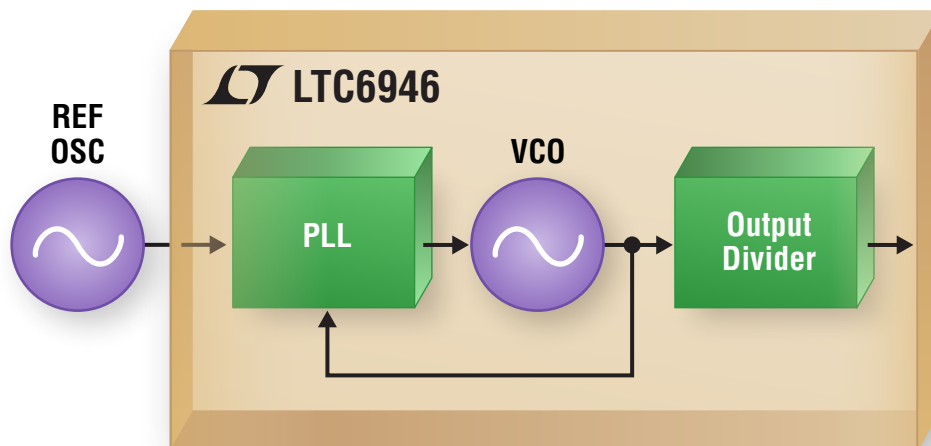


# Ultralow Noise Synthesizers



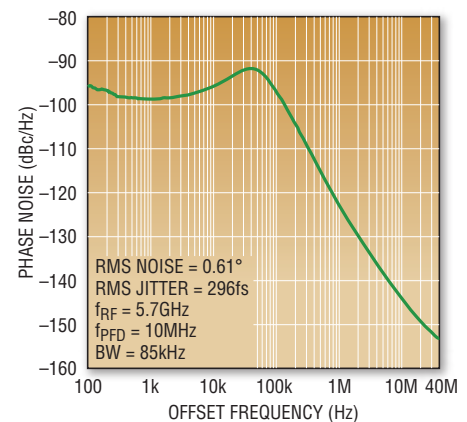
## Low Noise and Spurious Levels, 350MHz to 6.39GHz Frequency Synthesizers

Our new ultralow noise, integer-N frequency synthesizers provide best-in-class phase noise and spurious performance. The LTC<sup>®</sup>6946 is a complete frequency synthesizer that includes a high performance, low noise, 6.39GHz phase-locked loop (PLL) with a fully integrated, low phase noise VCO. The LTC6945 separates the low 1/f corner PLL core for use with an external VCO up to 6GHz. The free, easy-to-use PLLWizard<sup>™</sup> CAD tool quickly and accurately simulates synthesizer performance to ensure an optimal design.

### Features

- Integrated VCO, Up to 6.39GHz (LTC6946)
- 350MHz to 6GHz VCO Input Range (LTC6945)
- Low -226dBc/Hz Normalized In-Band Phase Noise Floor
- -157dBc/Hz Wideband Output Phase Noise Floor
- Industry's Lowest -274dBc/Hz Normalized In-Band 1/f Noise
- Spurious Levels < -100dBc
- High Current 11mA Output Charge Pump Minimizes Loop Compensation Thermal Noise
- Programmable Output Divider for Wide Operating Frequency Range
- 28-Pin (4mm x 5mm) QFN Packages

### LTC6946-3 PLL Phase Noise

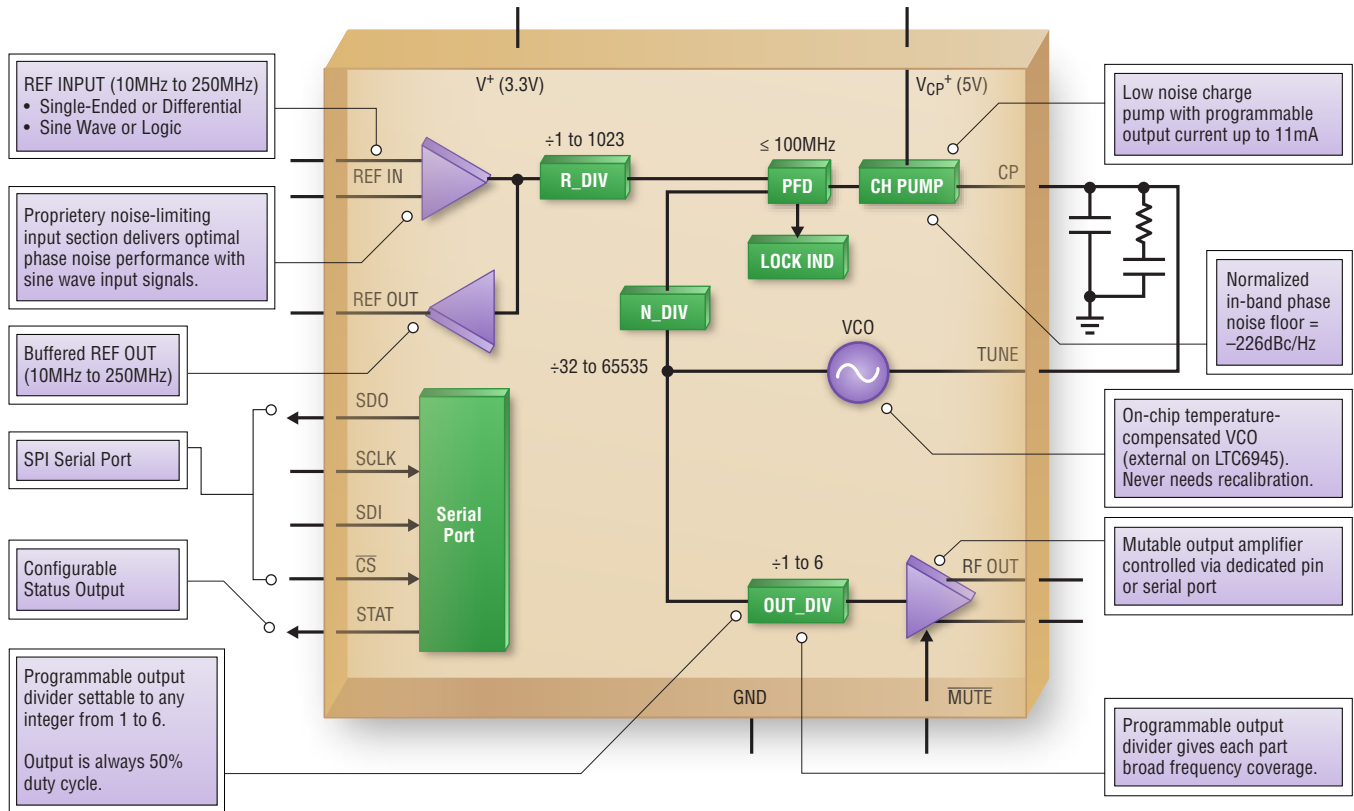


Frequency Coverage Options				
	LTC6946-1	LTC6946-2	LTC6946-3	LTC6946-4
VCO Frequency (GHz)	2.240 to 3.740	3.080 to 4.910	3.840 to 5.790	4.200 to 6.390
OUT DIV = 1	2.240 to 3.740	3.080 to 4.910	3.840 to 5.790	4.200 to 6.390
OUT DIV = 2	1.120 to 1.870	1.540 to 2.455	1.920 to 2.895	2.100 to 3.195
OUT DIV = 3	0.747 to 1.247	1.027 to 1.637	1.280 to 1.930	1.400 to 2.130
OUT DIV = 4	0.560 to 0.935	0.770 to 1.228	0.960 to 1.448	1.050 to 1.598
OUT DIV = 5	0.448 to 0.748	0.616 to 0.982	0.768 to 1.158	0.840 to 1.278
OUT DIV = 6	0.373 to 0.623	0.513 to 0.818	0.640 to 0.965	0.700 to 1.065



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# LTC6946-X Frequency Synthesizer Block Diagram



## PLLWizard Tool Provides Design Support

### Design Features

- Find Part Parameters Based on Your Frequency Plan
- Design Noise-Optimized Loop Filters
- Simulate Loop Frequency Response and Stability
- Simulate VCO and Reference Source Noise
- Simulate Output Noise Characteristics and Statistics

### Evaluation Features

- Read and Write All Device Registers
- Configure Using a Block Diagram Programming Interface
- Troubleshoot Common Set-Up Problems
- Receive Alerts Due to Programming Errors

