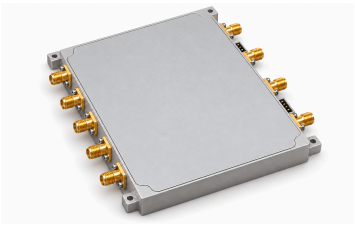
3–6 GHz Four-Channel Receiver Front End

LCRFE-3000-6000-4 conditions four receiving channels across 3–6 GHz. SPI selects 3–4.2 GHz, 4–5.2 GHz or 5–6 GHz filtering and chooses the RF or BITE calibration path for each channel. Each DSA spans 0–31.5 dB in 0.5 dB increments. The source states 30±1.5 dB gain, 10 dBm typical saturated power and maximum VSWR 2.



Typical supply values are +12 V and 200 mA; the module operates from −40 to +80 °C. The original 102 × 110 × 13.5 mm outline identifies IN1–IN4, OUT1–OUT4 and BITE, with SMA-K interfaces and a five-contact SPI pin map.

The supplied filter-response plots are typical traces; they do not define a guaranteed numerical stop-band rejection rating.

Electrical specifications

Parameter	Value	Unit
RF input frequency	3000–6000	MHz
Channel count	4	-
Gain	30±1.5	dB
Noise figure	≤8	dB
Saturated output power (Psat)	10 (Typical)	dBm
Input and output VSWR	≤2	-
Supply voltage [1]	+12	VDC
Supply current	200 (Typical)	mA
Per-channel attenuation range [2]	0–31.5	dB
Attenuation step	0.5	dB
Attenuator bit count	6	-

[1] Typical: 12 VDC.

[2] Source block states 0–31.5 dB for each channel, with six explicit attenuation weights.

Environmental limits

Parameter	Value	Unit
Operating temperature	−40–+80	°C
Storage temperature	−55–+125	°C

Interfaces and contacts

Interface	Specification
RF input ports	IN1–IN4: SMA-K (Interface sub-band descriptions differ; the source block establishes same-band RF reception.)
RF output ports	OUT1–OUT4: SMA-K (Interface sub-band descriptions differ; the source block establishes same-band RF reception.)
BITE calibration input	BITE: SMA-K
Supply contacts	XS1: 1, 2 → +12 V
Ground contacts	XS1: 3, 4 → GND
SPI data contact	XS2: 1 → SPI_MOSI
SPI clock contact	XS2: 2 → SPI_SCK
SPI select contact	XS2: 3 → SPI_NSS (LE)
SPI ground contact	XS2: 4 → GND
SPI NC contact	XS2: 5 → NC

Control and filter selection

Parameter	Value	Unit
SPI data rate [1]	2 / 10	Mbps
SPI frame [2]	0xAA 0x55 | Data[31:0] | 0x44 0xBB	-
Channel 1 RF/BITE selection bit [3]	26: 0 → RF; 1 → BITE	-
Channel 2 RF/BITE selection bit [3]	27: 0 → RF; 1 → BITE	-
Channel 3 RF/BITE selection bit [3]	28: 0 → RF; 1 → BITE	-
Channel 4 RF/BITE selection bit [3]	29: 0 → RF; 1 → BITE	-
Channel 1 attenuation bits [4]	5:16; 4:8; 3:4; 2:2; 1:1; 0:0.5	dB
Channel 2 attenuation bits [4]	11:16; 10:8; 9:4; 8:2; 7:1; 6:0.5	dB
Channel 3 attenuation bits [4]	17:16; 16:8; 15:4; 14:2; 13:1; 12:0.5	dB
Channel 4 attenuation bits [4]	23:16; 22:8; 21:4; 20:2; 19:1; 18:0.5	dB
SPI unused bits [5]	30–31	-
SPI filter-selection bits	25:C1; 24:C0	-
Filter code 00 passband	00 → 3000–4200	MHz
Filter code 01 passband	01 → 4000–5200	MHz
Filter code 10 passband	10 → 5000–6000	MHz

[1] Typical: 2 Mbps. Maximum: 10 Mbps.

[2] Data[31:0] occupies four bytes; further payload byte order is not specified.

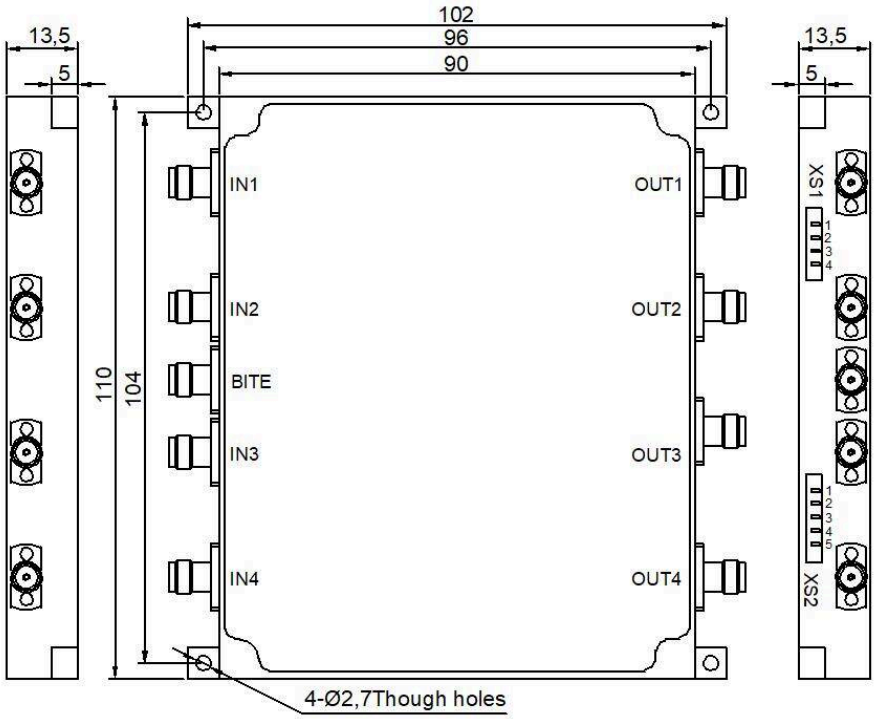
[3] Bit position and channel number are retained; conflicting symbolic mnemonics are omitted.

[4] Each bit: 1 enables its attenuation step; 0 disables it.

[5] Source marks these data bits as having no meaning.

Mechanical specifications

Parameter	Value	Unit
Body dimensions	102 × 110 × 13.5	mm
Weight	≤500	g
Mounting-hole center spacing	96 × 104	mm
Mounting holes	4 × Φ2.7 (Through holes.)	mm



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.