REYAX
TECHNOLOGY CORPORATION, LTD

12-OCT-2020 56312E30

RYR310W

CAT-M1 / NB-IoT NB2 / GSM / EGPRS / GNSS mini PCIe card

Datasheet



Represented by:

first FC components

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PRODUCT DESCRIPTION

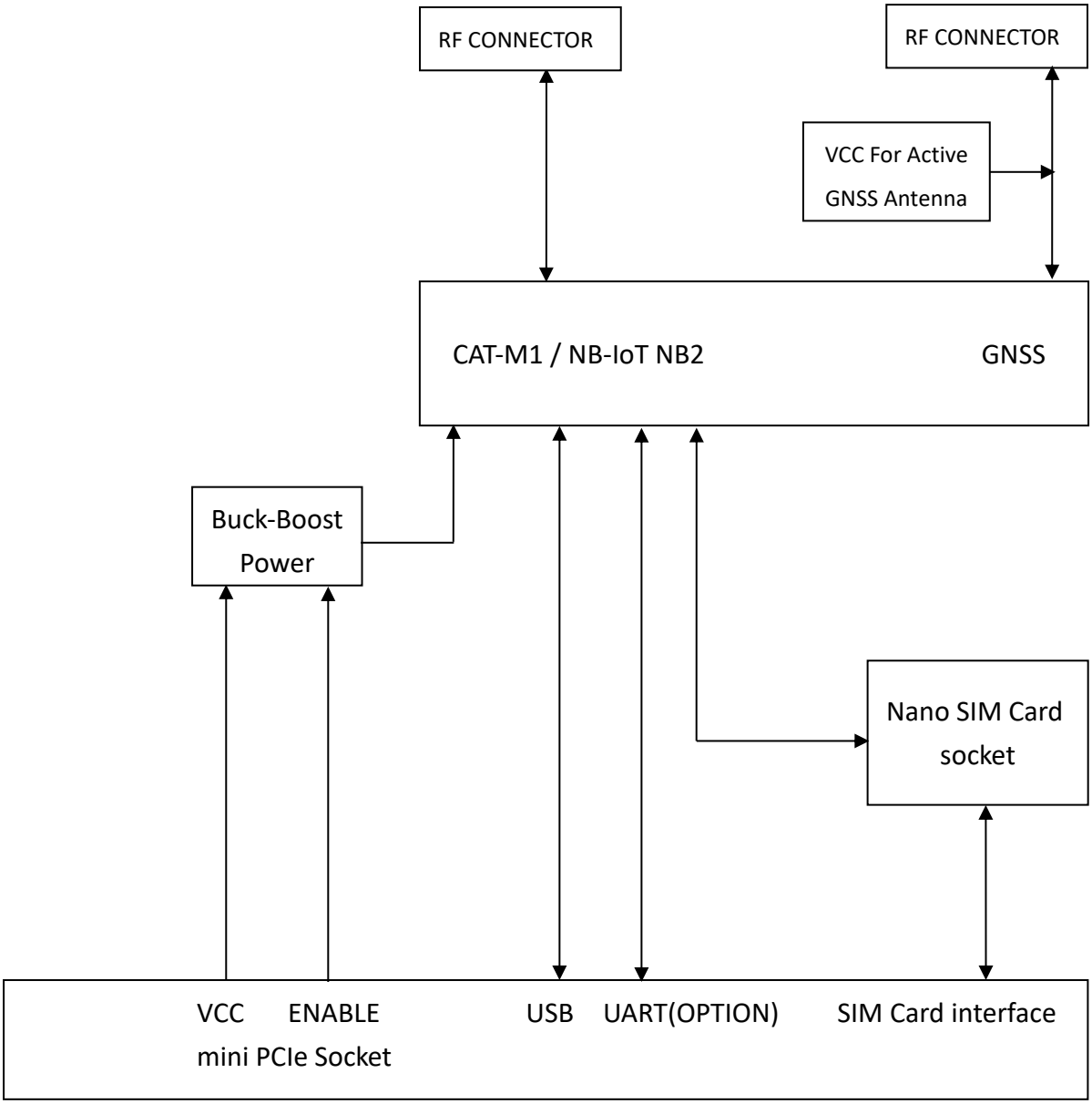
The RYR310W is based on the PCI Express Mini Card standard with a USB 2.0 interface.

FEATURES

- TELIT ME310G1-WW CAT-M1 / NB-IoT NB2 / GSM / GPRS / GNSS engine.
- Build-in nano SIM card holder.
- HIROSE U.FL-R-SMT-1 RF CONNECTOR.
- Standard mini PCIe full-size 30mm*50.95mm / half-size 30mm*26.8mm.
- USB 2.0 / UART interface option.
- eSIM support option.

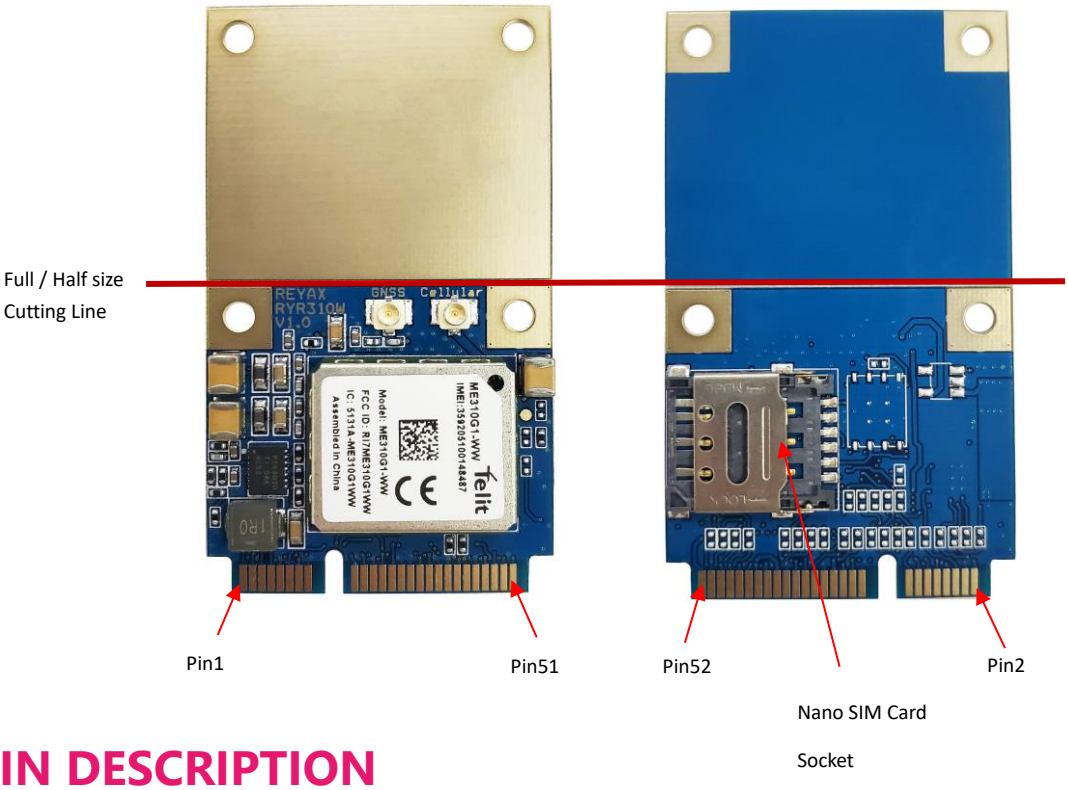
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BLOCK DIAGRAM



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PIN CONNECTOR



PIN DESCRIPTION

Pin	Name	Input/Output	Description
1	UART_TXD1	Input	Serial data input (TXD) from DTE (UART Version only)
2	VCC	Power	Power Input
3	UART_CTS1	Output	Output for Clear to send signal (CTS) to DTE (UART Version only)
4	GND		Power Ground
5	UART_RXD1	Output	Serial data output (RXD) to DTE (UART Version only)
6	DAC	Output	Digital To Analog converter Output (UART Version only)
7	UART_RTS1	Input	Input for Request to send signal (RTS) from DTE (UART Version only)
8	SIM_VCC		External SIM signal – Power supply for the SIM
9	GND		Power Ground
10	SIM_IO	Input/Output	External SIM signal – Data I/O

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11	PWRMON	Output	Power ON Monitor (UART Version only)
12	SIM_CLK	Output	External SIM signal – Clock
13	IO1	Input/Output	Configurable GPIO01/DTR is alternate function (UART Version only)
14	SIM_RST	Output	External SIM signal – Reset
15	GND		Power Ground
16	ADC	Input	Analog to Digital converter Input (UART Version only)
17	IO2	Input/Output	Configurable GPIO02/RING is alternate function (UART Version only)
18	GND		Power Ground
19	IO3	Input/Output	Configurable GPIO03 (UART Version only)
20	ENABLE	Input	Main Power controller H : Enable (Internal Pull up resistor) L : Disable
21	GND		Power Ground
22	ON_OFF	Input	Input Command for Power ON/OFF and to wake from deep sleep mode (UART Version only)1q
23	UART_TXD0	Input	Serial data input (TXD) from DTE (UART Version only)
24	VCC	Power	Power Input
25	UART_CTS0	Output	Output for Clear to send signal (CTS) to DTE (UART Version only)
26	GND		Power Ground
27	GND		Power Ground
28	FORCED_ USB_BOOT	Input	Optional pin, connect to test point (UART Version only)
29	GND		Power Ground
30	IO4	Output	Configurable GPIO04 (UART Version only)
31	UART_RXD0	Output	Serial data output (RXD) to DTE

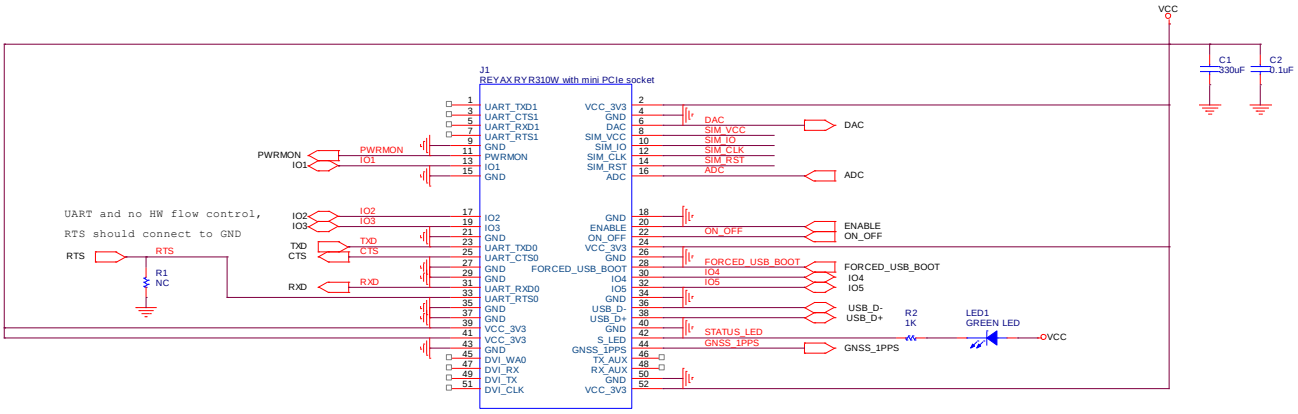
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			(UART Version only)
32	IO5	Output	Configurable GPIO05 (UART Version only)
33	UART_RTS0	Input	Input for Request to send signal (RTS) from DTE (UART Version only)
34	GND		Power Ground
35	GND		Power Ground
36	USB_DN	Input/Output	USB Data Negative
37	GND		Power Ground
38	USB_DP	Input/Output	USB Data Positive
39	VCC	Power	Power Input
40	GND		Power Ground
41	VCC	Power	Power Input
42	S_LED	Output	Status indicator LED.
43	GND		Power Ground
44	GNSS_1PPS	Output	GNSS 1 Pulse per Second (UART Version only)
45	DVI_WA0	Input/Output	Digital Audio Interface (Word Alignment / LRCLK) (UART Version only)
46	TX_AUX	Output	Auxiliary UART (TX Data to DTE) (UART Version only)
47	DVI_RX	Output	Digital Audio Interface (RX)
48	RX_AUX	Input	Auxiliary UART (RX Data from DTE) (UART Version only)
49	DVI_TX	Output	Digital Audio Interface (TX)
50	GND		Power Ground
51	DVI_CLK	Input/Output	Digital Audio Interface (BCLK)
52	VCC	Power	Power Input

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UART INTERFACE APPLICATION SCHEMATIC REFERENCE :

MINI PCIE CARD



SPECIFICATION

2G Bands MHz	LTE CAT-M1	NB-IoT NB2	Region
850, 900, 1800, 1900	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B85	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B28, B66, B71, B85	Worldwide

Item	Min.	Typ	Max.	Unit	Description
CAT-M1 (Rel. 14)					
Downlink Speed		0.588		Mbps	
Uplink Speed		1		Mbps	
NB-IoT NB2 (Rel. 14)					
Downlink Speed		0.12		Mbps	
Uplink Speed		0.16		Mbps	
EGPRS (2G Fallback variants)					
Downlink Speed		0.264		Mbps	
Uplink Speed		0.21		Mbps	
GNSS					
GNSS Center Frequency		1575.42 1602.5625		MHz	GPS Glonass
Navigation Update		1		Hz	

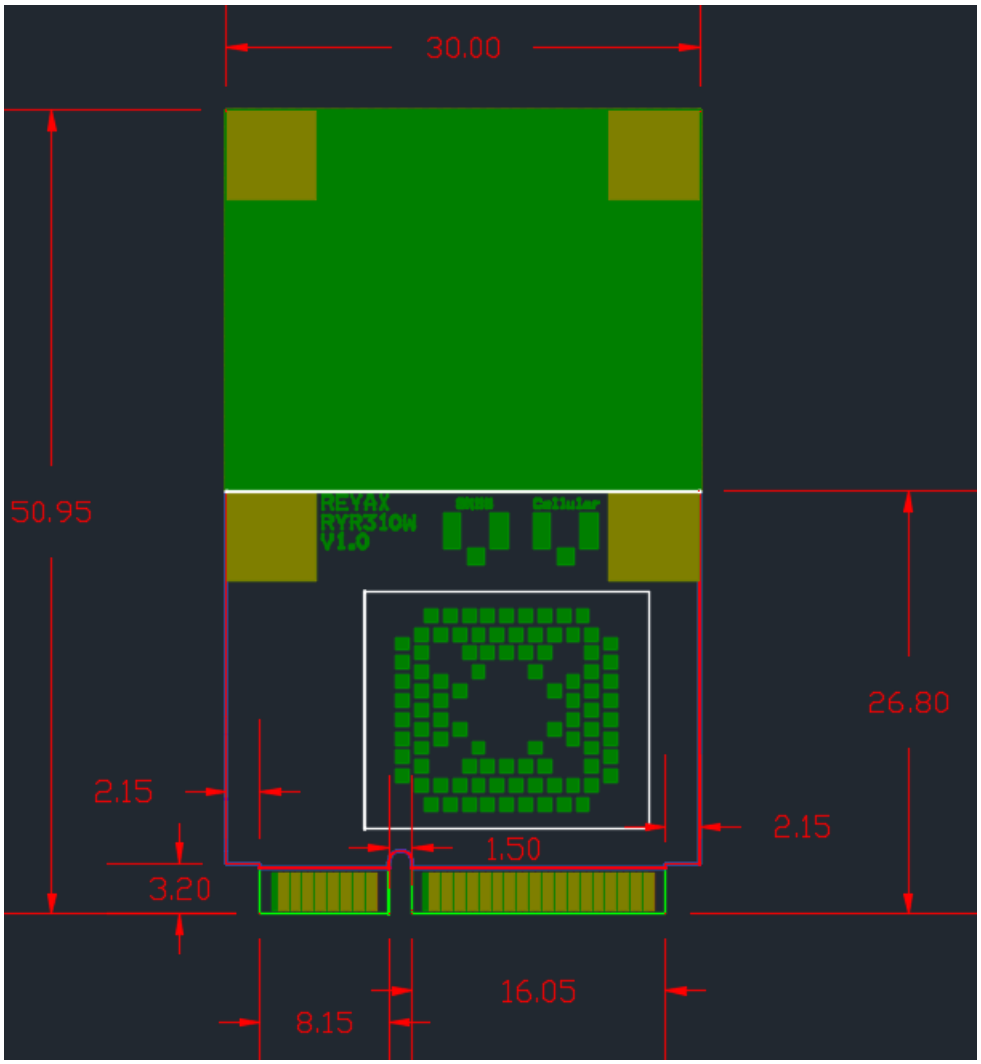
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Rate					
Tracking Sensitivity		-159		dBm	
Cold Starts Sensitivity		-144		dBm	
Navigation		-155		dBm	

General					
Item	Min.	Typ	Max.	Unit	Description
Operating Voltage Power Input	3	3.3	5.5	V	VCC
Current			2	A	
VIH	1.25	1.8	1.95	V	High level input voltage
VIL			0.6	V	Low-level input voltage
VOH	1.4	1.8		V	High level output voltage
VOL			0.45	V	Low level output voltage
USB Interface					V2.0
Operating Temperature Range	-40	25	+85	˚C	
Antenna Connector		2			U.FL-R-SMT-1
Weight		11		g	

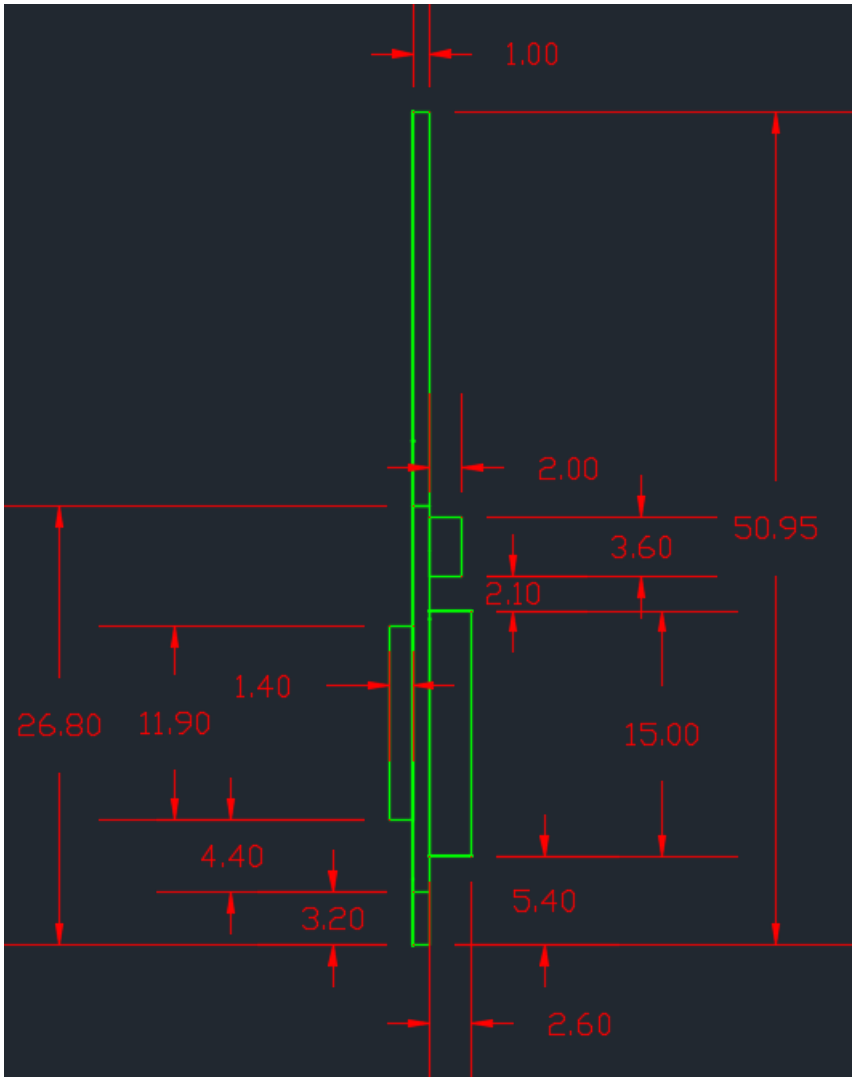
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DIMENSIONS



Unit:mm

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Unit:mm

ORDER INFORMATION

Ordering No.	Interface
RYR310W	USB2.0
RYR310W_UART	+1.8V UART

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