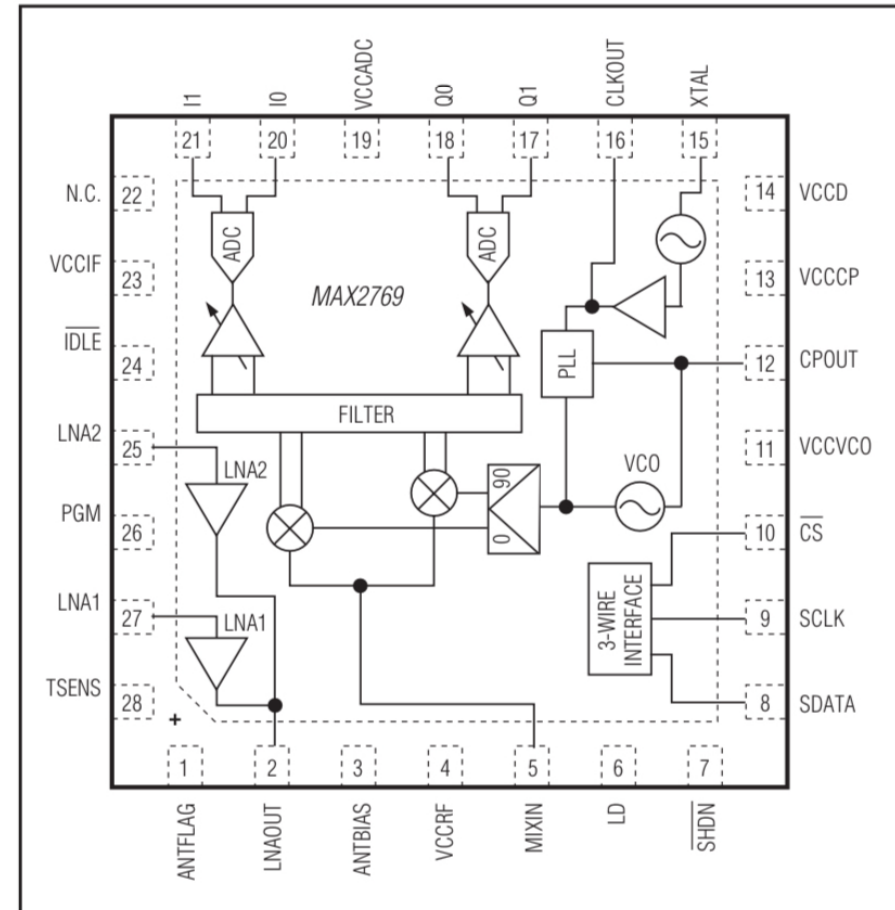
32.768 KHz Crystal

[RSE-32.768-12.5-H14-TR](#)

[RT1610-32.768-12.5-TR](#)

[RSM200S-32.768-12.5-TR](#)

Pin Configuration/Block Diagram



Raltron Solutions - MHz Crystals









Available Crystal Packages

Part #	Size(mm)
R2016-32.000-6-F-2020-EXT-TR	2.00 x 1.60 x 0.50
R2520-12.000-8-1030-EXT-TR	2.50 x 2.00 x 0.60
RH100-24.000-9-1010-TR	3.20 x 2.50 x 0.70

Typical Frequencies:

12 MHz, 24 MHz, 26 MHz, 32 MHz

Stock at our Distributors

Product Series	Datasheet	Image	Contact Us / Buy Now
R1612 View products in stock	 PDF		Buy Now
R2016 View products in stock	 PDF		Buy Now
R2520 View products in stock	 PDF		Buy Now
RH100 View products in stock	 PDF		Buy Now

[See All Crystal Products](#)



Raltron Solutions - Tuning Fork 32.768 kHz

Available Tuning Fork Crystal Packages

Part #	SIZE(mm)
RT1210-32.768-9-TR	1.2 x 1.0
RT1610-32.768-12.5-TR	1.6 x 1.0
RT2012-32.768-7-20-EXT-TR	2.0 x 1.2
RT3215-32.768-12.5-TR	3.2 x 1.5
RSE-32.768-12.5-H14-TR	6.9 x 1.4
RSM200S-32.768-12.5-TR	8.0 x 3.8

Load capacitance values: 6 pF, 7 pF, 9 pF and 12.5 pF

Frequency Tolerances: ± 20 ppm and ± 10 ppm



Stock at our Distributors

Product Series	Datasheet	Image	Contact Us / Buy Now
RT1210 View products in stock			Buy Now
RT1610 View products in stock			Buy Now
RT2012 View products in stock			Buy Now
RT3215 View products in stock			Buy Now
RSE H14			Buy Now
RSM200S View products in stock			Buy Now




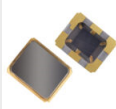

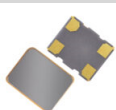
[See All Crystal Products](#)

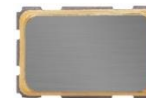
Raltron Solutions - TCXOs and VCTCXOs

Raltron TCXOs Solutions

Part #	Size(mm)
RTXE-104EF133-C-24.000-TR	3.2 x 2.5
RTX-2016AD333-S-26.000-TR	2.0 x 1.6
RTX-2520AF32-S-48.000-TR	2.5 x 2.0
RTX-1612KD3X-C-0.032768-TR	1.6 x 1.2

Stock at our Distributors

Product Series	Datasheet	Image	Contact Us / Buy Now
RTX-1612 View products in stock			Buy Now
RTV-2016 View products in stock			Buy Now
RTX-2520 View products in stock			Buy Now











[See All TCXOs Products](#)

Raltron Solutions - Clock Oscillators

Available Oscillators Packages

Part #	Size(mm)
CO2016-32.000-3.3-50-EXT-TR	2.0 x 1.6
CO2520-24.000-3.3-50-EXT-T-TR	2.5 x 2.0
CO2016-0.032768-3.3-25-X-T-TR	2.0 x 1.6
CO2520-0.032768-3.3-50-X-TR	2.5 x 2.0

Stock at our Distributors











Product Series	Datasheet	Product Series	Datasheet
CO2016 View products in stock	 PDF		Buy Now
CO2520 View products in stock	 PDF		Buy Now
COM1 View products in stock	 PDF		Buy Now
COM2 View products in stock	 PDF		Buy Now

[See All Products for Oscillators](#)



Raltron Solutions – Antennas

Raltron Antennas Solutions





Part #	Datasheet	Image	Frequency(MHz)	Contact Us / Buy Now
RPA-GP-P-18-G	 PDF		1574.5 ± 2.0	Contact Us
RPA-GP-P-25-OPT-G	 PDF		1575	Contact Us
RPA-GPS-1515-2	 PDF		1575.42	Contact Us
RPA-PB0-LA0-G-001	 PDF		1575	Buy Now
RPA-PB2-G-001	 PDF		1575	Buy Now

[See All Antenna Products](#)



Raltron Products – LTCC Filters, Baluns and Diplexers

Raltron LTCC Filters, Baluns and Diplexers Solutions




Part #	Datasheet	Size(mm)	Contact Us / Buy Now
RCDI-3200-7245-2012-W-001		2.00 x 1.25 x 0.70	Contact Us
RCF-1580.000-60000-1109-W-001		1.10 x 0.90 x 0.60	Contact Us
RCF-1681.000-2017000-1608-W-001		1.60 x 0.80 x 0.60	Contact Us
RCF-1085.000-2170000-2012-W-001		2.00 x 1.25 x 1.00	Contact Us

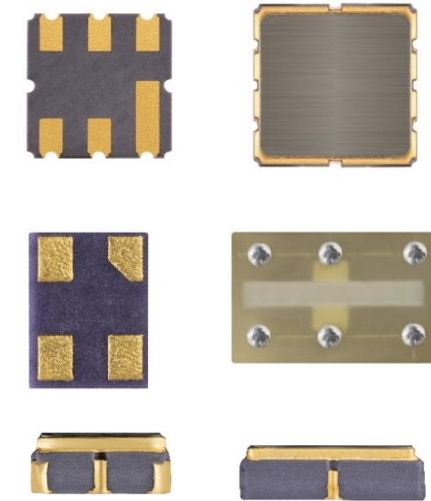
[See All LTCC Filters, Baluns and Diplexers Products](#)



Raltron Solutions – SAW Filters







Raltron SAW Filter IC Solution







Part #	Datasheet	Size(mm)	Contact Us / Buy Now
RSF-1176.450-20460-1109-TR	 PDF	1.1 x 0.9 x 0.55	Buy Now
RSF-1582.400-46800-1109-TR	 PDF	1.1 x 0.9 x 0.55	Buy Now
RSF-1582.400-31200-1411-TR	 PDF	1.4 x 1.1 x 0.6	Contact Us



[See All SAW Filters Products](#)

Raltron Solutions - RF Connectors and Cable Assemblies

Product #	Datasheet	Image	Connector Family	Description
RCN-3F-3108-K-001			BNC	BNC Straight Jack PCB Receptacle
RCN-4F-28012-K-001			MCX	MCX Straight Jack PCB Receptacle
RCN-5F-33106-K-001			MMCX	MMCX Straight Jack PCB Receptacle

Product #	Datasheet	Image	Cable Assemblies	Description
RCB-16-F-95-11-SD			SMA to IPEX	RP SMA Jack S/T For RF1.13 Cable
RCB-21-174-150-DO-001			MCX to MCX	MCX Plug to MCX R/A Plug For RG174 Cable
RCB-14-H-100-12-SD			MCX to SMA	SMA Jack to MCX Plug For RF1.37 Cable



CONTACT



<http://www.raltron.com>

Raltron Electronics

10400 N.W. 33rd Street

Miami, FL 33172, U.S.A.

Phone: 305 593 6033

Fax: 305 594 3973

Made By L.H