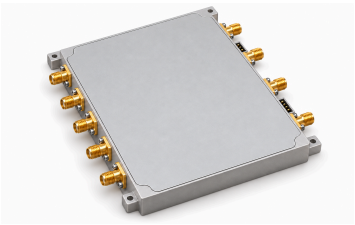
1500–3000 MHz Four-Channel Receiver Front End

LCRFE-1500-3000-4 combines four receiving paths with 1400–2200 MHz or 2000–3000 MHz filter selection. The stated overall RF input range remains 1500–3000 MHz. Each path contains a 0–31.5 dB digital attenuator; gain is 30±1.5 dB and saturated output power is 10 dBm typical. The two rejection ratings apply only at the stop-band frequencies listed in the table.



Channel-specific SPI bits choose RF or BITE paths and control six attenuation weights down to 0.5 dB. The typical supply values are +12 V and 200 mA; operating temperature is −40 to +80 °C. The 102 × 110 × 13.5 mm original outline identifies four input/output pairs and the shared BITE connector.

Copied downconversion headings and mismatched interface sub-band text do not establish a frequency-conversion function.

Electrical specifications

Parameter	Value	Unit
RF input frequency	1500–3000	MHz
Channel count	4	-
Gain	30±1.5	dB
Noise figure	≤7	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	-
Out-of-band rejection, filter 0 [3]	≥50	dBc
Out-of-band rejection, filter 1 [4]	≥40	dBc

[1] Typical: 12 VDC.

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

[3] Selected filter: 1400–2200 MHz. Rejection frequencies: DC–1100 MHz; 2500–6000 MHz.

[4] Selected filter: 2000–3000 MHz. Rejection frequencies: DC–1700 MHz; 3300–8000 MHz.

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]	25: 0 → RF; 1 → BITE	-
Channel 2 RF/BITE selection bit [3]	26: 0 → RF; 1 → BITE	-
Channel 3 RF/BITE selection bit [3]	27: 0 → RF; 1 → BITE	-
Channel 4 RF/BITE selection bit [3]	28: 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]	29	-
SPI filter-selection bits	24:C0	-
Filter code 0 passband	0 → 1400–2200	MHz
Filter code 1 passband	1 → 2000–3000	MHz

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

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

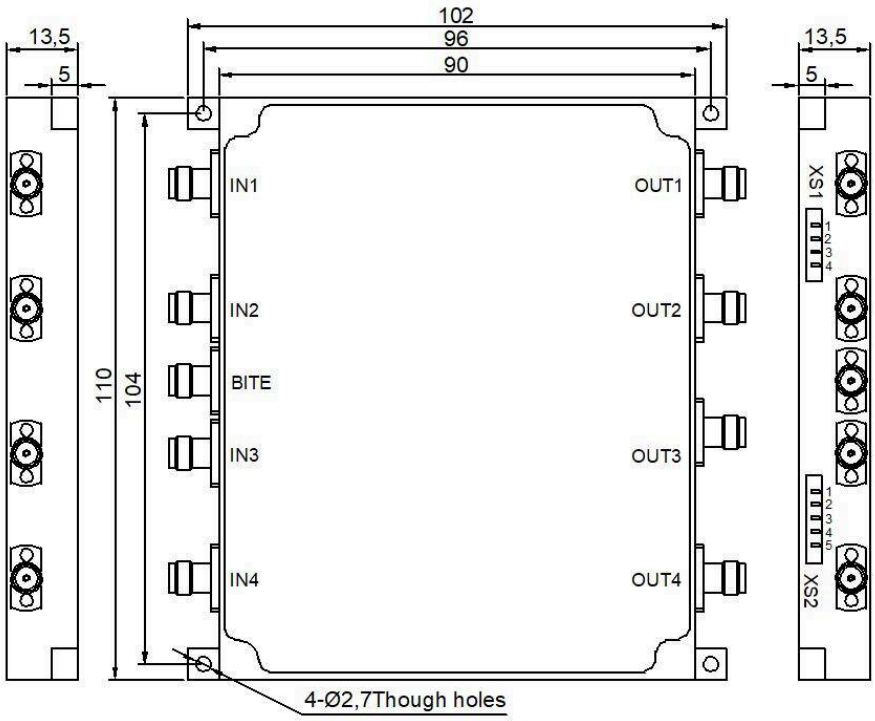
[3] Bit position and channel number are retained; conflicting symbolic mnemonics are omitted.

[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.