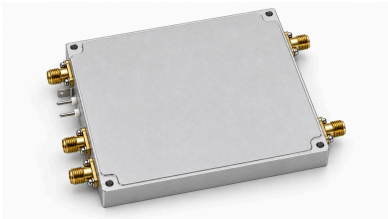


6–8.5 GHz Integrated RF Up/Downconverter Module

Integrated conversion between 6–8.5 GHz RF and 3–5.5 GHz IF. The downconversion path provides 25 dB typical gain and 2 dB maximum noise figure; TTL control selects the active conversion direction.



RF conversion specifications · Overall characterization conditions are not specified; the spurious measurement condition is stated in its row.

Parameter	Specification	Unit
RF operating frequency	6–8.5	GHz
IF operating frequency	3–5.5	GHz
Downconversion gain	25; Typical	dB
Downconversion noise figure	2; Maximum	dB
Upconversion input drive	–15 (Recommended input drive; not a maximum limit)	dBm
Saturated output power	10; Typical (Channel and reference plane not specified)	dBm
Output spurious level	–45; Typical (Within 6–8.5 GHz at RF output power 0 dBm)	dBc
Leakage level	–40; Typical (Leakage origin and measurement reference not specified)	dBc

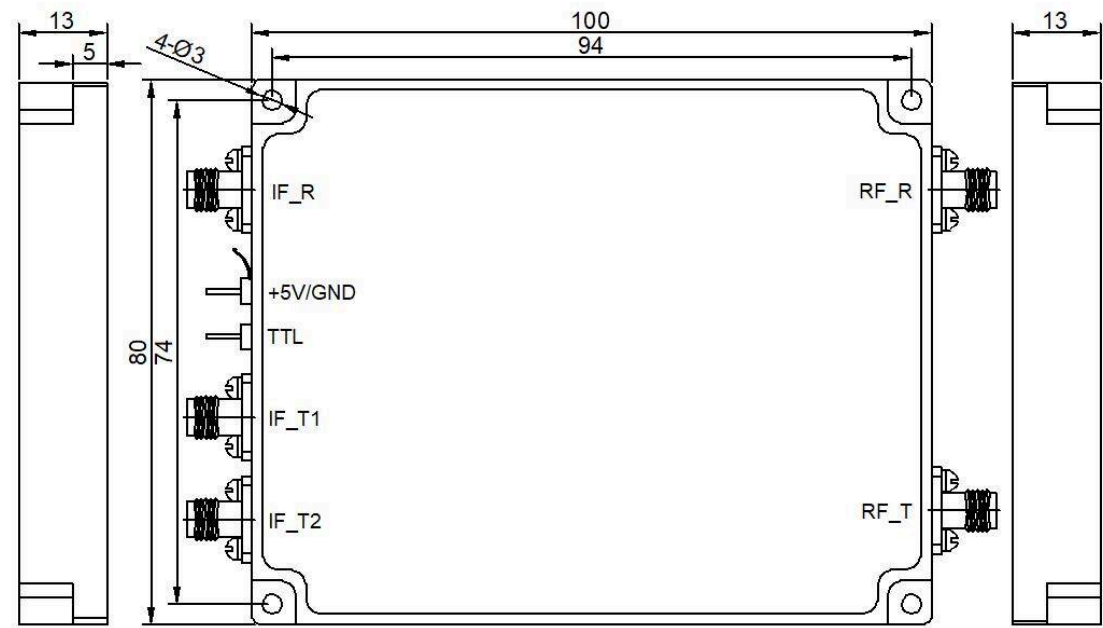
Power and environmental specifications · Temperature ranges do not establish a full-temperature electrical guarantee or completed qualification.

Parameter	Specification	Unit
Supply voltage	+5 (Nominal; 6 V; Maximum)	V
Operating current	600 (Typical)	mA
Operating temperature	–40–+70	°C
Storage temperature	–40–+85	°C

Mechanical specifications · Body dimensions exclude connector and pin projections.

Parameter	Specification	Unit
Body dimensions	100×80×13	mm
Mounting-hole diameter	Ø3	mm
Mounting-hole centers	94×74	mm

Mechanical Outline



All dimensions are in mm [in].

RF, IF and control interfaces · Five SMA signal ports; source does not specify connector gender.

Parameter	Specification	Unit	Notes
RF-port connectors	SMA	-	Upconversion output: RF_T; Downconversion input: RF_R
IF-port connectors	SMA	-	Upconversion inputs: IF_T1 / IF_T2; Downconversion output: IF_R
TTL control connection	Feed-through capacitor	-	0 V / 3.3 V
Power and ground interface	Feed-through capacitor / Grounding metal sheet	-	+5 V / GND

Integrated frequency synthesis

Parameter	Specification	Unit
Internal reference frequency	50	MHz
Internal LO frequency	11.5	GHz

TTL direction selection

TTL control connection	Upconversion	Downconversion	Notes
3.3 V	Enabled	Disabled	-
0 V	Disabled	Enabled	Internally pulled low

Current publication record · 1.0 · 2026-10-06. First publication of approved product data.

Product overview

LCMIXUD-6000-8500 integrates upconversion and downconversion between a 6–8.5 GHz RF band and a 3–5.5 GHz IF band. TTL control enables one conversion direction at a time for microwave communication, RF platforms and frequency-translation systems. The upconversion inputs IF_T1 and IF_T2 combine internally and feed RF_T. The downconversion path runs from RF_R to IF_R, with 25 dB typical conversion gain and 2 dB maximum noise figure. The source recommends –15 dBm input drive for the upconversion path. RF filtering, amplification, a crystal oscillator and PLL synthesis are integrated in the module. The functional diagram shows a 50 MHz internal reference and an 11.5 GHz internal LO. Five SMA signal ports, a +5 V nominal supply and separate TTL control support system integration. Outline-based structural illustration, not a product photograph. Surface appearance does not specify housing material or finish.

RF and IF ports and installation

The IF edge has IF_R, IF_T1 and IF_T2; the opposite edge has RF_R and RF_T. IF_T1 and IF_T2 are upconversion inputs, IF_R is the downconversion output, RF_T is the upconversion output and RF_R is the downconversion input. SMA is specified for these five ports without a male or female designation. The body measures 100×80×13 mm, excluding connector and pin projections. Four Ø3 mm mounting holes have 94×74 mm center spacing. The IF edge also carries the power and TTL feed-through connections and a grounding metal sheet. Use the original outline to plan mounting and cable clearance.

TTL direction selection and integrated synthesis

At TTL high, 3.3 V, upconversion is enabled and downconversion is disabled. At TTL low, 0 V, downconversion is enabled and upconversion is disabled; the TTL input is internally pulled low. The documented states therefore select one active direction. The functional diagram shows the internal crystal reference and PLL-derived LO shared by both conversion paths. It does not define an external reference input, reference tolerance, phase noise, conversion switching time or 5 V TTL compatibility.

RF ratings and measurement conditions

Typical output spurious level is –45 dBc within the 6–8.5 GHz band at 0 dBm RF output power. Typical leakage is listed as –40 dBc; its origin and measurement reference are not identified. Typical Psat is 10 dBm, with the applicable channel and reference plane unspecified. The recommended –15 dBm upconversion drive is not a maximum safe-input rating. Supply is +5 V nominal, 6 V maximum, with 600 mA typical operating current. Operating temperature is –40 to +70 °C and storage is –40 to +85 °C. The source does not establish electrical performance over the full temperature range or completed environmental qualification.

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.