22–44 GHz Four-Output Local Oscillator Module



Four-output LO module with tunable 22–44 GHz RF11/RF12 paths and fixed 20.2 GHz RF21/RF22 paths. The paired outputs share a 100 MHz external reference and 3-wire SPI control.

The 95 × 65 × 12 mm module uses four 2.92-K RF output connectors, an SMA-K REF input and Ø0.6 mm power/control pins. Supply is 12 ± 0.5 V with current up to 0.95 A. Leave CD and CK floating during normal operation.

Tunable-path output power, phase noise, spurious response, 1 MHz steps and switching time are specified over the supplied 22–40 GHz characterization range. The 40–44 GHz control mapping and performance require confirmation before integration. Fixed 20.2 GHz output specifications are separate.

Operating temperature is −40 to +75 °C; storage temperature is −55 to +85 °C. Weight is no more than 130 g. The housing is aluminum with a conductive anodized finish. Handle the exposed pins as ESD-sensitive interfaces.

Reference input REF

Parameter	Value	Unit
Reference frequency	100	MHz
Reference input power	5–10	dBm
Reference phase noise @ 100 Hz	≤-130	dBc/Hz
Reference phase noise @ 1 kHz	≤-150	dBc/Hz
Reference phase noise @ 10 kHz	≤-165	dBc/Hz
Reference phase noise @ 100 kHz	≤-165	dBc/Hz

Tunable RF outputs RF11/RF12

Parameter	Value	Unit
Tunable output frequency	22–44	GHz
Tunable output power [1]	0 ±2	dBm
Frequency step [1]	1	MHz
Frequency switching time [1]	≤200	µs
Tunable-output phase noise @ 100 Hz [1]	≤-70	dBc/Hz
Tunable-output phase noise @ 1 kHz [1]	≤-81	dBc/Hz
Tunable-output phase noise @ 10 kHz [1]	≤-88	dBc/Hz
Tunable-output phase noise @ 100 kHz [1]	≤-92	dBc/Hz
Tunable-output phase noise @ 1 MHz [1]	≤-103	dBc/Hz
Tunable-output spurious [1]	≤−60	dBc
Isolation between paired tunable outputs [1]	≥10	dBc

[1] Supplied characterization: 22–40 GHz.

Fixed RF outputs RF21/RF22

Parameter	Value	Unit
Fixed output frequency	20.2	GHz
Fixed output power	0 ±2	dBm
Fixed-output phase noise @ 100 Hz	≤-75	dBc/Hz
Fixed-output phase noise @ 1 kHz	≤-87	dBc/Hz
Fixed-output phase noise @ 10 kHz	≤-94	dBc/Hz
Fixed-output phase noise @ 100 kHz	≤-96	dBc/Hz
Fixed-output phase noise @ 1 MHz	≤-106	dBc/Hz
Fixed-output spurious	≤–65	dBc
Isolation between paired fixed outputs	≥10	dBc

Power and control interfaces

Parameter	Value	Unit
Supply voltage VCC	12 ±0.5	V
Supply current	≤0.95	A
LD voltage, locked	2.7–3.5	V
LD voltage, unlocked	≤0.5	V
Control interface	3-wire SPI: LE, DAT, CLK	-
Maximum SPI clock	10	MHz
Logic level	3.3	V
Data format	16 bits; MSB first	-
REF connector	SMA-K	-
RF output connectors	2.92-K	-
Power/control pin diameter	Ø0.6	mm
Factory debug pins CD/CK	Leave floating	-

Environmental specifications

Parameter	Value	Unit
Operating temperature	–40–+75	°C
Storage temperature	–55–+85	°C

Absolute maximum and assembly limits

Parameter	Value	Unit
Maximum VCC input voltage	18	V
Maximum reference input power	14	dBm
Pin soldering limit	10 s at 300 °C	-

Mechanical specifications

Parameter	Value	Unit
Body dimensions	95 × 65 × 12	mm
Weight	≤130	g
Housing material and finish	Aluminum; natural conductive anodizing	-
Table dimensional tolerance	±0.2	mm
Dimension inspection rule	Only *marked dimensions inspected	-

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.