

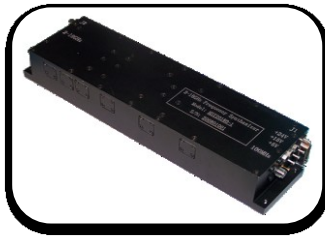
Broadband Frequency Synthesizer

0.01-36GHz

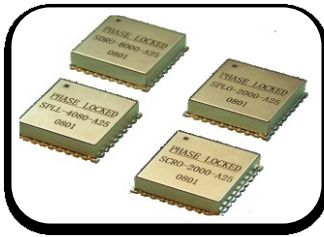
Broadband Low Phase Noise High Speed



ID CONNECTING



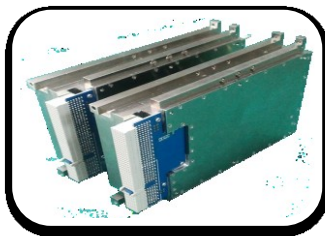
Broadband



25*25*6mm



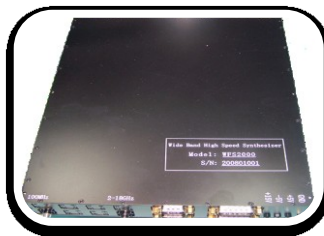
DRO



0.2-20GHz



Miniature

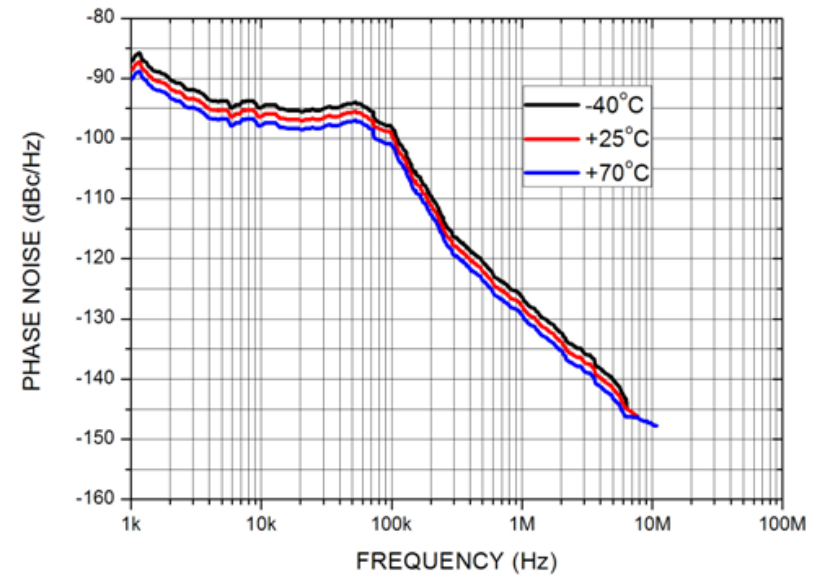
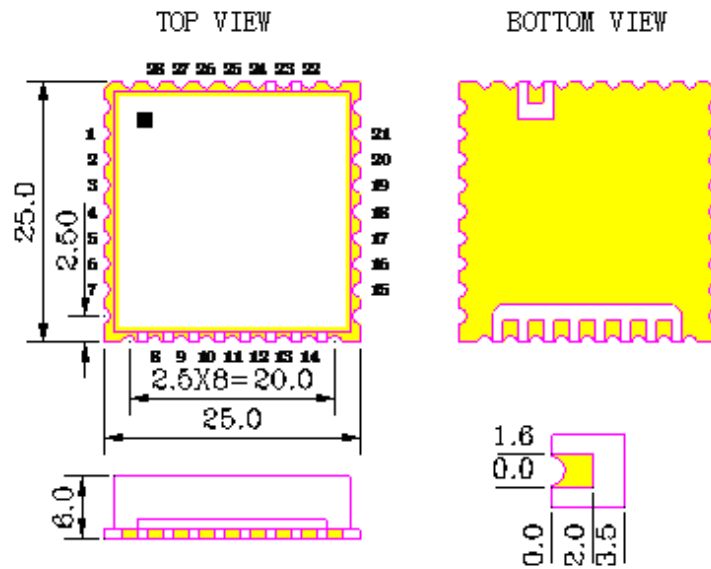
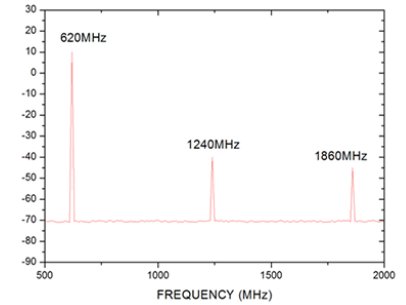
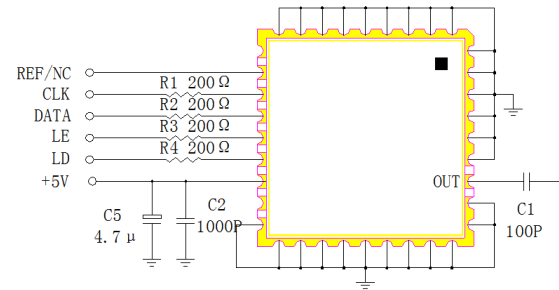
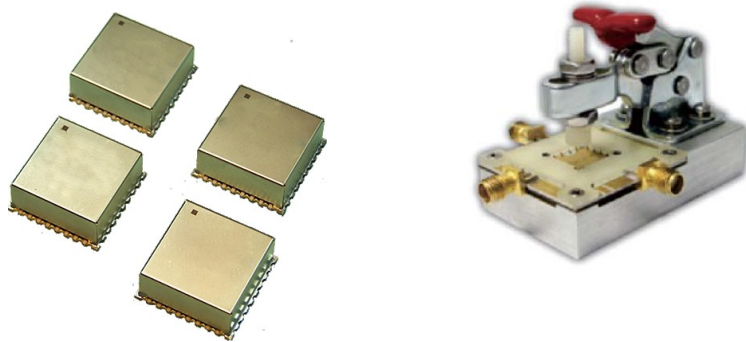


Broadband
DDS

Broadband Frequency Synthesizer

- SMD 25*25*6mm
- Broadband 0.1~10GHz and 0.2~20GHz
- PLCRO (1-8GHz) and PLDRO (7-36GHz)
- For Cesium & Rubidium Oscillator (6834.6826 and 9192.631770MHz)
- PXI RF Signal Generators (2-18GHz)
- Operating Temp. :-40 ~ +85 °C

SMD Frequency Synthesizer



SMD Frequency Synthesizer

| Model | Freq. | Step | Output | Phase Noies | | Switch | Harmonics | Spurious | Power | Operating |
|---------------------|-----------|--------|--------|-------------|--------|--------|-----------|----------|--------|-----------|
| | Range | Size | Power | 10KHz | 100kHz | TiM | | | Supply | Temp. |
| | GHz | | dBm | dBc | dBc | | | | dBc | dBc |
| MSA58A67-5M100U-E | 0.58-0.67 | 5MHz | 10 | -95 | -98 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS006007-100K400U-E | 0.6-0.7 | 100KHz | 10 | -90 | -100 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS007009-100K400U-E | 0.7-0.9 | 100KHz | 10 | -87 | -97 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS008A95-100K400U-E | 0.8-0.95 | 100KHz | 10 | -85 | -95 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS008012-1M100U-E | 0.8-1.2 | 1MHz | 10 | -90 | -92 | 100us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MSA89A98-5M100U-E | 0.89-0.98 | 5MHz | 10 | -94 | -97 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS009011-100K400U-E | 0.9-1.1 | 100KHz | 10 | -85 | -95 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS010012-100K400U-E | 1.0-1.25 | 100KHz | 10 | -83 | -93 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS011013-1M50U-E | 1.1-1.3 | 1MHz | 10 | -86 | -90 | 50us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS012014-200K400U-E | 1.2-1.4 | 200KHz | 10 | -82 | -92 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS014018-200K400U-E | 1.4-1.8 | 200KHz | 10 | -80 | -90 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS015017-5M100U-E | 1.5-1.7 | 5MHz | 10 | -96 | -99 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS016019-200K400U-E | 1.6-1.9 | 200KHz | 10 | -82 | -92 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS018022-200K400U-E | 1.8-2.2 | 200KHz | 10 | -78 | -88 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS100120-5M100U-E | 10-12 | 5MHz | 10 | -92 | -95 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |

I: Internal Reference Source ; E: Mxternal Reference Source (100MHz; -150dBc/Hz@1KHz)

SMD Frequency Synthesizer

| Model | Freq. | Step | Output | Phase Noies | | Switch | Harmonics | Spurious | Power | Operating |
|---------------------|-----------|--------|--------|-------------|--------|--------|-----------|----------|--------|-----------|
| | Range | Size | Power | 10KHz | 100kHz | TiM | | | Supply | Temp. |
| | GHz | | dBm | dBc | dBc | | | | dBc | dBc |
| MS010012-200K400U-E | 1-1.2 | 200KHz | 10 | -84 | -94 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS010017-1M150U-E | 1-1.7 | 1MHz | 10 | -85 | -90 | 150us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS010020-5M100U-E | 1-2 | 5MHz | 10 | -110 | -114 | 100us | ≤-40 | ≤-70 | +5V | -40 ~ +85 |
| MS122128-5M100U-E | 12.2-12.8 | 5MHz | 10 | -96 | -99 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS132135-5M100U-E | 13.2-13.5 | 5MHz | 10 | -90 | -93 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS135137-5M100U-E | 13.5-13.7 | 5MHz | 10 | -91 | -94 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS137139-5M100U-E | 13.7-13.9 | 5MHz | 10 | -89 | -92 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS023027-5M100U-E | 2.3-2.7 | 5MHz | 10 | -93 | -96 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS024028-200K400U-E | 2.4-2.8 | 200KHz | 10 | -80 | -90 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS025032-1M100U-E | 2.5-3.2 | 1MHz | 10 | -85 | -95 | 100us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS020025-200K400U-E | 2-2.5 | 200KHz | 10 | -75 | -85 | 400us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS020030-5M100U-E | 2-3 | 5MHz | 10 | -107 | -110 | 100us | ≤-40 | ≤-70 | +5V | -40 ~ +85 |
| MS031037-1M100U-E | 3.1-3.7 | 1MHz | 10 | -83 | -92 | 100us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS034039-5M100U-E | 3.4-3.9 | 5MHz | 10 | -94 | -97 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |

I: Internal Reference Source ; E: Mxternal Reference Source (100MHz; -150dBc/Hz@1KHz)

SMD Frequency Synthesizer

| Model | Freq. | Step | Output | Phase Noies | | Switch | Harmonics | Spurious | Power | Operating |
|-------------------|---------|------|--------|-------------|--------|--------|-----------|----------|--------|-----------|
| | Range | Size | Power | 10KHz | 100kHz | TiM | | | Supply | Temp. |
| | GHz | | dBm | dBc | dBc | | | | dBc | dBc |
| MS030050-5M100U-E | 3-5 | 5MHz | 10 | -104 | -107 | 100us | ≤-40 | ≤-70 | +5V | -40 ~ +85 |
| MS045050-1M100U-E | 4.5-5 | 1MHz | 10 | -80 | -90 | 100us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS046049-5M100U-E | 4.6-4.9 | 5MHz | 10 | -96 | -99 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS057062-5M100U-E | 5.7-6.2 | 5MHz | 10 | -92 | -95 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS057068-1M200U-E | 5.7-6.8 | 1MHz | 10 | -75 | -86 | 200us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS050075-5M100U-E | 5-7.5 | 5MHz | 10 | -100 | -103 | 100us | ≤-40 | ≤-70 | +5V | -40 ~ +85 |
| MS069073-5M100U-E | 6.9-7.3 | 5MHz | 10 | -92 | -95 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |
| MS072074-1M100U-E | 7.2-7.4 | 1MHz | 10 | -75 | -85 | 100us | ≤-15 | ≤-65 | +5V | -40 ~ +85 |
| MS078082-5M100U-E | 7.8-8.2 | 5MHz | 10 | -93 | -96 | 100us | ≤-25 | ≤-70 | +5V | -40 ~ +85 |

I: Internal Reference Source ; **E**: Mxternal Reference Source (100MHz; -150dBc/Hz@1KHz)

SMD Frequency Synthesizer

| model | Freq. | Output | Frequency | Frequency | Phase Noise | | Harmonics | Spurious | Reference | Power |
|-------------|-------|--------|-----------|-----------|-------------|-------|-----------|----------|-----------|------------|
| | Range | Power | Stability | Accuracy | @10K | @100k | | | Source | Supply |
| | GHz | dBm | ppm | kHz | dBc | dBc | | | dBc | dBc |
| MA620-11-E | 620 | 11±1 | <±0.5 | ±10 | -107 | -112 | ≤-40 | ≤-70 | External | 5V / 180mA |
| M1050-11-E | 1050 | 11±1 | <±0.5 | ±10 | -105 | -109 | ≤-40 | ≤-70 | External | 5V / 180mA |
| M1200-11-E | 1200 | 11±1 | <±0.5 | ±10 | -102 | -107 | ≤-40 | ≤-70 | External | 5V / 180mA |
| M1320-11-E | 1320 | 11±1 | <±0.5 | ±10 | -101 | -106 | ≤-40 | ≤-70 | External | 5V / 180mA |
| M1600-11-E | 1600 | 11±1 | <±0.5 | ±10 | -100 | -104 | ≤-40 | ≤-70 | External | 5V / 180mA |
| ME1850-11-E | 1850 | 11±1 | <±0.5 | ±10 | -98 | -100 | ≤-40 | ≤-70 | External | 5V / 180mA |
| M2050-11-E | 2050 | 11±1 | <±0.5 | ±10 | -111 | -114 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M2200-11-E | 2200 | 11±1 | <±0.5 | ±10 | -110 | -113 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M2450-11-E | 2450 | 11±1 | <±0.5 | ±10 | -110 | -113 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M4280-11-E | 4280 | 11±1 | <±0.5 | ±10 | -106 | -107 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M4300-11-E | 4300 | 11±1 | <±0.5 | ±10 | -106 | -107 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M4400-11-E | 4400 | 11±1 | <±0.5 | ±10 | -105 | -107 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M6200-11-E | 6200 | 11±1 | <±0.5 | ±10 | -104 | -105 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M6500-11-E | 6500 | 11±1 | <±0.5 | ±10 | -103 | -104 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M7500-11-E | 7500 | 11±1 | <±0.5 | ±10 | -98 | -100 | ≤-40 | ≤-70 | External | 5V / 130mA |
| M3800-11-E | 3800 | 8±1 | <±2.5 | ±10 | -85 | -92 | ≤-30 | ≤-65 | External | 5V / 70mA; |

I: Internal Reference Source ; **E**: Mxternal Reference Source (100MHz; -150dBc/Hz@1KHz)

Frequency Synthesizer

| Model | Freq. | Step | Output | Phase Noise | | | | Switching | Harmoni | Spurious | Power | Power | Power |
|----------------------|-----------|--------|--------|-------------|------|-------|------|-----------|---------|----------|--------|--------|--------|
| | Range | size | Power | @1K | @10K | @100K | @1M | Time | | | Supply | Supply | Supply |
| | GHz | | dBm | dBc | dBc | dBc | dBc | | dBc | dBc | (1) | (2) | (3) |
| MF001100-1K200U-I | 0.1-10 | 1KHz | 10 | -106 | -116 | -116 | -117 | 200US | ≤-20 | ≤-80 | +12V | +5V | TBD |
| MF002180-1K200U-I | 0.2-18 | 1KHz | 10 | -104 | / | / | / | 200us | ≤-10 | ≤--65 | +12V | +5V | TBD |
| MF002180-100K200U-I | 0.2-18 | 100MHz | 10 | / | -82 | -85 | / | 200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF002180-10K200U-I | 0.2-18 | 10MHz | 10 | / | -76 | -77 | / | 200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF002200-1K200U-I | 0.2-20 | 1KHz | 10 | -103 | / | / | / | 200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF002200-10M200U-I | 0.2-20 | 10MHz | 10 | / | -76 | -77 | / | 200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF002200-100M200U-E | 0.2-20 | 100MHz | 10 | / | -82 | -85 | / | 200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF002200-100K200U-I | 0.2-20 | 100KHz | 10 | -106 | -116 | -116 | -117 | 200US | ≤-20 | ≤-80 | +12V | +5V | TBD |
| MF005A625-100K400U-I | 0.5-0.625 | 100KHz | 10 | / | -120 | -126 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF005A625-1K20U-I | 0.5-0.625 | 1KHz | 10 | / | -115 | -115 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF006007-100K400U-I | 0.6-0.7 | 100KHz | 10 | / | -120 | -126 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF007009-100K400U-I | 0.7-0.9 | 100KHz | 10 | / | -117 | -124 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF008A95-100K-400U-I | 0.8-0.95 | 100KHz | 10 | / | -117 | -123 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF008012-1M400U-I | 0.8-1.2 | 1MHz | 10 | / | -104 | -107 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF009011-100K400U-I | 0.9-1.1 | 100KHz | 10 | / | -116 | -123 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF010012-200K400U-I | 1.0-1.25 | 200KHz | 10 | / | -110 | -112 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF010012-100K400U-I | 1.0-1.25 | 100KHz | 10 | / | -113 | -112 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |

Frequency Synthesizer

| Model | Freq. | Step | Output | Phase Noise | | | | Switching | Harmoni | Spurious | Power | Power | Power |
|---------------------|-----------|--------|--------|-------------|------|-------|-----|-----------|---------|----------|--------|--------|--------|
| | Range | size | Power | @1K | @10K | @100K | @1M | Time | | | Supply | Supply | Supply |
| | GHz | | dBm | dBc | dBc | dBc | dBc | | dBc | dBc | (1) | (2) | (3) |
| MF010017-1M400U-I | 1.0-1.7 | 1MHz | 10 | / | -101 | -104 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF011013-1M400U-I | 1.1-1.3 | 1MHz | 10 | / | -101 | -104 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF012014-200K400U-I | 1.2-1.4 | 200KHz | 10 | / | -108 | -111 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF014018-200K400I-I | 1.4-1.8 | 200KHz | 10 | / | -108 | -111 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF015016-1K20U-I | 1.5-1.6 | 1KHz | 10 | / | -105 | -107 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF015017-100M50N-I | 1.5-1.7 | 100MHz | 10 | / | -115 | -115 | / | 500ns | ≤-60 | ≤-60 | +12V | +5V | TBD |
| MF015020-1M2U-I | 1.5-2 | 1MHz | 10 | -118 | / | -123 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF016019-200K400U-I | 1.6-1.9 | 200KHz | 10 | / | -106 | -110 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF018022-200K400U-I | 1.8-2.2 | 200KHz | 10 | / | -103 | -110 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF100130-1M2U-I | 10-13 | 1MHz | 10 | -103 | / | -108 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF100180-10M200U-I | 10-18 | 10MHz | 10 | / | -76 | -77 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF100180-1K200U-I | 10-18 | 1KHz | 10 | -104 | / | / | / | ≤200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF100180-100M200U-I | 10-18 | 100MHz | 10 | / | -82 | -85 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF100200-1K200U-I | 10-20 | 1KHz | 10 | -103 | / | / | / | ≤200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF115125-1M100U-I | 11.5-12.5 | 1MHz | 10 | / | -93 | -96 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF116128-100M500N-I | 11.6-12.8 | 100MHz | 10 | / | -93 | -99 | / | 500ns | ≤-60 | ≤-60 | +12V | +5V | TBD |
| MF010150-1M2U-I | 1-15 | 1MHz | 10 | -120 | / | -125 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |

Frequency Synthesizer

| Model | Freq. | Step | Output | Phase Noise | | | | Switching | Harmoni | Spurious | Power | Power | Power |
|---------------------|-------------|--------|--------|-------------|------|-------|-----|-----------|---------|----------|--------|--------|--------|
| | Range | size | Power | @1K | @10K | @100K | @1M | Time | | | Supply | Supply | Supply |
| | GHz | | dBm | dBc | dBc | dBc | dBc | | dBc | dBc | (1) | (2) | (3) |
| MF124134-1M100U-I | 12.4-13.4 | 1MHz | 10 | / | -93 | -95 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF120150-1M2U-I | 12-15 | 1MHz | 10 | -102 | / | -107 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF120180-10M200U-I | 12-18 | 10MHz | 10 | / | -76 | -77 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF120180-100M200U-I | 12-18 | 100MHz | 10 | / | -82 | -85 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF135136-1K20U-I | 13.5-13.6 | 1KHz | 10 | / | -88 | -98 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF148149-1K20U-I | 14.8-14.9 | 1KHz | 10 | / | -87 | -98 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF153176-100M500N-I | 15.3-17.6 | 100MHz | 10 | / | -90 | -96 | / | 500ns | ≤-60 | ≤-60 | +12V | +5V | TBD |
| MF150180-1M2U-I | 15-18 | 1MHz | 10 | -100 | / | -107 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF160161-1K20U-I | 16-16.1 | 1KHz | 10 | / | -86 | -95 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF178179-1K20U-I | 17.8-17.9 | 1KHz | 10 | / | -85 | -95 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF020025-200K400U-I | 2.0-2.5 | 200KHz | 10 | / | -102 | -109 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF024028-200K400U-I | 2.4-2.8 | 200KHz | 10 | / | -101 | -108 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF024025-1K20U-I | 2.459-2.501 | 1KHz | 10 | / | -100 | -98 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF025032-1M400U-I | 2.5-3.2 | 1MHz | 10 | / | -99 | -102 | / | 400us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF020180-10M200U-I | 2-18 | 10MHz | 10 | / | -76 | -77 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF020180-1K200U-I | 2-18 | 1KHz | 10 | -104 | / | / | / | ≤200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF020180-100M200U-I | 2-18 | 100MHz | 10 | / | -82 | -85 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |

Frequency Synthesizer

| Model | Freq. | Step | Output | Phase Noise | | | | Switching | Harmoni | Spurious | Power | Power | Power |
|---------------------|---------|--------|--------|-------------|------|-------|-----|-----------|---------|----------|--------|--------|--------|
| | Range | size | Power | @1K | @10K | @100K | @1M | Time | | | Supply | Supply | Supply |
| | GHz | | dBm | dBc | dBc | dBc | dBc | | dBc | dBc | (1) | (2) | (3) |
| MF020030-1M2U-I | 2-3 | 1MHz | 10 | -116 | / | -121 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF031037-1M100U-I | 3.1-3.7 | 1MHz | 10 | / | -98 | -101 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF035038-100M500N-I | 3.5-3.8 | 100MHz | 10 | / | -103 | -110 | / | 500ns | ≤-60 | ≤-60 | +12V | +5V | TBD |
| MF030040-1M2U-I | 3-4 | 1MHz | 10 | -114 | / | -119 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF045050-1M100U-I | 4.5-5 | 1MHz | 10 | / | -97 | -100 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF040060-1M2U-I | 4-6 | 1MHz | 10 | -112 | / | -117 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF057068-1M100UI-I | 5.7-6.8 | 1MHz | 10 | / | -96 | -100 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF050100-100200U-I | 5-10 | 100MHz | 10 | / | -88 | -91 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF050100-10M200U-I | 5-10 | 10MHz | 10 | / | -82 | -83 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF050100-1K200U-I | 5-10 | 1KHz | 10 | -106 | / | / | / | ≤200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF060180-1K200U-I | 6-18 | 1KHz | 10 | -104 | / | / | / | ≤200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF060180-100M200U-I | 6-18 | 100MHz | 10 | / | -82 | -85 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF060180-10M200U-I | 6-18 | 10MHz | 10 | / | -76 | -77 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF060180-1M2U-I | 6-8 | 1MHz | 10 | -108 | / | -113 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF082084-1M100U-I | 7.2-7.4 | 1MHz | 10 | / | -95 | -99 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF073082-1M100U-I | 7.3-8.2 | 1MHz | 10 | / | -95 | -98 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |

Frequency Synthesizer

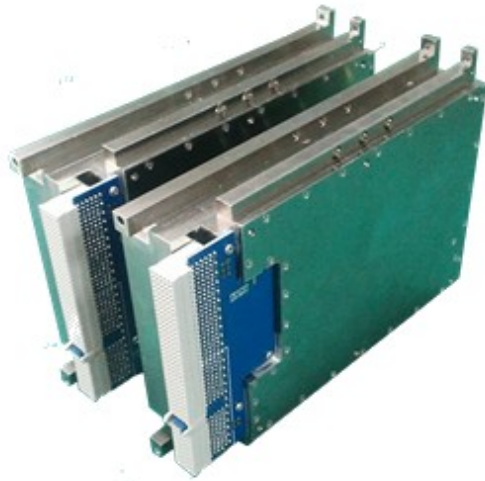
| Model | Freq. | Step | Output | Phase Noise | | | | Switching | Harmoni | Spurious | Power | Power | Power |
|---------------------|----------|--------|--------|-------------|------|-------|-----|-----------|---------|----------|--------|--------|--------|
| | Range | size | Power | @1K | @10K | @100K | @1M | Time | | | Supply | Supply | Supply |
| | GHz | | dBm | dBc | dBc | dBc | dBc | | dBc | dBc | (1) | (2) | (3) |
| MF075078-100M500N-I | 7.5-7.8 | 100MHz | 10 | / | -95 | -102 | / | 500ns | ≤-60 | ≤-60 | +12V | +5V | TBD |
| MF078088-1M100U-I | 7.8-8.8 | 1MHz | 10 | / | -95 | -98 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF079080-1K20U-I | 7.9-8 | 1KHz | 10 | / | -89 | -98 | / | 20us | ≤-40 | ≤-60 | +12V | +5V | TBD |
| MF085095-1M100U-I | 8.5-9.5 | 1MHz | 10 | / | -95 | -98 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF080100-1N2U-I | 8-10 | 1MHz | 10 | -106 | / | -111 | / | ≤2us | ≤-50 | ≤-60 | +12V | +5V | TBD |
| MF080120-10M200U-I | 8-12 | 10MHz | 10 | / | -81 | -92 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF080120-100M200U-I | 8-12 | 100MHz | 10 | / | -87 | -90 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF080120-1K200U-I | 8-12 | 1KHz | 10 | -105 | / | / | / | ≤200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF080180-1K200U-I | 8-18 | 1KHz | 10 | -104 | / | / | / | ≤200us | ≤-10 | ≤-65 | +12V | +5V | TBD |
| MF080180-10M200U-I | 8-18 | 10MHz | 10 | / | -76 | -77 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF080180-100M200U-I | 8-18 | 100MHz | 10 | / | -82 | -85 | / | ≤200us | ≤-10 | ≤-70 | +12V | +5V | TBD |
| MF091100-1M100U-I | 9.1-10 | 1MHz | 10 | / | -94 | -97 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |
| MF096108-1M100U-I | 9.6-10.8 | 1MHz | 10 | / | -94 | -97 | / | 100us | ≤-15 | ≤-65 | +12V | +5V | TBD |

I: Internal Reference Source ; **E**: Mxternal Reference Source (100MHz; -150dBc/Hz@1KHz)

0.1-10GHz and 0.2-20GHz Frequency Synthesizer

Model: **M001100-100H200U-A/B/C (100MHz~10GHz)**

M002200-100H200U-A/B/C (200MHz~20GHz)

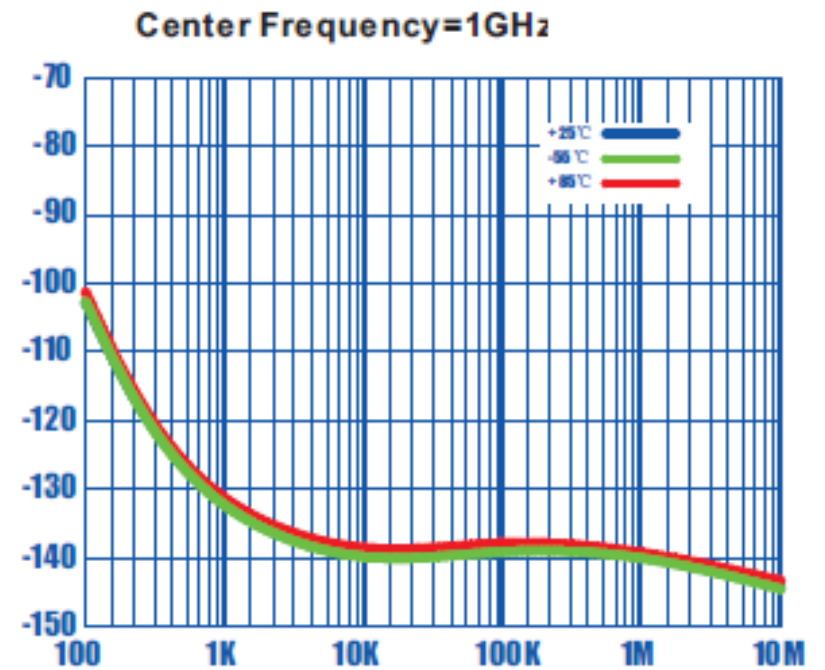
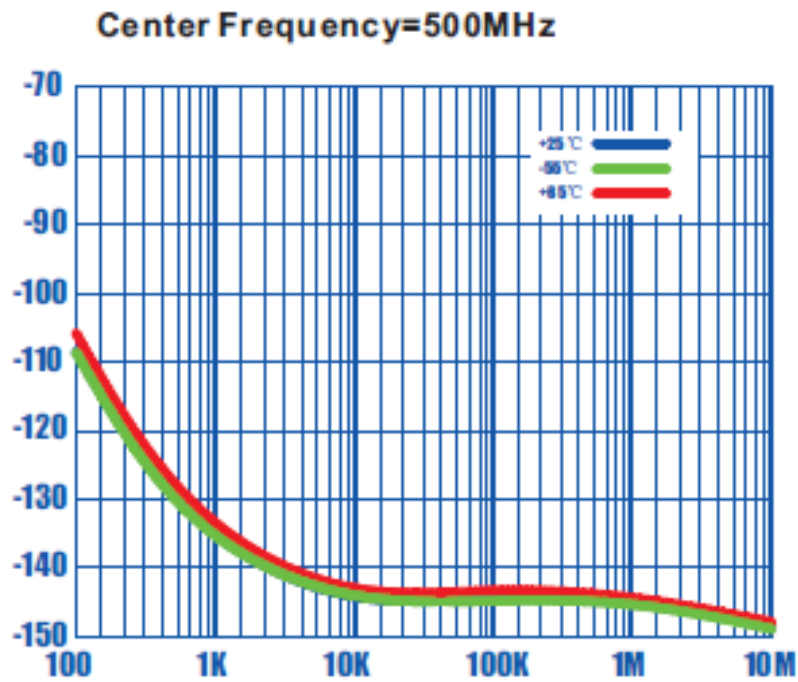


| | |
|---------------------------------|--------------------------------------|
| Output Frequency | 100MHz~10GHz / 200MHz~20GHz |
| Freq. Step | 100Hz Typ., 0.001Hz Min |
| Frequency Stability | 1x10E7 (Internal Reference) |
| Frequency Switch Speed | 200uS Max at any two pints |
| Output Power | ≥ +13dBm@0.1-10G, , ≥ +10dBm@10~20G. |
| Flatness of output power | ±2dB |
| Spurious | 80dBc typ; 75dBc max |
| Harmonics | 20dBc typ; 10dBc max |
| Phase Noise | See phase noise stable |
| Power Supply | Voltage: +12V, Current: 2200mA(Max) |

| Phase Noise | dBc/Hz@ | | | | |
|---------------|------------|------------|------------|------------|------------|
| | 0.5GHz | 1GHz | 5GHz | 10GHz | 20GHz |
| | typ[max] | typ[max] | typ[max] | typ[max] | typ[max] |
| 100Hz | -109[-103] | -103[-97] | -89[-83] | -83[-77] | -77[-71] |
| 1KHz | -135[-132] | -132[-126] | -118[-112] | -112[-106] | -106[-100] |
| 10KHz | -144[-138] | -138[-132] | -128[-122] | -122[-116] | -116[-111] |
| 100KHz | -144[-138] | -138[-132] | -128[-122] | -122[-116] | -116[-111] |
| 1MHz | -145[-140] | -139[-132] | -129[-123] | -123[-121] | -117[-116] |

0.1-10GHz and 0.2-20GHz Frequency Synthesizer

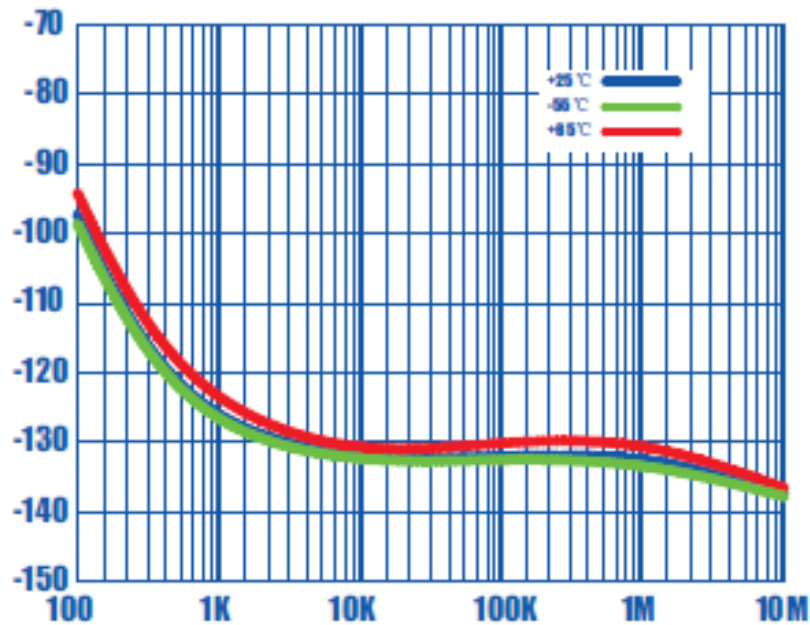
Phase noise Test chart



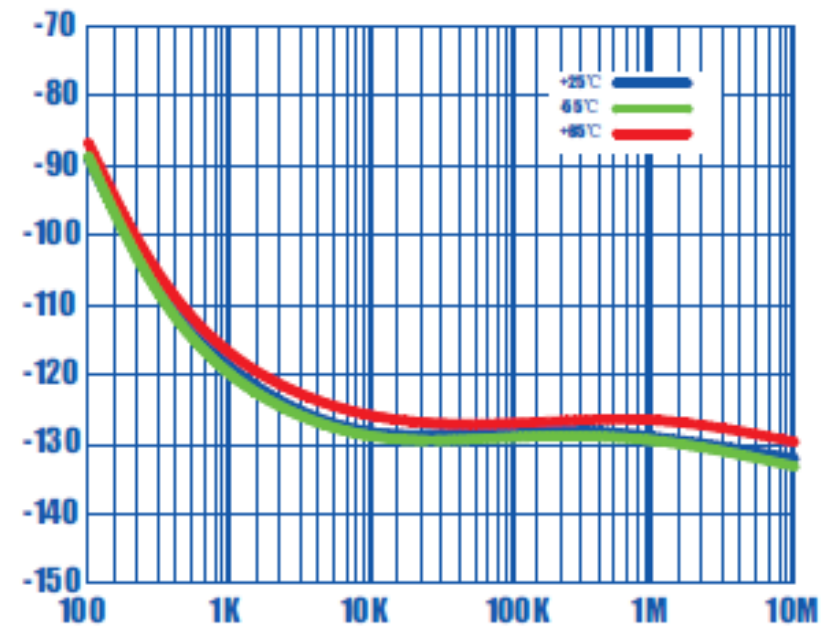
0.1-10GHz and 0.2-20GHz Frequency Synthesizer

Phase noise Test chart

Center Frequency=2GHz



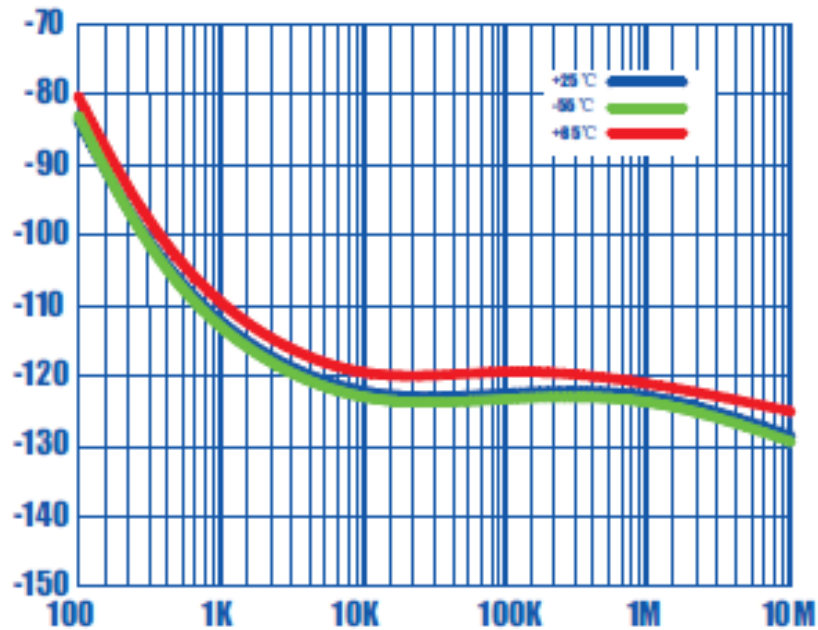
Center Frequency=5GHz



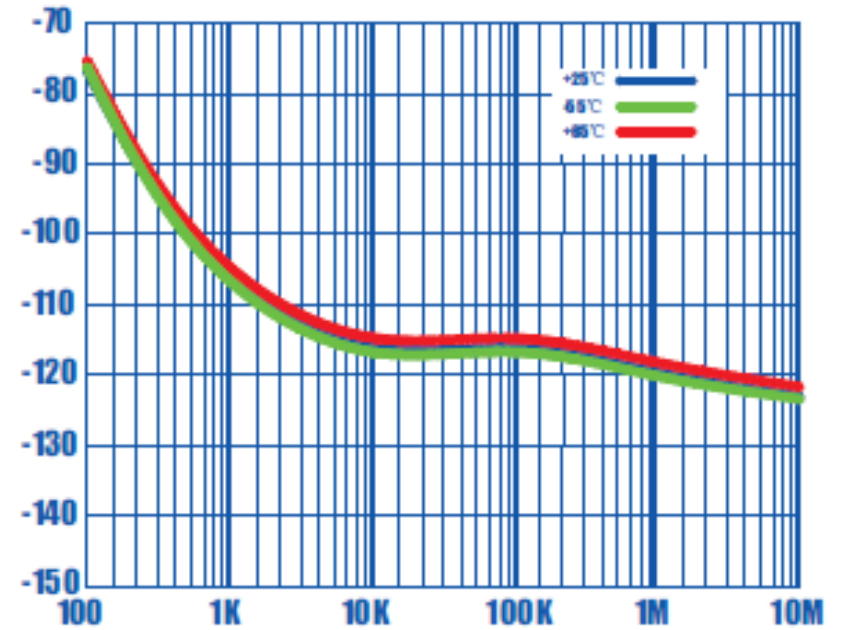
0.1-10GHz and 0.2-20GHz Frequency Synthesizer

Phase noise Test chart

Center Frequency=10GHz



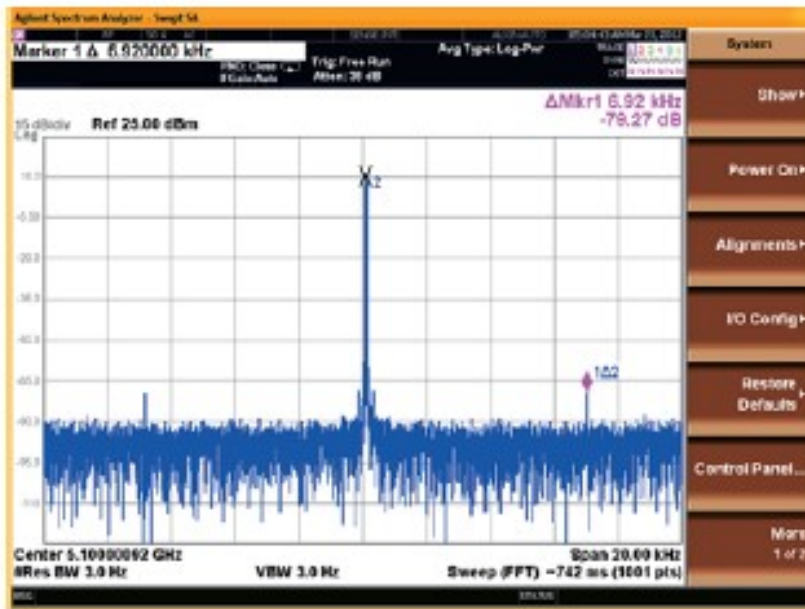
Center Frequency=20GHz



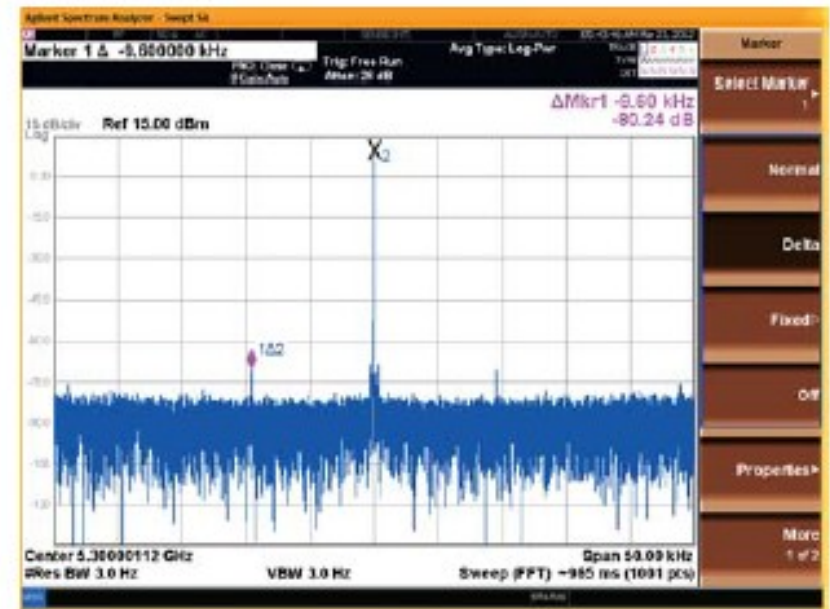
0.1-10GHz and 0.2-20GHz Frequency Synthesizer

Spurious Test chart

+25°C, 5.1000009GHz, SPAN=20KHz



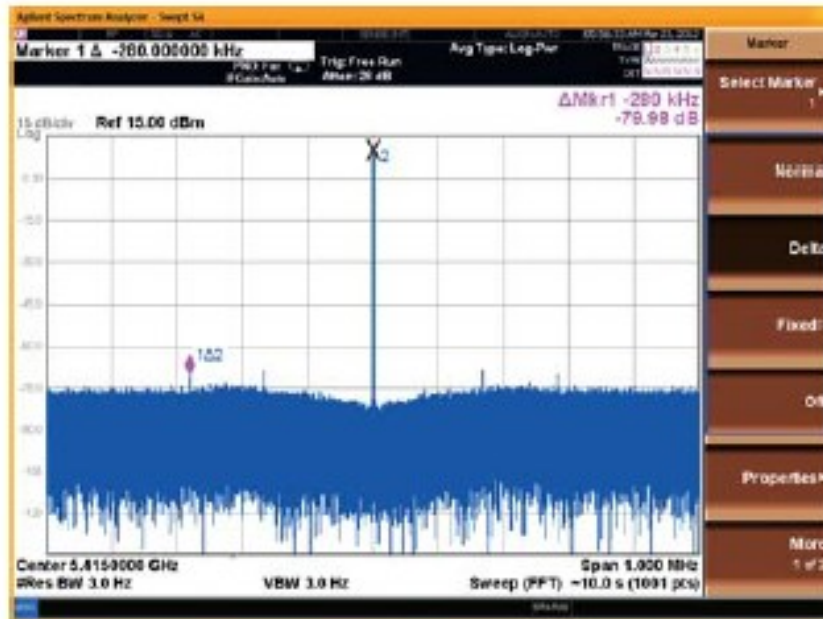
+25°C, 5.3000011GHz, SPAN=50KHz



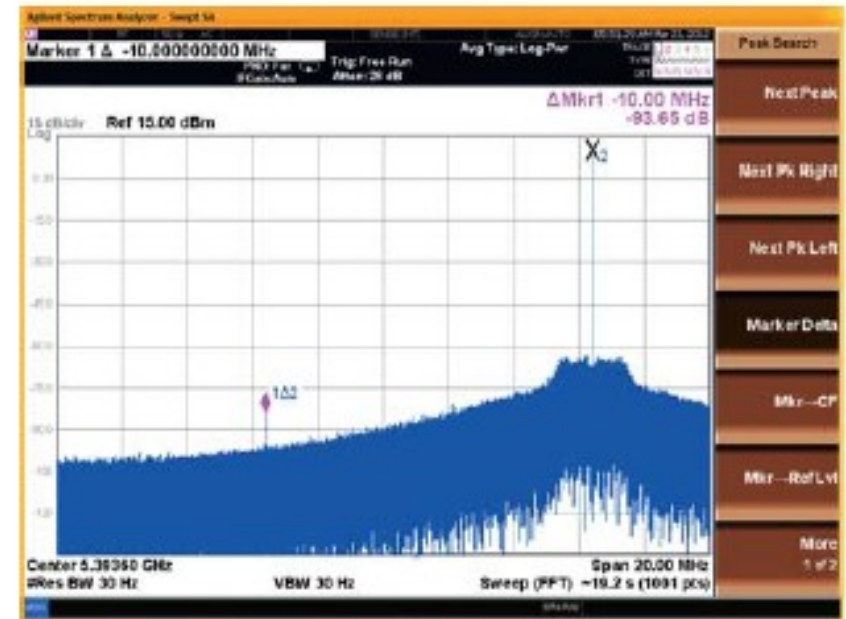
0.1-10GHz and 0.2-20GHz Frequency Synthesizer

Spurious Test chart

+25°C, 5.415GHz, SPAN=1MHz



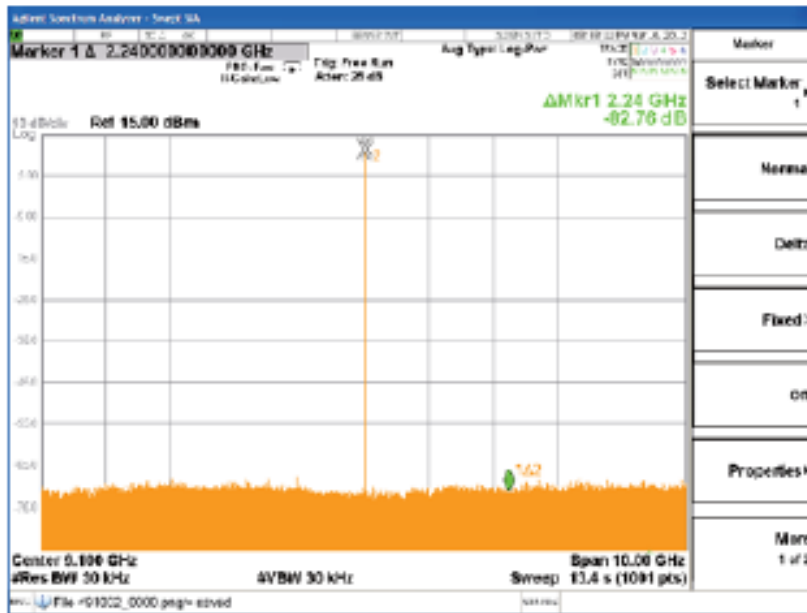
+25°C, 5.3936GHz, SPAN=20MHz



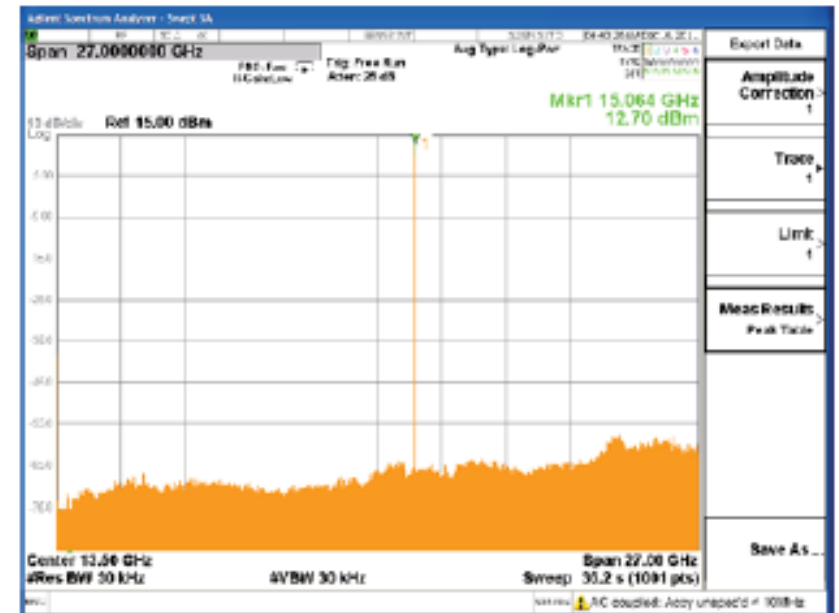
0.1-10GHz and 0.2-20GHz Frequency Synthesizer

Spurious Test chart

+25°C, 9.1GHz, SPAN=10GHz



+25°C, 15.064GHz, SPAN=27GHz

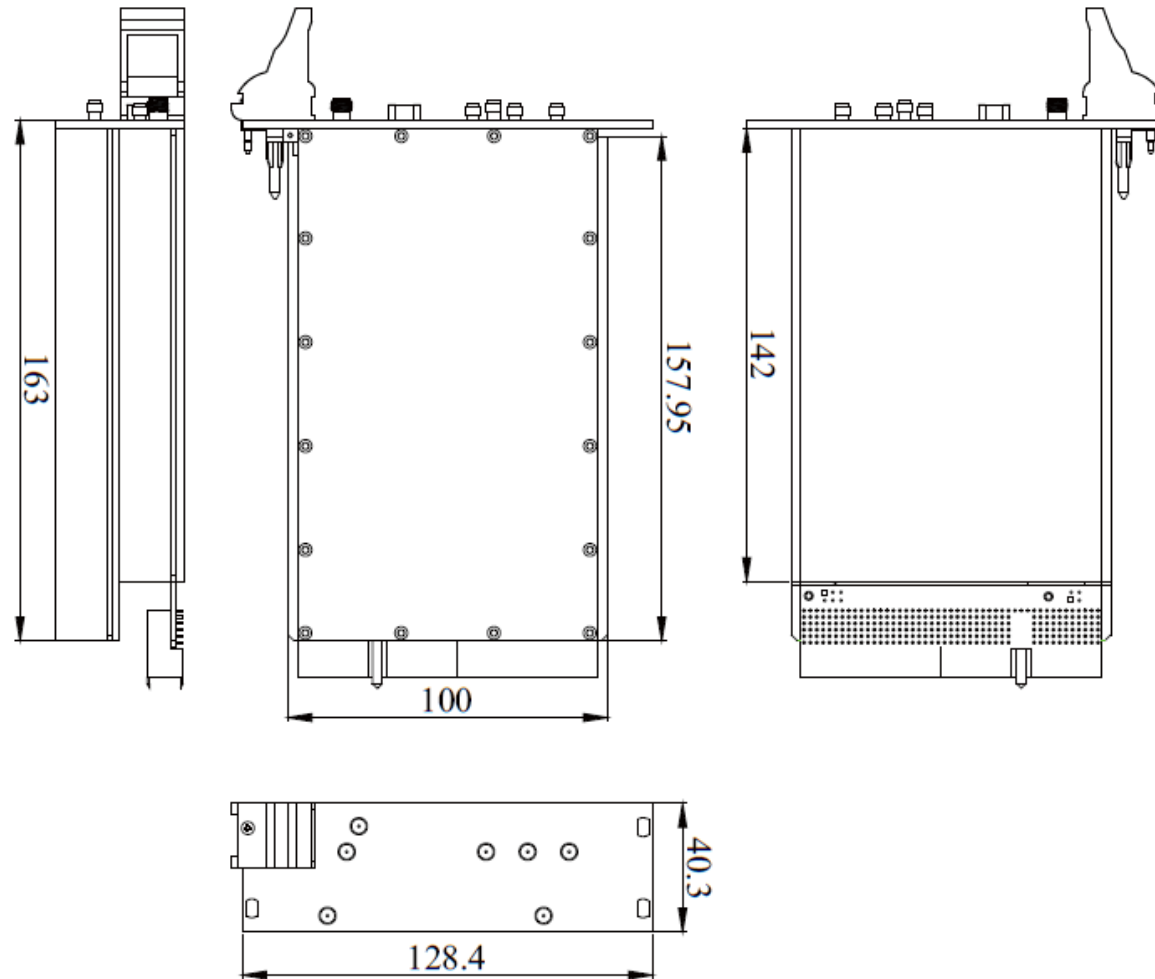


0.1-10GHz and 0.2-20GHz Frequency Synthesizer

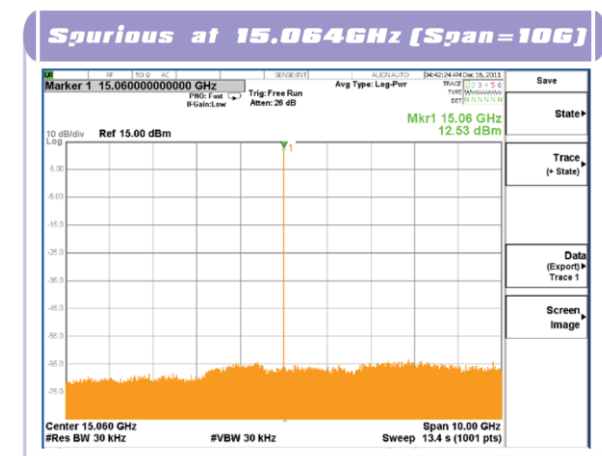
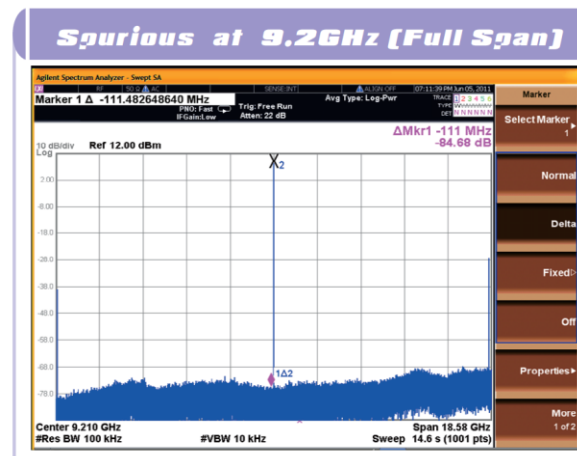
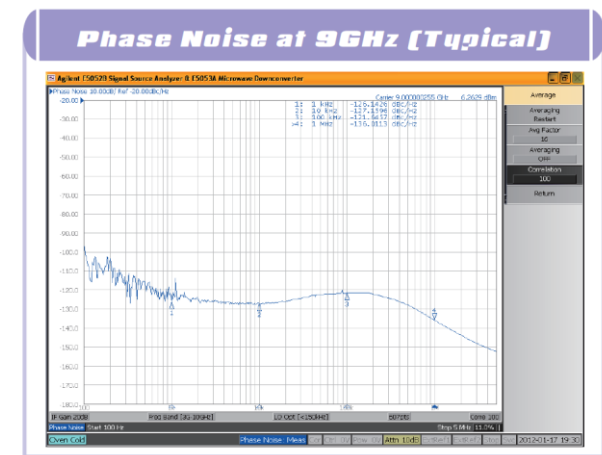
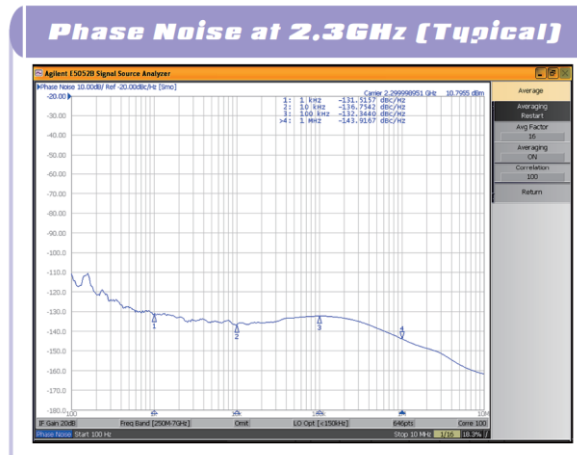
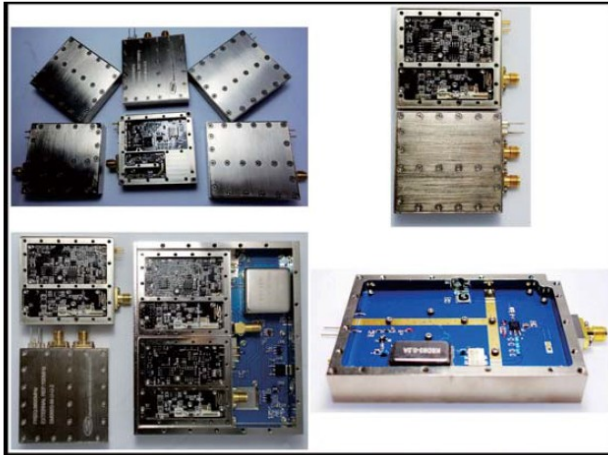
| | |
|---|---|
| Power Supply | +12V / 2200mA [MAX] |
| Operation Temp | (A: 0~50°C; B:-20 ~ +60°C; C:-40 ~ +85°C) |
| Storage Temp | -60 ~ +90°C |
| RF connector | SSMA-K |
| Power Supply and control Connector | CPCI、PXIe |
| Frequency Connector | SPI、RS422、RS232 |
| Frequency Range | 0.1G~10GGHz or 0.2G~20GHz |
| Outline Drawing | 3U |
| Weight | ≤1.5Kg |
| <ul style="list-style-type: none">● Ultra broadband frequency coverage: 0.1~10GHz or 0.2~20GHz any band coverage● Reference and system clock: To achieve the internal and external reference switching by manual/automatic, and provide the system clock of phase reference. | |

0.1-10GHz and 0.2-20GHz Frequency Synthesizer

Outline Drawing



PLCRO (1-8GHz) and PLDRO (7-36GHz)

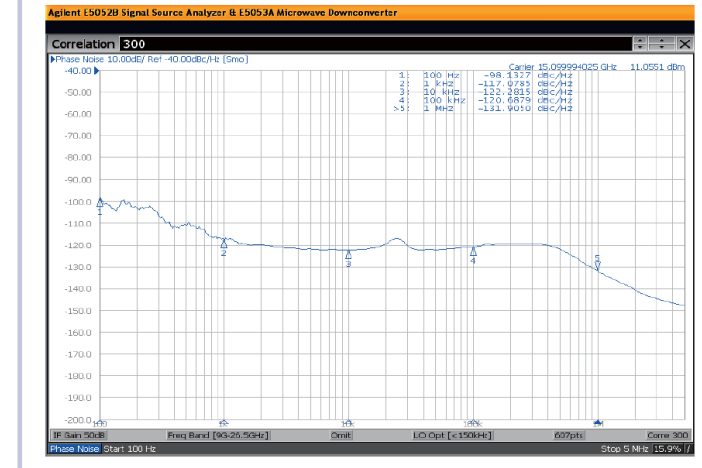


PLCRO (1-8GHz) and PLDRO (7-36GHz)

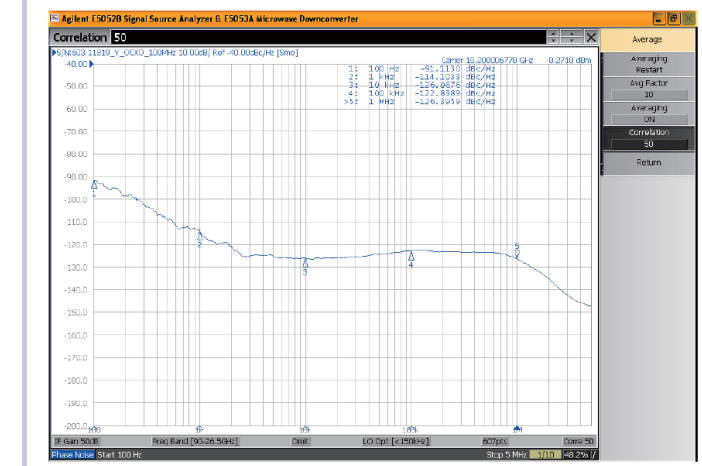
- Frequencies from 1GHz to 36 GHz
- Operating temperature from -55°C to +85°C
- Ultra Low Phase Noise
- Low spurious
- Low power consumption
- Phase lockable to references from 1 MHz to 300MHz
- Small Size

| | |
|--------------------------------------|---------------------------------|
| Output Frequency (GHz) | 1~36 (Point frequency) |
| External Reference (MHz/Phase Noise) | 100/≤-157dBc/Hz@1KHz |
| External REF Input Power Level (dBm) | 0±5 |
| Output Power (dBm) | 13±1 |
| Spurious (dBc) | ≤-80 |
| Harmonics (dBc) | ≤-20 |
| Power Supply (V/mA) | +12/300 |
| Phase Noise | See The Table |
| Alarm | TTL Lock in high |
| Operating Temperature (°C) | -55~+85 |
| Dimensions L(mm)×W(mm)×H(mm) | 57.2×57.2×15.7 & 50.8×47.8×15.7 |

Phase Noise at 15.1GHz (Typical)



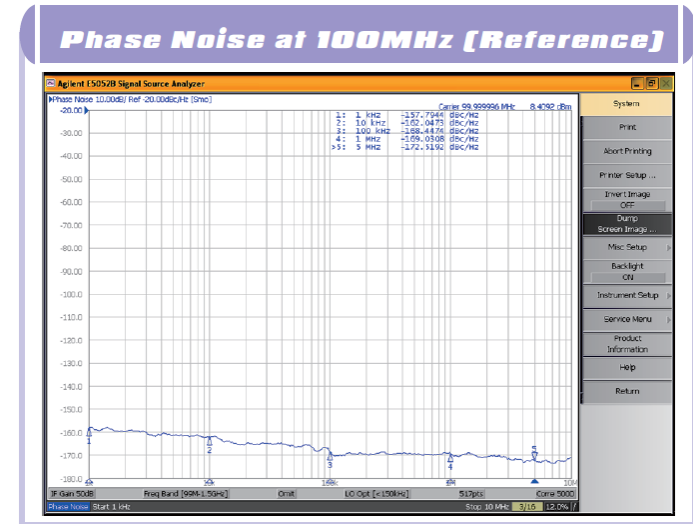
Phase Noise at 18.2GHz (Typical)



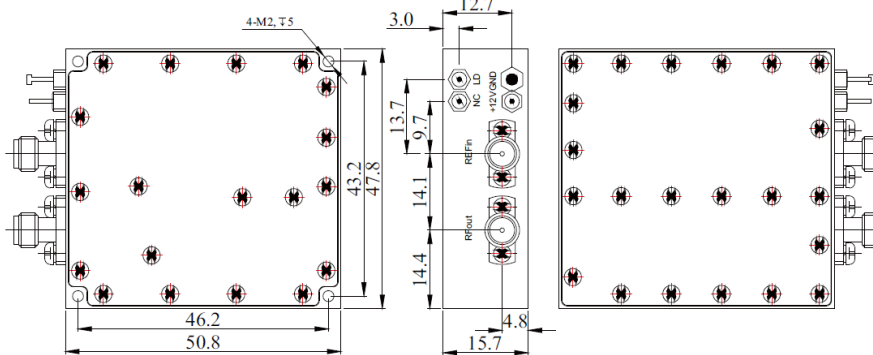
PLCRO (1-8GHz) and PLDRO (7-36GHz)

| PLCRO & PLDRO Typical Phase Noise Data vs Frequency | | | | | | | | | |
|---|---|------------------------|------|------|------|------|------|------|------|
| | | Output Frequency (GHz) | | | | | | | |
| Phase Noise in dBc/Hz@ | 1 | 2 | 4 | 5.8 | 9 | 12 | 14 | 16 | 18 |
| 100Hz | | | | | | | | | |
| 1KHz | $20\log N + 3/20\log N / 20\log N - 3$ [Optional] | | | | | | | | |
| 10KHz | | | | | | | | | |
| 100KHz | -148 | -140 | -133 | -126 | -122 | -120 | -116 | -114 | -113 |
| 1MHz | -159 | -157 | -152 | -144 | -136 | -136 | -132 | -130 | -125 |

**Note: 1. Phase noise floor is lower than -163dBc/Hz;
2. We can provide the anti-vibration products;
3. We provide the internal reference products.**



External Reference:



Internal Reference:

