

SPECIFICATIONS

| PARAMETER | MIN | TYPICAL | MAX | NOTE |
|--|----------------|--------------------------|---------------|---------------------------------------|
| Frequency range | 100 kHz | | 22 GHz | |
| Resolution | | 0.01 Hz | | |
| Phase resolution | | 0.1 deg | | |
| Switching speed in sweep mode | | 500 μ s 5 μ s | 10 μ s | Option FS |
| SSB Phase noise at 1 GHz | | | | See also plots |
| at 10 Hz from carrier | | -87 dBc/Hz | | |
| at 1 kHz from carrier | | -122 dBc/Hz | | |
| at 20 kHz from carrier | | -132 dBc/Hz | | |
| at 10 MHz from carrier | | -150 dBc/Hz | | |
| Spectral purity | | | | |
| Output harmonics | | | | $P_{out} = 10$ dBm |
| <4.0 GHz | | -15 dBc | | |
| 4.0 - 12 GHz | | -30 dBc | | |
| >12.0 GHz | | -50 dBc | | |
| Sub-harmonics | | | | $P_{out} = 10$ dBm |
| < 11.0 GHz | | -80 dBc | -70 dBc | |
| 11.0 – 20.0 GHz | | -70 dBc | -60 dBc | |
| >20.0 GHz | | -65 dBc | | |
| Non-harmonic spurious (>10 kHz offset) | | -65dBc | -55dBc | |
| Power level | | | | See also plots |
| Range | | | | |
| 0.1 – 1 GHz | -20 dBm | | +25 dBm | |
| 1-10 GHz | -30 dBm | | +23 dBm | |
| 10-18 GHz | -30 dBm | | +22 dBm | |
| 18-20 GHz | -40 dBm | | +18 dBm | |
| >20 GHz | -40 dBm | | +16 dBm | |
| Resolution | | 0.5 dB | | |
| Level uncertainty | | ± 1.5 dB | | |
| Output impedance | | 50 Ω | | |
| VSWR | | 1.7 | 2.0 | |
| Reference frequency input | 100 MHz, 1 GHz | | | |
| Reference input level | | | | |
| 100 MHz | -3 dBm | | +5 dBm | |
| 1 GHz | -5 dBm | | +5 dBm | |
| Lock Range | | | +/- 10 ppm | |
| Reference input impedance | | 50 Ω | | |
| Internal reference frequency output | | 1 GHz | | |
| Power | | 0 \pm 3 dBm | | calibrated at 23 \pm 3 $^{\circ}$ C |
| Calibrated accuracy of int. reference | | ± 30 ppb | | calibrated at 23 \pm 3 $^{\circ}$ C |
| Temperature stability (0 to 50 $^{\circ}$ C) | | | ± 100 ppb | |

| | | | | |
|---|---|---------|--------|-------------------------|
| Aging 1 st year | | 0.5 ppm | | |
| Aging per day | | | 5 ppb | After 30 days operation |
| Warm-Up time | | 5 min | | |
| RF out reverse power protection | | | | |
| DC voltage | | | 7 V | |
| RF power | | | 23 dBm | |
| Multi-Channel Configurability | | | | |
| Recommended configuration | One master and multiple slave units are synchronized by 1 GHz reference in daisy chain. If used as slaves, the units don't need to have internal frequency references: Option NOXO. | | | |
| Relative phase stability among the multi-channels (phase coherence) | | 15 mrad | | @5 GHz over 5 hours |

Sweeping Capability

| PARAMETER | MIN | TYPICAL | MAX | NOTE |
|---|--------------------------|---------|-------|-----------|
| Frequency / List sweep | | | | |
| Sweep type: linear, logarithmic, random | | | | |
| Step time | 500 μ s 5 μ s | | 200 s | Option FS |
| Timing resolution | | 5 ns | | |
| Timing accuracy per point | | 20 ns | | |

Generalized list sweep

Allows for individual setting of frequency, step-time, and off-time for each point

Modulation Capabilities

| PARAMETER | MIN | TYPICAL | MAX | NOTE |
|------------------------------|--------|-------------|--------|---|
| Pulse modulation | | | | |
| On/off ratio | | | | |
| < 10 GHz | | 80 dB | | |
| > 10 GHz | | 60 dB | | |
| Repetition frequency | DC | | 10 MHz | |
| Pulse width | 30 ns | | 20 s | |
| Pulse rise/fall time | | 9 ns | | |
| Pulse trainlength (pulses) | 2 | | 4192 | |
| Video crosstalk | | -40 dB | | |
| Modulation source | | Int. / ext. | | Trigger port can be reconfigured as external modulation port. |
| External input threshold | 0.85 V | 0.9 V | 0.95 V | TTL compatible |
| External input voltage range | -0.5 V | | +5.5 V | TTL compatible |
| External input hysteresis | | 60 mV | | |
| Delay (to RF) | | 20 ns | 40 ns | |

Trigger (TRIG IN/OUT)

| PARAMETER | MIN | TYPICAL | MAX | NOTE |
|---|------------|-----------------|--------|---|
| Trigger Types | | | | Continuous, single (point), gated, gated direction |
| Trigger Source | | | | external, Ethernet |
| Trigger Modes | | | | Continuous free run, trigger and run, reset and run |
| Trigger uncertainty | | 5 μ s | | |
| External Trigger delay | 50 μ s | | 40 s | |
| External Delay Resolution | | 15 ns | | |
| Trigger Modulo | 1 | | 255 | Execute only on Nth trigger event |
| Trigger Polarity | | rising, falling | | |
| External trigger input threshold | 0.85 V | 0.9 V | 0.95 V | TTL compatible |
| External trigger input voltage range | -0.5 V | | +5.5 V | TTL compatible |
| External trigger input hysteresis | | 60 mV | | |