

Oven-Stabilized Ultra Low Noise S-Band DRO for 2.856GHz

Developed for extremely jitter sensitive applications like electron beam accelerators, this voltage-controlled Dielectric-Resonator Oscillator delivers ultimate phase noise performance at 2.856GHz, comparable to quartz crystal oscillators.

With a high performance dielectric resonator at its heart, phase noise typically reaches -130dBc/Hz at 1kHz, -160dBc/Hz at 10kHz offset and -180dBc/Hz in the noise floor, yielding attosecond jitter performance when integrated from 1kHz to 30MHz.

Double buffering on the output keeps pulling below 1ppm (typically) and a two tier voltage stabilization scheme virtually eliminates pushing.

The tuning port accepts 0..6V for a ± 45 kHz tuning range and easy integration into phase-locked loops.

The DRO runs off a single +5,7V supply voltage. In addition a +15V supply, drawing a maximum current of 1100mA, is required to keep the unit at a stable temperature of +35°C, ensuring frequency accuracy.

Available option:

ALC: Amplitude stabilization to ± 0.1 dB.

Technical Data:

Operating Frequency: 2.856GHz (ca. 1MHz mechanical tuning)
Output Power: +19 dBm
Output Power Variation: < ±1.5 dB (typ. < ±0.75 dB)
Return Loss: > 20 dB, VSWR < 1.22 (typ. < 25 dB, VSWR < 1.12)
Harmonic Distortion: < -40 dBc (typ. < -50 dBc)
Discrete Spurious Tones: < -20 dBc - 20log(fm) dBc for Offsets fm < 100kHz
 < -120 dBc for Offsets > 100kHz

		Guaranteed	Typical
Phase Noise:	@ 100Hz:	< -95 dBc/Hz	-100 dBc/Hz
	@ 1kHz:	< -125 dBc/Hz	-130 dBc/Hz
	@ 10kHz:	< -155 dBc/Hz	-160 dBc/Hz
	@ 100kHz:	< -170 dBc/Hz	-175 dBc/Hz
	@ 1MHz:	< -175 dBc/Hz	-180 dBc/Hz
	@ 10MHz:	< -175 dBc/Hz	-180 dBc/Hz
AM Noise:	@ 100Hz:	< -140 dBc/Hz	-145 dBc/Hz
	@ 1kHz:	< -160 dBc/Hz	-165 dBc/Hz
	@ 10kHz:	< -170 dBc/Hz	-173 dBc/Hz

Electronic Tuning: 0 .. +6V (-45kHz .. +45kHz)
Tuning Slope: 15 kHz/V

Power Supply: +5.7 V/450 mA +15 V/1100 mA max. (Heater)

Dimensions: Milled Aluminum Case 125mm x 130mm x 61mm

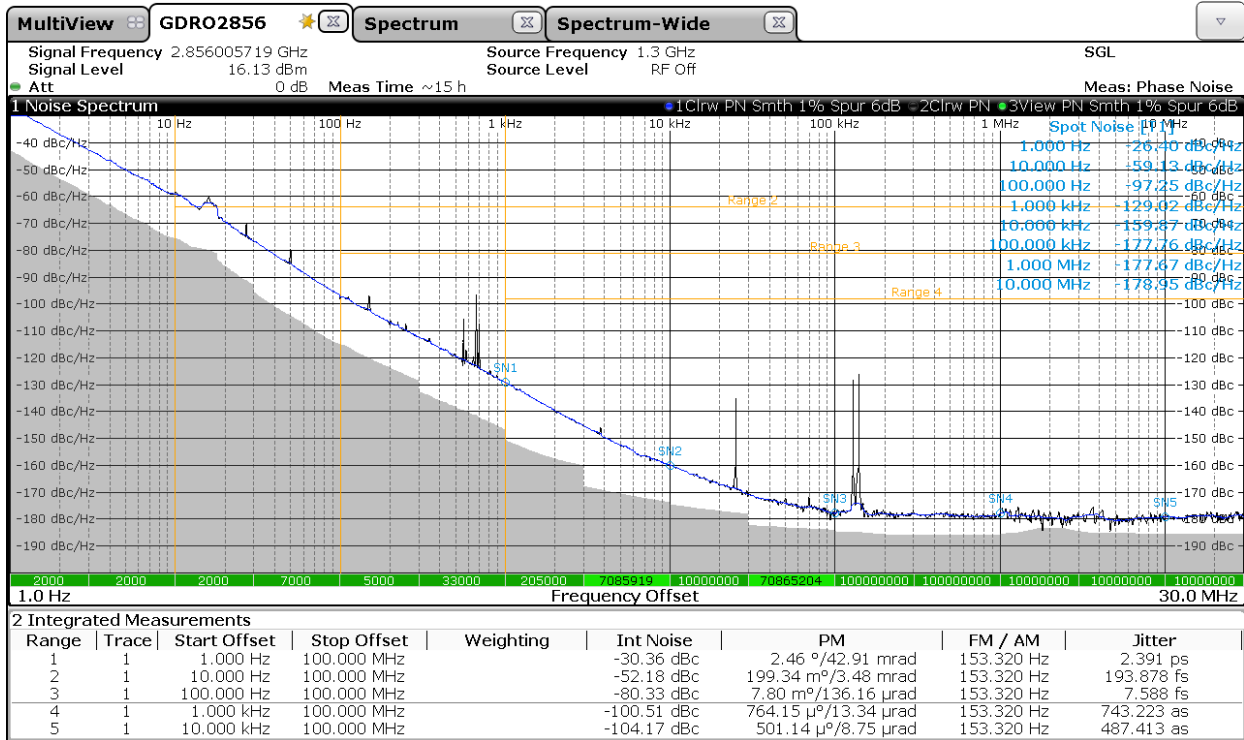
Connectors: 2 x SMA (RF-Output, VCO-Tuning Port), Feed-Through for +5.7 V and +15 V, 2 x Ground Solder Pins

Temperature Range: 10°C/+40°C operating (-40°C/+71°C storage), non Condensing)

Oven warm-up Time: < 5 min for <30 kHz frequency error

Option ALC: **Output Power:** +19 dBm
 Output Power Variation: < ±0.1 dB

Typical Phase Noise Plot:



Mechanical Drawings:

