

TFS35Y-10 - Frequency synthesizer

The TFS35Y-10 is an ultra-low phase noise frequency synthesizer engineered for high-performance RF/microwave systems requiring precision and agility. Operating across a 5–10 GHz range, this compact device (100×90×18 mm, ≤0.45 kg) delivers exceptional spectral purity, achieving phase noise as low as -122 dBc/Hz @1 kHz and -140 dBc/Hz @1 MHz at 10 GHz. performance with field-ready portability.



Equipped with an internal YIG sweep function and a high-stability crystal oscillator, it ensures rapid frequency switching (≤20 ms typ) and robust synchronization.

Applications Include:

Satellite Communication:

Provides stable, low-noise signals for transponders and phased-array antennas.

High-Frequency Test Equipment:

Calibrates spectrum analyzers, vector network analyzers, and millimeter-wave test setups.

Radar and EW Systems:

Supports agile frequency hopping and precision signal generation for electronic warfare (EW) and surveillance.

Research Laboratories:

Enables cutting-edge experiments in quantum computing, photonics, and RF component characterization.

Broadband Signal Generation:

Facilitates sweep testing and frequency-modulated signal synthesis in R&D environments.

General Specifications

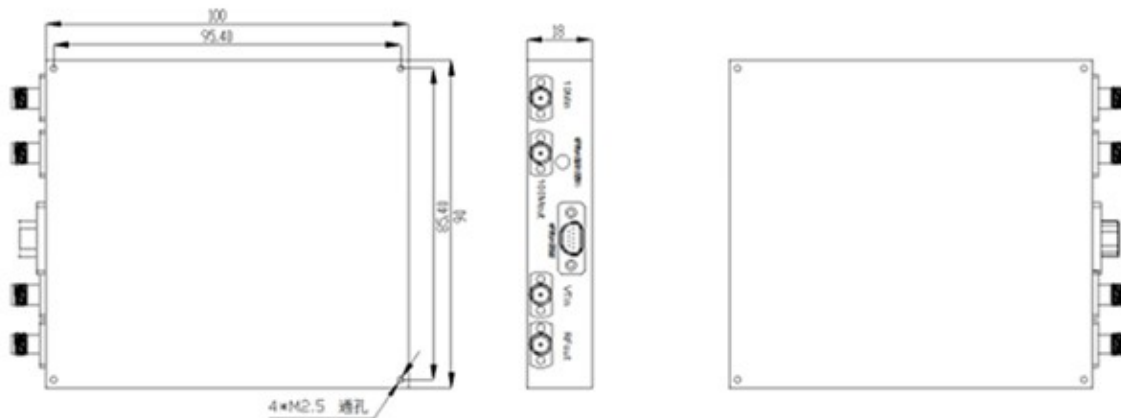
- Broadband Output frequency: 200MHz~15GHz
- Small size: 85*85*18mm
- Excellent Phase Noise (10GHz):
 - 118dBc/Hz@1kHz
 - 126dBc/Hz@10kHz
- Control mode: SPI control

kTB Frequency synthesizer

Ideal for advanced applications demanding both stability and flexibility, the TFS35Y-10 combines laboratory-grade.

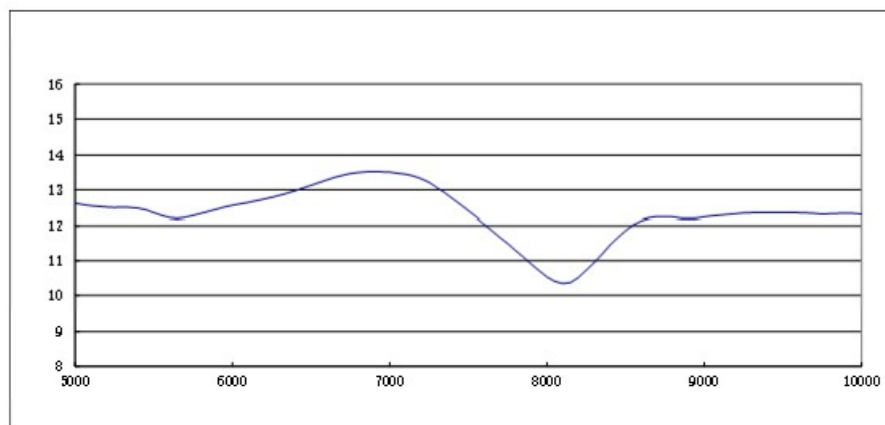
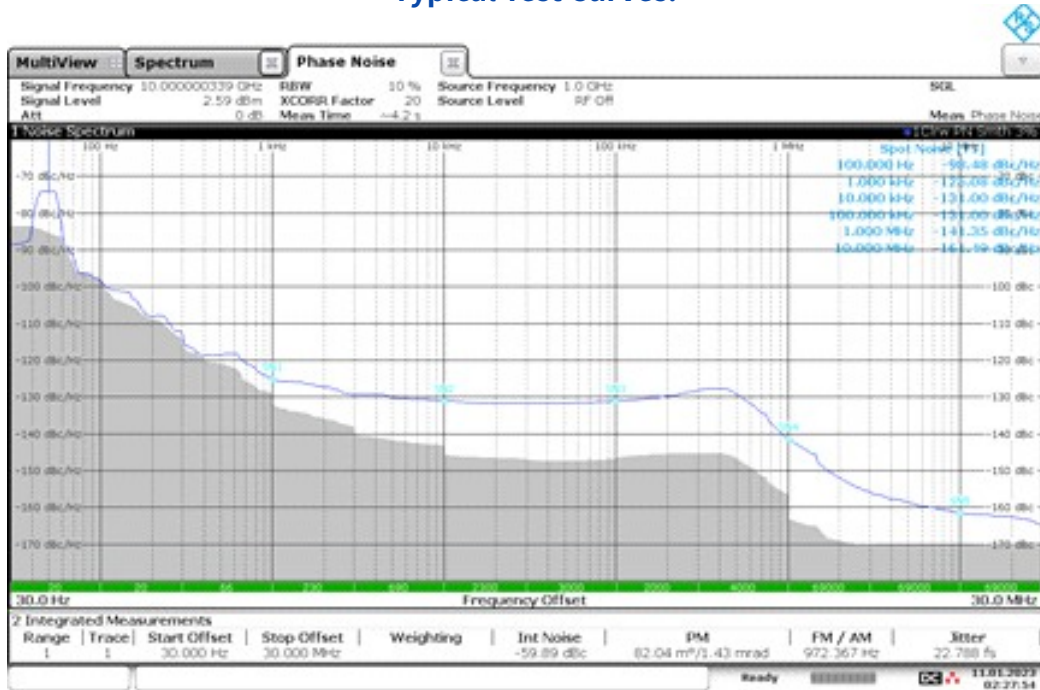
ProductFeatures:	Specification name		Indicator parameters	Remark
RF Output (RF1)	Output frequency		5000~10000MHz	
	Frequency stepping		0.1Hz/0.1mHz	
	Frequency hopping time		≤20ms (TYP)	
	Output power		≥10dBm	
	Frequency stability		±0.2ppm (Internal Clock)	
	Phase noise	Frequency	5GHz	10GHz
		dBc/Hz@100Hz	≤-101	≤-95
		dBc/Hz@1kHz	≤-127	≤-122
		dBc/Hz@10kHz	≤-135	≤-130
		dBc/Hz@100kHz	≤-135	≤-130
		dBc/Hz@1MHz	≤-144	≤-140
Spurious (Typ/Max)		≤-75dBc/-70dBc ≤-90dBc/-85dBc (option)		
harmonic wave		≤-10dBc		
Reference inputs	Enter the frequency		10MHz	
	Enter the reference power		7±3dBm	
	Phase noise	dBc/Hz@10Hz	≤-130	
		dBc/Hz@100Hz	≤-140	
		dBc/Hz@1kHz	≤-155	
		dBc/Hz@10kHz	≤-165	
		dBc/Hz@100kHz	≤-165	
		dBc/Hz@1MHz	≤-170	
Clock Output(RF1)	Output frequency		100MHz	
	Output power		≥10dBm	
	Spurious		≤-80dBc	
	harmonic wave		≤-30dBc	
	Phase noise	dBc/Hz@100Hz	≤-135	
		dBc/Hz@1kHz	≤-167	
		dBc/Hz@10kHz	≤-178	
		dBc/Hz@100kHz	≤-180	
dBc/Hz@1MHz		≤-180		
Operating voltage	Power supply		+12VDC±0.5	
	Maximum voltage		+15V	
	Operating current		≤ 2.2A (Startup) ≤ 1.95A (Stable)	
	Control mode		SPI	
Operating environment and form factor	Operating temperature		0~+50℃	
	Storage temperature		-20~+70℃	
	weight		≤ 0.45kg	
	Dimensions		100*90*18mm	
Note: The phase noise of the TFS35Y output signal at a frequency offset of 1Hz~100Hz is correlated with the phase noise reference 10MHz.				

Dimensions:

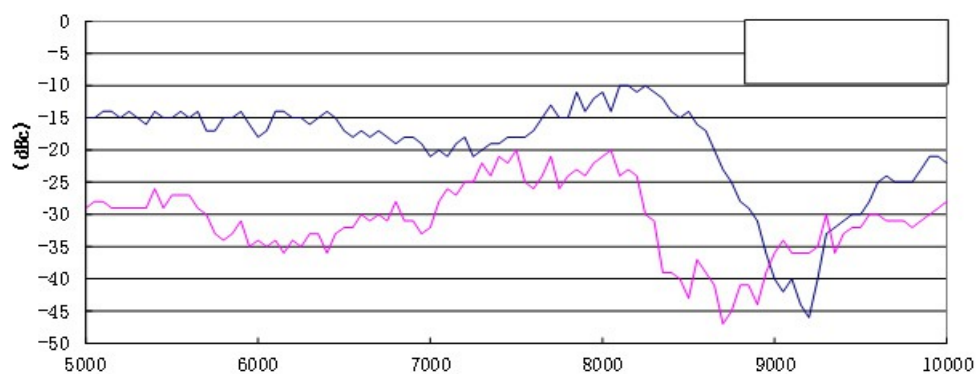


Connector definition					
10M in		SMA-K (detachable) (Φ0.38).			
RF out		SMA-K (detachable) (Φ0.38).			
100M out		SMA-K (detachable) (Φ0.38).			
VT in		SMA-K (detachable) (Φ0.38).			
Power and control		J30J-9-ZKP			
J30J pin definition					
1	+12V (Power)	4	GND (Ground)	7	MISO (SPI Communication Interface).
2	+12V (Power)	5	LD (Lock Indicator: High Level Lock)	8	SCK (SPI Communication Interface).
3	GND (Ground)	6	MOSI (SPI Communication Interface).	9	LE (SPI Communication Interface).

Typical Test Curves:



Output power



Harmonics are output

Selection List

When the product is delivered, the documents specified in the following table will be provided:

The product order number		
standard	TFS35Y- 10	
Low spurious option	TFS35Y- 10L	Spurious: $\leq -90\text{dBc}$ (Typ) / -85 (Max).

Deliverables:

When the product is delivered, the documents specified in the following table will be provided:

No.	Attachments	Quantity	Remark
1	Factory inspection report	1	
2	Product Certificate	1	
3	Instruction manual for the product	1	Paper/electronic version