



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 -125dBc/Hz at 1kHz, -150dBc/Hz at 10kHz offset and -180dBc/Hz in the noise floor, yielding attosecond jitter performance when integrated from 10kHz 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..10V for a ± 60 kHz tuning range and easy integration into phase-locked loops.

The DRO runs off a single +5,7V supply and provides high internal power supply noise rejection to facilitate integration in noisy environments.

Amplitude stabilization to $\pm 0,1$ dB with output power setability to ± 1 dB is available as an option.

Available options:

HP: Higher output power level of +17dBm.

ALC: Amplitude stabilization to $\pm 0,1$ dB with settable output amplitude to ± 1 dB via 0..+4V control input.

Technical Data:

Operating Frequency:	2.856GHz \pm 50MHz (2MHz mechanical tuning)		
Output Power:	+13dBm		
Output Power Variation:	< \pm 1.5dB	(typ. < \pm 0.75dB)	
Return Loss:	> 20dB, VSWR < 1.22	(typ. > 25dB, VSWR < 1.12)	
Frequency Pulling:	< 1ppm typ. (full reflection, all angles)		
Frequency Pushing:	not detectable over supply voltage range		
Harmonic Distortion:	> 40dB	(typ. > 50dB)	
Discrete Spurious Tones:	> 20dB + 20log(fm) dB for Offsets < 100kHz		
	> 120dBc for Offsets > 100kHz		

		Guaranteed	Typical
Phase Noise:	@ 100Hz:	< - 80 dBc/Hz	- 90 dBc/Hz
	@ 1kHz:	< - 115 dBc/Hz	- 125 dBc/Hz
	@ 10kHz:	< - 145 dBc/Hz	- 155 dBc/Hz
	@ 100kHz:	< - 165 dBc/Hz	- 175 dBc/Hz
	@ >1MHz:	< - 175 dBc/Hz	- 180 dBc/Hz

Electronic Tuning:	0 .. +10V (-60kHz .. +60kHz)
Tuning Slope:	12kHz/V
Power Supply:	+5.7V \pm 5% (450mA)
Dimensions:	Milled Aluminum Case 125mm x 130mm x 56mm
Connectors:	2 x SMA (RF-Output, VCO-Tuning Port), Feed-Through for +5.7V, Ground Solder Pin
Temperatur Range:	23°C \pm 10°C operating (-40°C .. +71°C storage), non Condensing)

Option HP:	Output Power:	+17dBm
	Output Power Variation:	< \pm 1.5dB (typ. < \pm 0.75dB)

Option ALC:	Output Power:	+13dBm / +17dBm (w. Opt. HP)
	Output Power Variation:	< \pm 0.1dB

Typical Phase Noise Plot:

