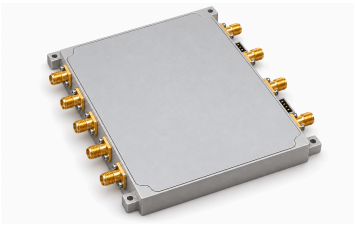
600–1500 MHz Four-Channel Receiver Front End

LCRFE-600-1500-4 processes four RF channels across 600–1500 MHz. Its source block shows selectable 600–1000 MHz and 900–1500 MHz filters, a shared BITE calibration input and a 0–31.5 dB DSA in each path. Gain is stated as 30±1.5 dB; saturated output power is 10 dBm typical and input/output VSWR is 2 maximum.



SPI uses a four-byte Data[31:0] frame, with 2 Mbps typical and 10 Mbps maximum rate. Each channel has six attenuation bits with 0.5 dB resolution. Typical supply is +12 V and 200 mA; the 102 × 110 × 13.5 mm module weighs no more than 500 g.

RF input/output sub-band labels differ in the source interface table; the functional block establishes same-band reception, rather than frequency conversion.

Electrical specifications

Parameter	Value	Unit
RF input frequency	600–1500	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]	≥25	dBc
Out-of-band rejection, filter 1 [4]	≥25	dBc

[1] Typical: 12 VDC.

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

[3] Selected filter: 600–1000 MHz. Rejection frequencies: DC–500 MHz; 1200–2400 MHz.

[4] Selected filter: 900–1500 MHz. Rejection frequencies: DC–750 MHz; 1650–2700 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 → 600–1000	MHz
Filter code 1 passband	1 → 900–1500	MHz

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

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

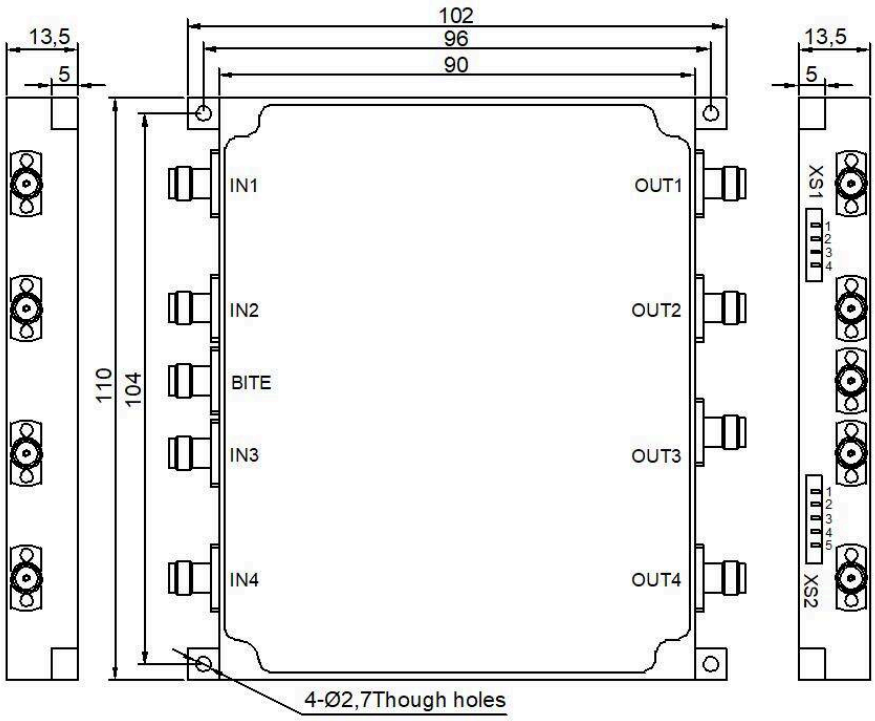
[3] Bit position and channel number are retained; conflicting symbolic mnemonics are omitted.

[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.