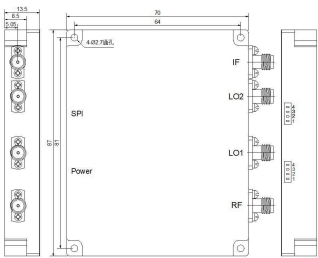


2–18 GHz Broadband Upconverter with SPI Filter Control

Upconverter with 1.8 GHz IF, external dual LO inputs, ≥ 15 dB small-signal gain, ≥ 5 dBm output P1dB and 0.5 dB calibration attenuation steps.



Electrical specifications

Parameter	Value	Unit	Notes
RF output frequency	2–18	GHz	-
IF input frequency	1.8	GHz	-
IF input passband	1.8±0.5	GHz	-
Small-signal gain	≥ 15	dB	Minimum: 15 dB.
Output P1dB	≥ 5	dBm	Minimum: 5 dBm.
Calibration attenuation range	0–15.5	dB	Range derived from the explicit binary weights 8, 4, 2, 1 and 0.5 dB.
Attenuation step	0.5	dB	-
Attenuator bit count	5	-	-
Spurious rejection	≥ 47	dBc	Minimum: 47 dBc.
Harmonic rejection	≥ 30	dBc	Minimum: 30 dBc.
Supply voltage	+12	VDC	Typical: 12 VDC.
Supply current	450	mA	Typical: 450 mA.

Environmental limits

Parameter	Value	Unit
Operating temperature	-40–+70	°C
Storage temperature	-55–+125	°C

Interfaces and contacts

Parameter	Value	Unit
LO1 input frequency	22–40	GHz
LO2 input frequency	20.2	GHz
LO1 input power	-3–+3	dBm
LO2 input power	-3–+3	dBm

Interfaces and contacts

Parameter	Value	Unit
Supply contacts	1, 2: +12 V	-
Ground contacts	3, 4: GND	-
SPI data contact	1: SPI_MOSI	-
SPI clock contact	2: SPI_SCK	-
SPI select contact	3: SPI_NSS	-
SPI ground contact	4: GND	-

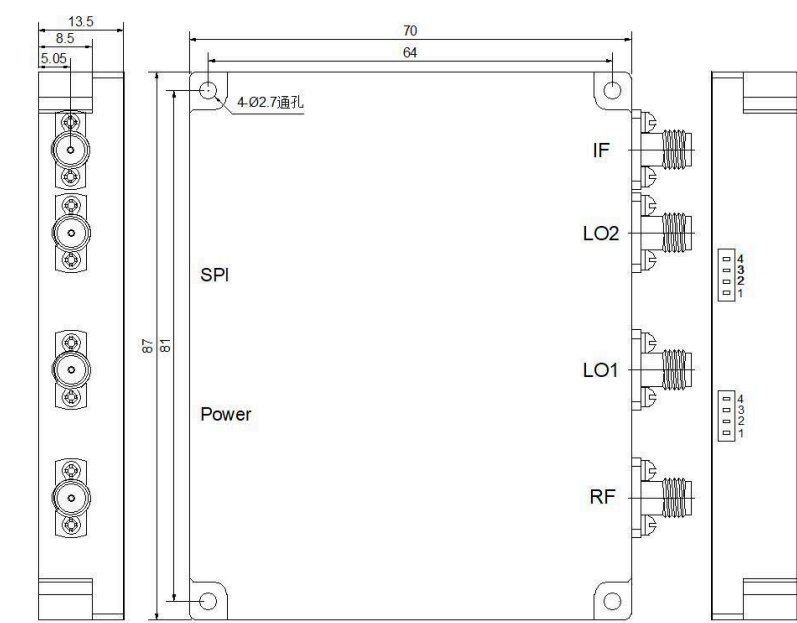
Control and filter selection

Parameter	Value	Unit	Notes
SPI data rate	2 / 10	Mbps	Typical: 2 Mbps. Maximum: 10 Mbps.
SPI frame	0xAA 0x55 Data[15:0] 0x44 0xBB	-	Data[15:0] occupies two bytes; further byte order is unspecified.
SPI filter-selection bits	8:C2; 7:C1; 6:C0	-	-
Filter code 000 passband	000 → 1.9–3.2	GHz	Selected filter passband; overall RF operating range remains 2–18 GHz.
Filter code 001 passband	001 → 2.2–3.7	GHz	Selected filter passband; overall RF operating range remains 2–18 GHz.
Filter code 010 passband	010 → 2.7–4.6	GHz	Selected filter passband; overall RF operating range remains 2–18 GHz.
Filter code 011 passband	011 → 3.6–6.1	GHz	Selected filter passband; overall RF operating range remains 2–18 GHz.
Filter code 100 passband	100 → 5.1–8.9	GHz	Selected filter passband; overall RF operating range remains 2–18 GHz.
Filter code 101 passband	101 → 7.9–13.8	GHz	Selected filter passband; overall RF operating range remains 2–18 GHz.
Filter code 110 passband	110 → 12.8–18	GHz	Selected filter passband; overall RF operating range remains 2–18 GHz.
SPI module-enable bit	5: EN	-	1: module on; 0: module off.
SPI attenuation bits	4:8; 3:4; 2:2; 1:1; 0:0.5	dB	Each bit: 1 enables its attenuation step; 0 disables it.
SPI unused bits	9–15	-	Source marks these data bits as having no meaning.
SPI power-down data state	0	-	Set all data bits to 0 when powered off.

Mechanical specifications

Parameter	Value	Unit
Body dimensions	87 × 70 × 13.5	mm
Weight	≤500 (Maximum: 500 g.)	g
Housing material	Nickel-plated aluminum.	-
Mounting-hole center spacing	81 × 64	mm
Mounting holes	4 × Φ2.7 (Through holes.)	mm

Mechanical Outline



All dimensions are in mm [in].

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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.