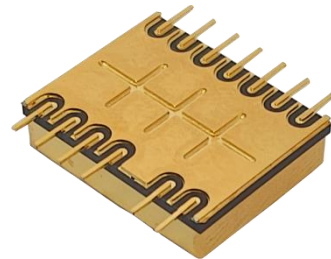


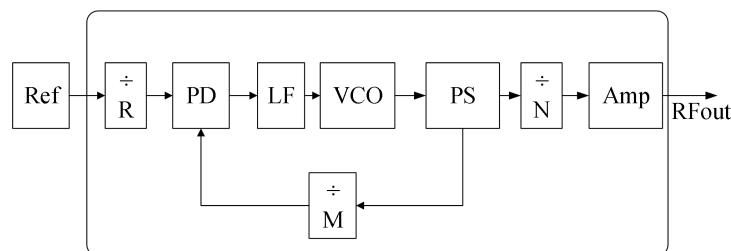
Mini universal frequency source C, 0.05~6.4GHz

Performance characteristics

- Operating frequency: 0.05~6.4GHz
- Frequency step: 1KHz~100MHz
- Output power: ≥ -3 dBm
- Supply voltage: +3.3V
- Control mode: SPI
- Outline Dimensions: 15x12x3.5mm
- Packaging form: ceramic packaging
- Working temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$



Principle diagram



Product Introduction

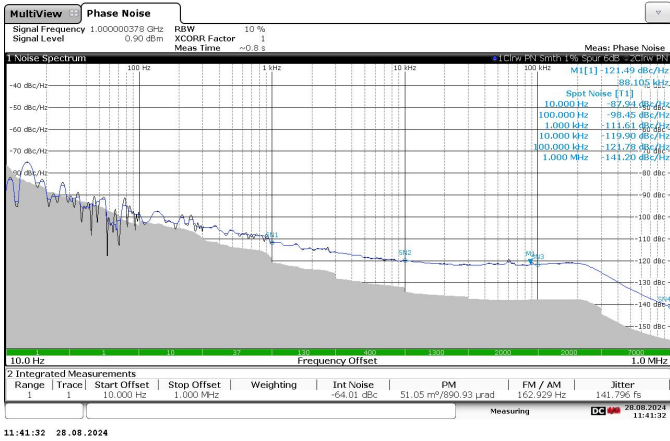
GF033-001T064A is a mini universal frequency source with an output frequency range of 0.05-6.4GHz. It can achieve a minimum frequency hopping step of 1kHz and a typical phase noise value of $-95\text{dBc}/\text{Hz}@1\text{K}@6.4\text{GHz}$, $-104\text{dBc}/\text{Hz}@10\text{K}@6.4\text{GHz}$, output power $\geq -3\text{dBm}$. It is housed in a ceramic package, suitable for SMT.

Electrical parameters(TA = +25°C, 50Ω system)				
Parameter	Min	Typ	Max	Unit
Operating frequency	0.05	3	6.4	GHz
Output power		≥ -3		dBm
Frequency step	0.001	1	100	MHz
Spurious		≥ 50		dBc
Phase noise		-101		dBc/Hz@1K
		-110		dBc/Hz@10K
		-112		dBc/Hz@100K
		-130		dBc/Hz@1M
Current		≤ 130		mA

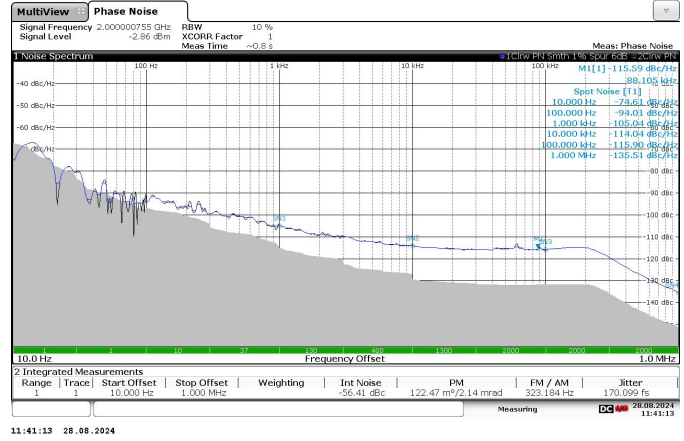
Mini universal frequency source C, 0.05~6.4GHz

Main indicator testing curve

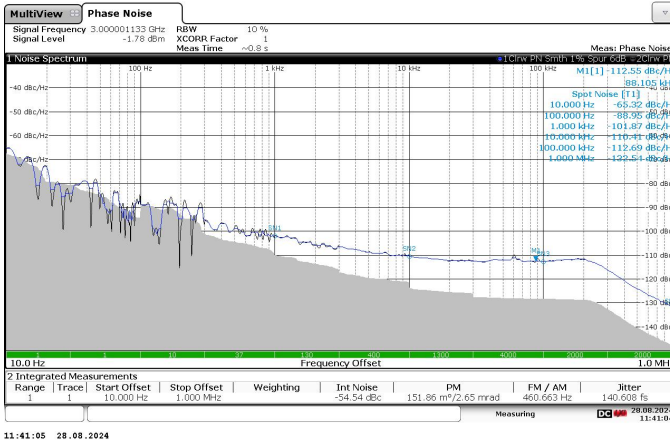
1GHz phase noise @25°C



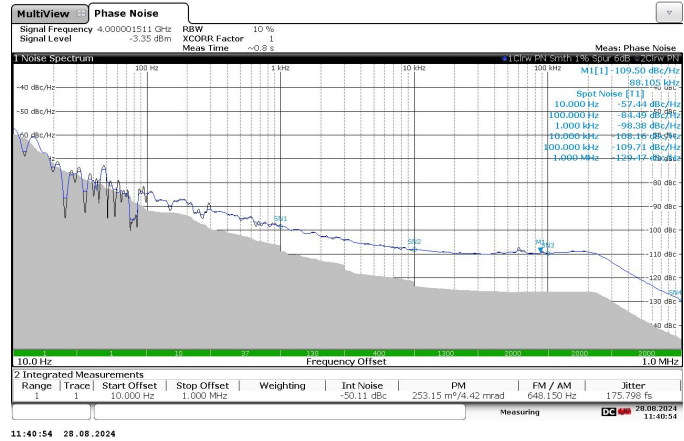
2GHz phase noise @25°C



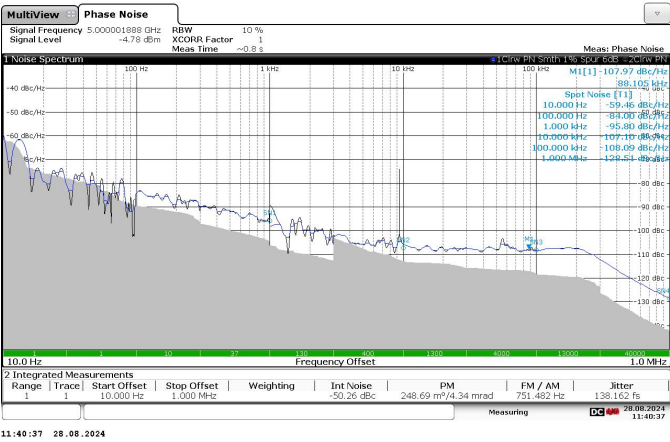
3GHz phase noise @25°C



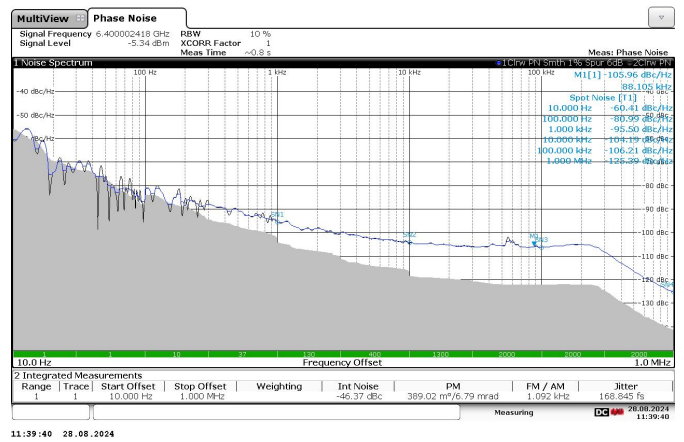
4GHz phase noise @25°C



5GHz phase noise @25°C



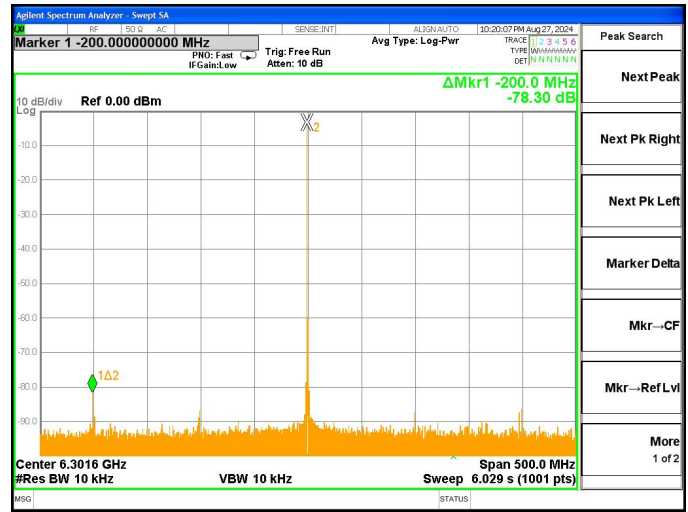
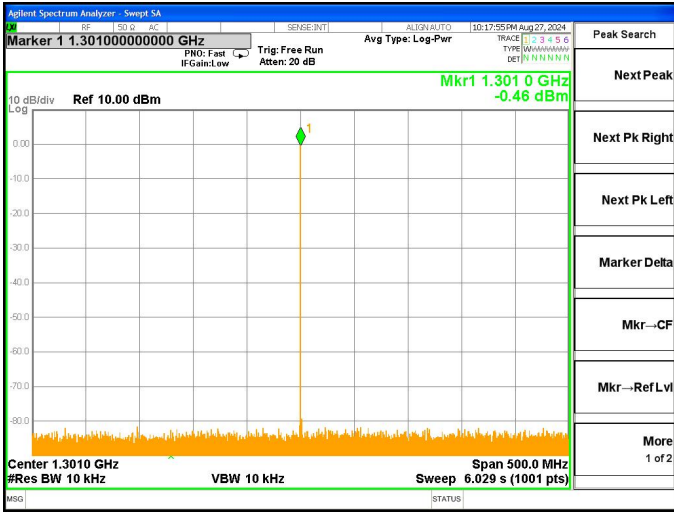
6.4GHz phase noise @25°C



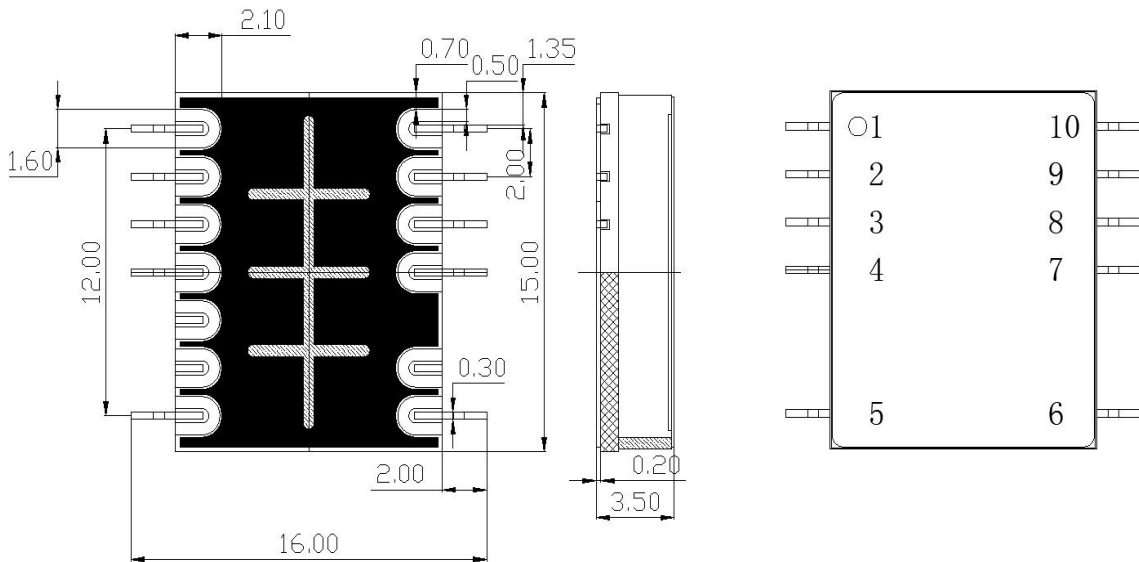
1.301GHz spurious @25°C

6.301GHz spurious @25°C

Mini universal frequency source C, 0.05~6.4GHz



External structure



Pin	Function	Description
1	LE	Enable
2	DATA	data
3	CLK	Clock
4	RFout	RF output
5	LD	Lock indication: Locked at high level, unlocked at low level
6	+3.3V	+3.3V power supply
7	REF	100M reference input
8	NC	Not connected
9	NC	Not connected
10	GND	Ground

Mini universal frequency source C, 0.05~6.4GHz

Control requirements

The output module frequency is controlled through SPI serial port, and the control method is as follows:

The total length of SPI serial port data DI is 64 bits (8 bytes), as shown in the table.

Definition of DI for receiving data								
—	D7	D6	D5	D4	D3	D2	D1	D0
The 1st byte	LSB							
⋮	⋮							
The 8th byte	MSB							
Remark: <ul style="list-style-type: none"> ● The order of receiving data is: first receive the first byte, then the second byte, until the 8th byte. In each byte, the high bits come first and the low bits come last; ● The frequency step is 1kHz. 								

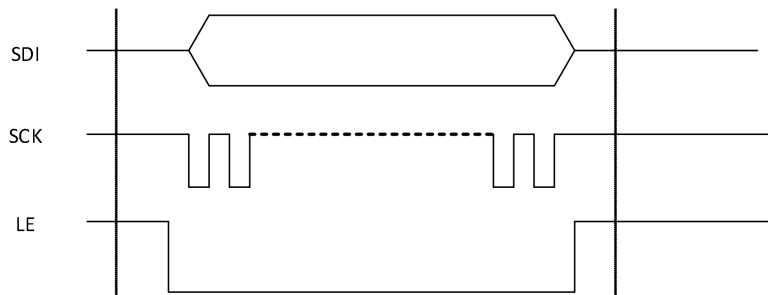


Fig. SPI serial port timing diagram

Instructions:

- 1) LE is the enable signal, when LE is at a low level, the data and clock signals are valid.
- 2) SCK is a clock signal that can support a maximum clock frequency of 10MHz, LVTTTL level.
- 3) SDI is serial input data, valid when SCK rises, LVTTTL level.

Remark

- Unit: mm;
- Frequency hopping time does not include communication time;
- The larger the step, the faster the hopping time, and the better the spurious;
- The power supply of the product needs to be filtered to prevent interference from power ripple on sensitive components;
- The device should be stored in a dry and nitrogen environment. When the device cannot be used up after being unpacked, it should be immediately stored in a drying oven or vacuum sealed to avoid

Mini universal frequency source C, 0.05~6.4GHz

absorbing moisture from the air;

- Devices are sensitive to static electricity, and attention should be paid to anti-static measures during storage, transportation, assembly, and use;
- This product is suitable for reflow soldering installation process, with a maximum reflow soldering peak temperature of 210 °C.