

Direct Digital Synthesizer (DDS)

SPECTRUM MICROWAVE



Spectrum Microwave manufactures custom Direct Digital Synthesizer (DDS) signal sources as new technology replacements for Linear Voltage Controlled Oscillators or Digitally Tuned Oscillators. An embedded microcontroller will digitize the analog control voltage or read the digital tuning word. The microcontroller will then load the proper control words into the registers of the DDS from a prom based lookup table. By carefully selecting the sampling clock of the DDS the in band spurious generated by the DDS can be minimized. An optional saw filter may be added to provide additional spur reduction. Unlike a VCO the DDS ensures perfect tuning linearity. Multiple optional outputs are also available.

Typical Performance Characteristics

Output Frequency Range 5 - 400 MHz

Tuning Resolution < 1Hz

Tuning step size Customer Specified

Number of steps 16384

Spurious Free Dynamic Range
100 MHz \pm 15 MHz < -80 dB
360 MHz \pm 15 MHz < -75 dBc

Phase Noise (100MHz output)
1 kHz. -147 dBc/Hz
10 kHz. -150 dBc/Hz
100 kHz. -152 dBc/Hz

Phase Noise (360MHz output)
1 kHz. -133 dBc/Hz
10 kHz. -137 dBc/Hz
100 kHz. -140 dBc/Hz

Output Power. 20 dBm

Input Power +15 VDC @ 500 ma

