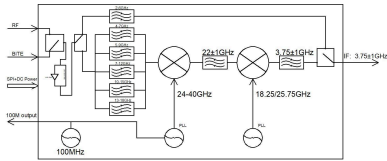


2–18 GHz Downconverter with 2 GHz IF Bandwidth

Documented RF-to-IF conversion to 3.75±1 GHz, with 60 dB typical LNA-path gain, ≥12 dBm output P1dB and RF/IF attenuation.



Electrical specifications

Parameter	Value	Unit	Notes
RF input frequency	2–18	GHz	-
IF output frequency	3.75±1	GHz	-
IF output bandwidth	2	GHz	-
LNA-path gain	60	dB	Typical: 60 dB.
Through-path gain	≥25	dB	Minimum: 25 dB.
LNA-path noise figure	4	dB	Typical: 4 dB.
Through-path noise figure	10	dB	Typical: 10 dB.
Output P1dB	≥12	dBm	Minimum: 12 dBm.
Output OIP3	≥25	dBm	Minimum: 25 dBm.
RF attenuation range	31.5	dB	Attenuation span as stated; an unstated zero state is not inferred.
RF attenuation step	0.5	dB	-
RF attenuator bit count	6	-	-
IF attenuation span	31.5	dB	Attenuation span as stated; an unstated zero state is not inferred.
IF attenuation step	0.5	dB	-
IF attenuator bit count	6	-	-
Calibration attenuation range	15.5	dB	Attenuation span as stated; an unstated zero state is not inferred.
Calibration attenuation step	0.5	dB	-
Calibration attenuator bit count	5	-	-
RF-input-equivalent spurious level	≤−87	dBm	Equivalent RF input, bandwidth: 2000 MHz. Maximum: −87 dBm.
Single-tone SFDR	≥55	dB	RF input power: −25 dBm. Low-gain path test. Minimum: 55 dB.
Harmonic rejection	≥45	dB	RF input power: −29 dBm. Low-gain path test. Minimum: 45 dB.
Image rejection	≥70	dB	Minimum: 70 dB.

Electrical specifications

Parameter	Value	Unit	Notes
Gain flatness	≤5	dB	Specified operating range. Maximum: 5 dB.
IF filter rejection	≥50	dBc	IF frequency: 3.75 GHz; Offset: ±1500 MHz. Minimum: 50 dBc.

Interfaces and contacts

Parameter	Value	Unit
RF input ports	RF: SMA	-
IF output ports	IF: SMA	-
BITE calibration input	BITE: SMA	-
Reference output	REF: 100	MHz
Power and control connector	J30J-9ZKP	-
Supply contacts	1, 2 → +12 V	-
Ground contacts	3, 4 → GND	-
SPI clock contact	5 → SCK	-
SPI select contact	6 → CSB	-
SPI data contact	7 → MOSI	-
SPI data output contact	8 → MISO	-
SPI NC contact	9 → NC (Reserved contact.)	-

Oscillator specifications

Parameter	Value	Unit	Notes
LO1 frequency	24–40	GHz	Source specifies design guarantee; independent measurement evidence is not supplied.
LO1 frequency step	10	MHz	-
LO1 switching response	≤100	μs	Source specifies design guarantee; independent measurement evidence is not supplied. Maximum: 100 μs.
LO2 frequency	18.25 / 25.75	GHz	Source specifies design guarantee; independent measurement evidence is not supplied.

Mechanical specifications

Parameter	Value	Unit	Notes
Body dimensions	145 × 142 × 40	mm	Preliminary source dimensions, excluding mounting lugs.
Mounting-hole center spacing	136 × 139	mm	Preliminary source drawing dimensions.
Mounting holes	4 × Φ2.7	mm	Preliminary source drawing dimensions.

Phase-noise design targets

Parameter	Value	Unit	Notes
LO1 phase noise at 100 Hz	≤-65	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 100 Hz. Maximum: -65 dBc/Hz.
LO1 phase noise at 1 kHz	≤-80	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 1 kHz. Maximum: -80 dBc/Hz.
LO1 phase noise at 10 kHz	≤-88	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 10 kHz. Maximum: -88 dBc/Hz.
LO1 phase noise at 100 kHz	≤-90	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 100 kHz. Maximum: -90 dBc/Hz.
LO1 phase noise at 1 MHz	≤-100	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 1 MHz. Maximum: -100 dBc/Hz.
LO2 phase noise at 100 Hz	≤-75	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 100 Hz. Maximum: -75 dBc/Hz.
LO2 phase noise at 1 kHz	≤-85	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 1 kHz. Maximum: -85 dBc/Hz.
LO2 phase noise at 10 kHz	≤-90	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 10 kHz. Maximum: -90 dBc/Hz.

Phase-noise design targets

Parameter	Value	Unit	Notes
LO2 phase noise at 100 kHz	≤-93	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 100 kHz. Maximum: -93 dBc/Hz.
LO2 phase noise at 1 MHz	≤-103	dBc/Hz	Source design target; not demonstrated measured or qualified phase-noise performance. Offset: 1 MHz. Maximum: -103 dBc/Hz.

Current publication record · 1.0 · 2026-10-08. First publication of approved product data.

Document notice

Specifications are subject to revision. Before design release, confirm the current document revision and product-specific requirements with LCRF. The approved quotation and order documentation define the supplied configuration.