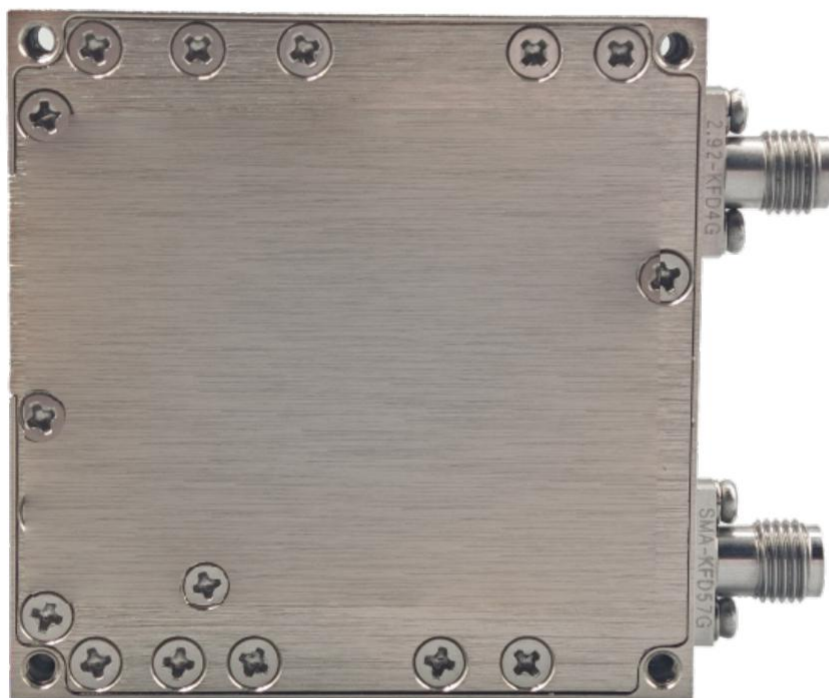


LOW PHASE NOISE FREQUENCY SYNTHESIZER



50 MHz to 22.6 GHz

Low phase noise
SPI control
0.1 mHz frequency step
Switching time: $\leq 200 \mu\text{s}$
50 × 50 × 13 mm package
Weight: $\leq 80 \text{ g}$

The OTFS21-22L-200 is a low phase noise frequency synthesizer with an output frequency range of 50 MHz to 22.6 GHz. Control interface: SPI. Reference frequency: 100 MHz. The frequency step is 0.1 mHz. Frequency switching time: $\leq 200 \mu\text{s}$. Output power: $4 \pm 5 \text{ dBm}$. Dimensions: 50 × 50 × 13 mm. Weight: $\leq 80 \text{ g}$. Operating temperature: -40 to +70 °C.

TECHNICAL SPECIFICATIONS

OTFS21-22L-200

Property	Value
Output frequency range	50 MHz-22.6 GHz
Frequency step	0.1 mHz
Frequency switching time	≤200 μs
Output power	4 ±5 dBm
Spurious level	≤-70 dBc typical; ≤-65 dBc maximum
Harmonic level	≤-5 dBc
Fractional-frequency components	Components at 1/2 and 3/2 of the output frequency: ≤-20 dBc (11.3-22.6 GHz)
Reference frequency	100 MHz
Reference input power	10 ±2 dBm
Reference phase noise	≤-135 dBc/Hz at 100 Hz offset; ≤-160 dBc/Hz at 1 kHz offset; ≤-170 dBc/Hz at 10 kHz offset; ≤-170 dBc/Hz at 100 kHz offset; ≤-175 dBc/Hz at 1 MHz offset
Supply voltage	+12 V ±0.5 V; maximum +15 V
Supply current	0.65 A typical; 0.9 A maximum
Control interface	SPI
Operating temperature	-40 to +70 °C
Storage temperature	-55 to +85 °C
Dimensions	50 × 50 × 13 mm
Weight	≤80 g
Reference connector	Removable SMA-K
RF output connector	Removable 2.92 mm female
Power/control connector	53261-0771-7P; 1.25 mm pitch
Frequency stability	Tracks the external reference

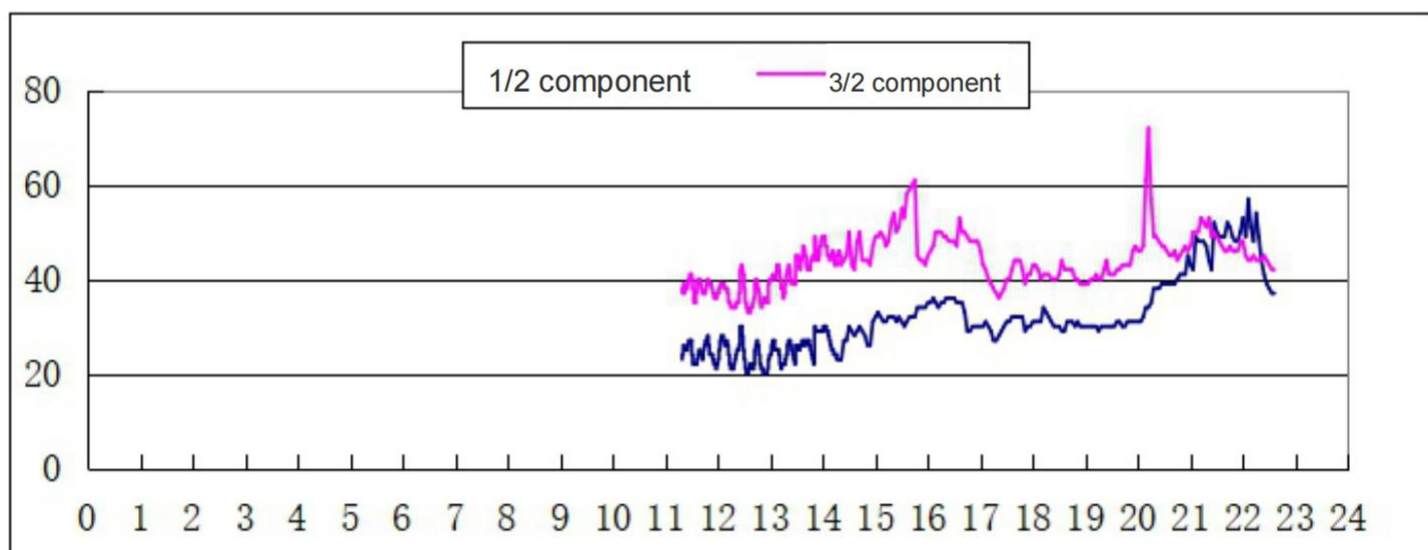
TECHNICAL INFORMATION

OTFS21-22L-200 | Phase Noise (dBc/Hz)

Output Frequency	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz
1 GHz	-112	-132	-143	-143	-143
5 GHz	-98	-118	-128	-128	-128
10 GHz	-92	-112	-123	-123	-123
22.6 GHz	-85	-105	-116	-116	-116

Column headings specify frequency offset from the carrier. Output frequency is listed in the first column. Values and limit signs follow the source tables.

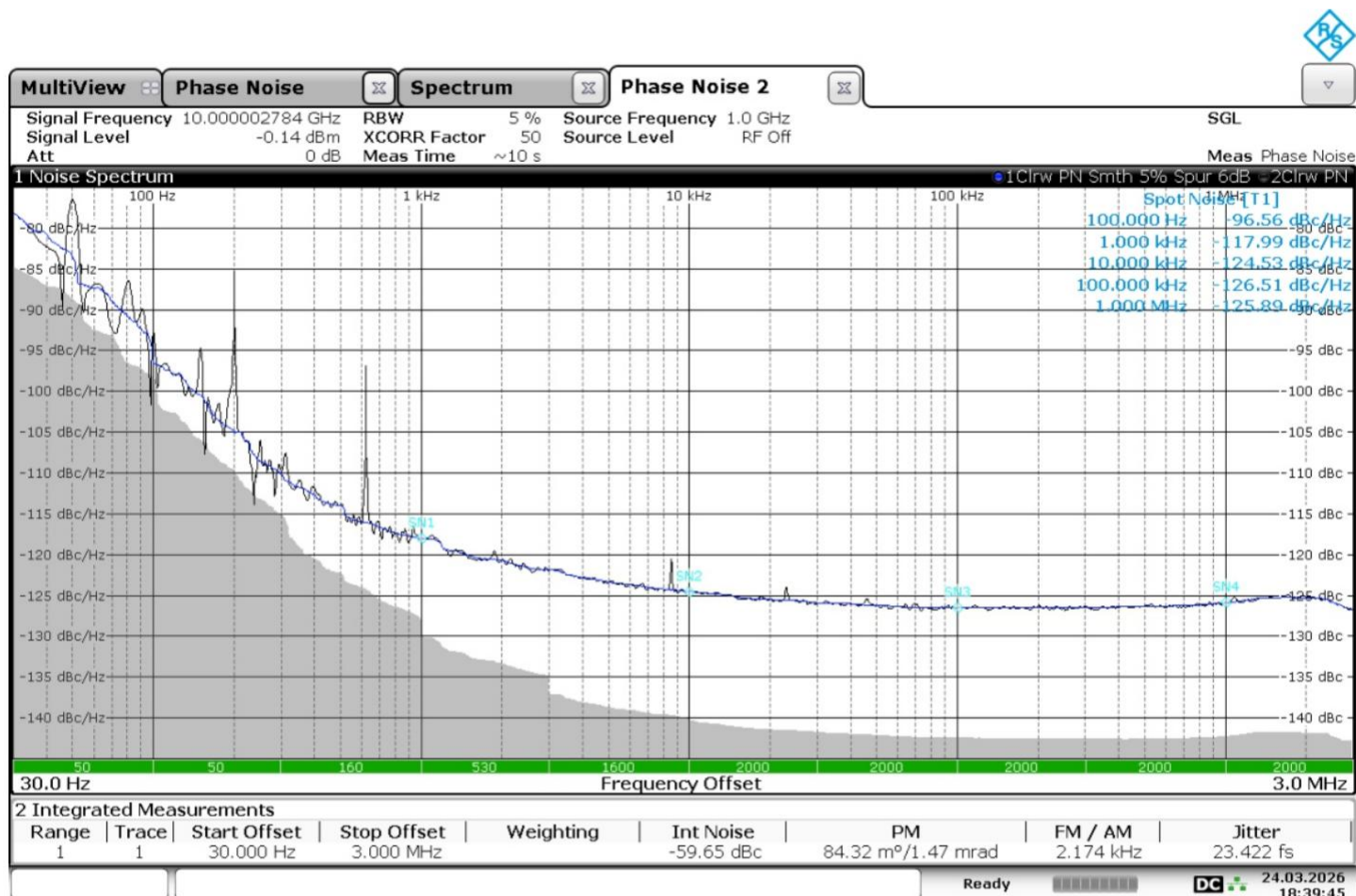
1/2 and 3/2 Component Suppression



Source measurement example. Curves represent the illustrated test conditions.

TECHNICAL INFORMATION

10 GHz Phase Noise Measurement



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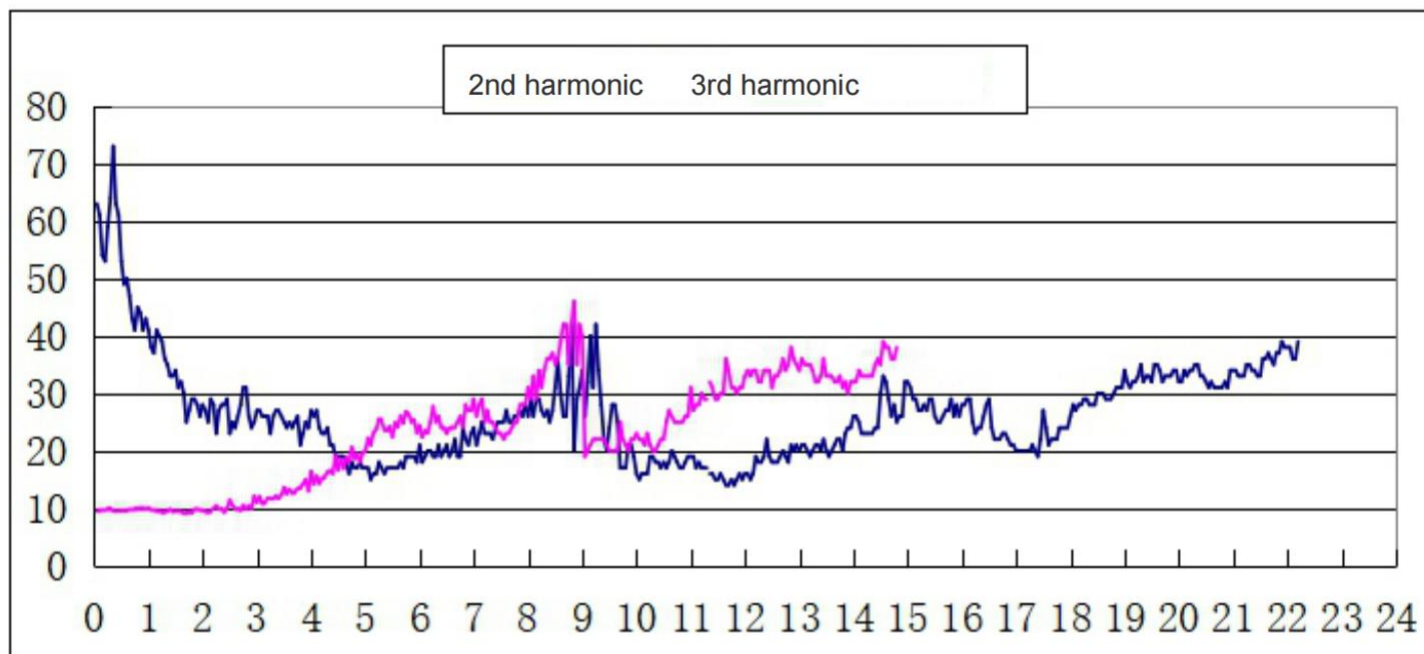
Source measurement example. Curves represent the illustrated test conditions.

Connector Definitions

Connector	Definition
RF in	Removable SMA-K; pin diameter 0.38 mm
RF out	Removable 2.92 mm female; pin diameter 0.38 mm
Power/control	53261-0771-7P; 1.25 mm pitch; single-row, right-angle

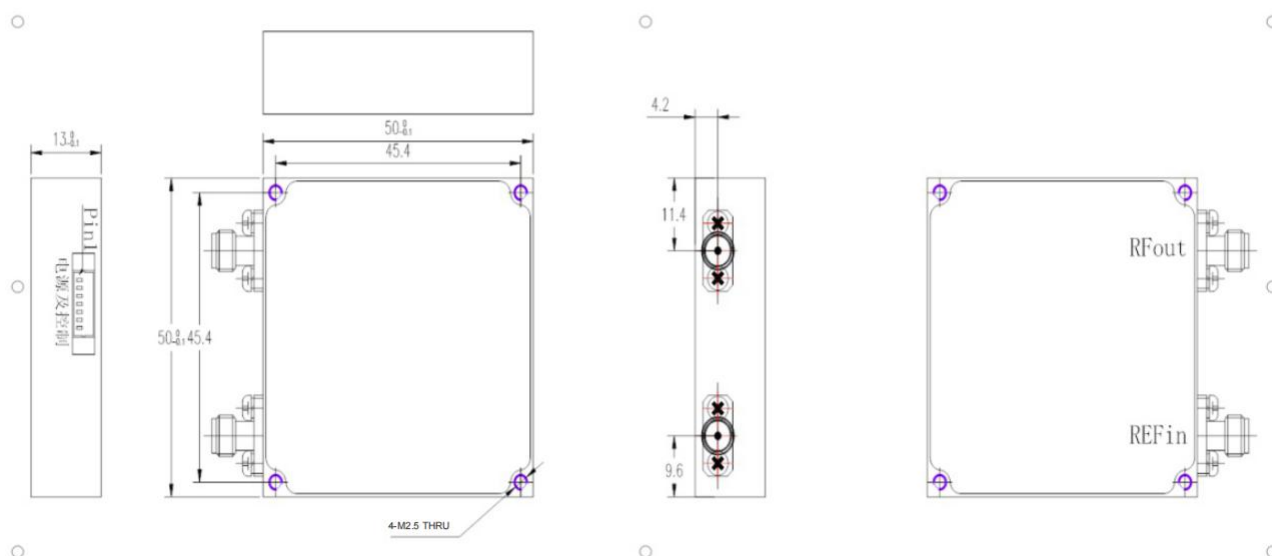
TECHNICAL INFORMATION

Second and Third Harmonic Suppression



Source measurement example. Curves represent the illustrated test conditions.

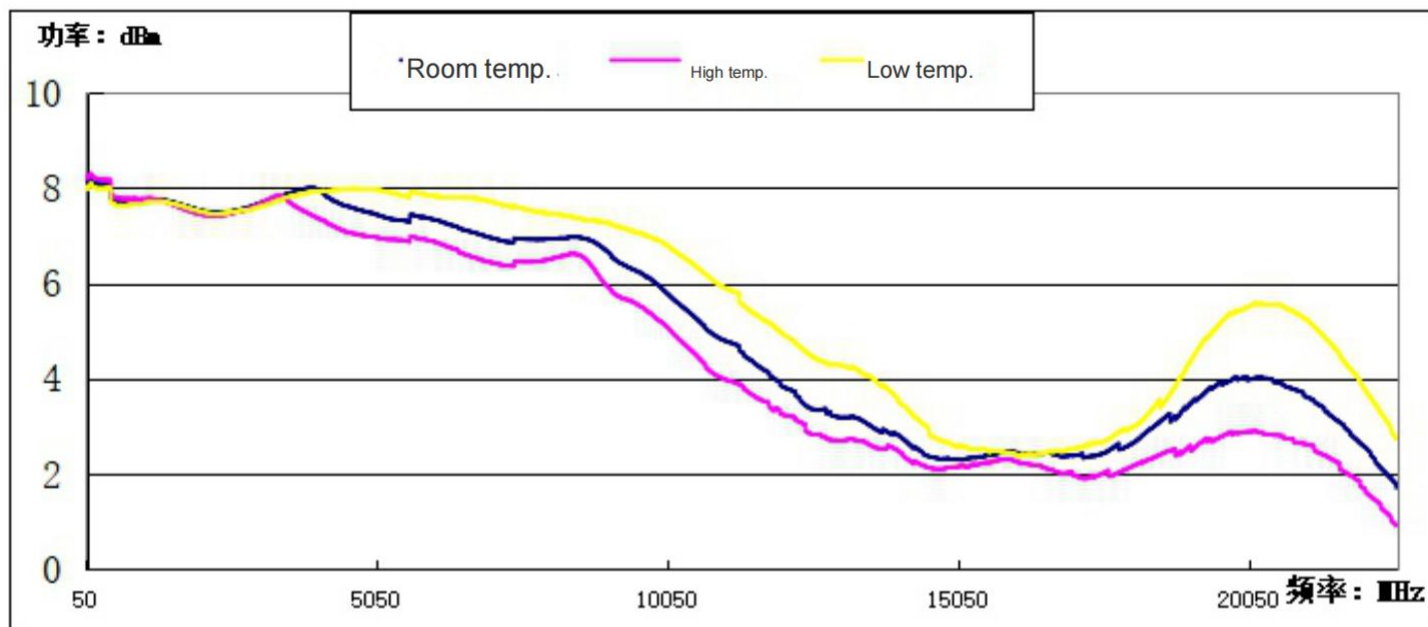
Mounting Dimensions



Dimensions in mm.

TECHNICAL INFORMATION

Output Power vs. Frequency and Temperature



Source measurement example. Curves represent the illustrated test conditions.

53261-0771-7P Pin Assignments (1.25 mm pitch, single-row, right-angle)

Pin	Definition
1	+12 V supply
2	GND
3	MOSI: SPI interface
4	LE: SPI interface
5	MISO: SPI interface
6	SCK: SPI interface
7	LD: high when locked