20–3600 MHz Dual-Conversion RF Downconverter Module

Convert 20–3600 MHz RF to a 153.6 MHz wideband IF or a 140 MHz narrowband IF. Three SPI-selectable modes provide 45, 30 or 10 dB conversion gain, each specified at ±2 dB.



RF performance

Parameter	Specification
RF input frequency	20–3600 MHz
Tuning resolution	10 kHz
Frequency switching time	≤100 µs
Frequency accuracy	≤0.1 ppm · over full operating temperature range
Phase noise	≤−120 dBc/Hz · fRF = 1000 MHz; Δf = 10 kHz
Noise figure	≤8 dB · Low-noise mode
RF attenuation	0–30 dB · Δ = 1 dB
IF attenuation	0–30 dB · Δ = 1 dB
IF rejection	≥90 dB
Image rejection	≥90 dB
IIP2	≥+65 dBm · typical · Low-distortion mode
IIP3	≥+25 dBm · typical · Low-distortion mode
OP1dB	≥+15 dBm
Z_0	50 Ω
Internal spurious level	≤−115 dBm · typical · input-referred

Operating modes and conversion gain

Parameter	Specification
Low-noise mode	45 ±2 dB
Normal mode	30 ±2 dB · power-on mode
Low-distortion mode	10 ±2 dB

IF output

Parameter	Specification
Wideband IF	153.6 MHz · BW = 80 MHz / 40 MHz
Narrowband IF	140 MHz · BW = 0.5 MHz
Filter shape factor	≤1.5
In-band amplitude variation	≤3 dB

Reference and clock

Parameter	Specification
Internal reference	100 MHz
External reference input	10 / 100 MHz
Reference selection	Automatic
CLK_OUT	204.8 MHz · +4 ±2 dBm
REF_OUT	Reference output

Power supply

Parameter	Specification
DC supply voltage	+12 VDC (±5%)
Maximum supply current	≤1.2 A
DC / SPI	J30J-9ZKP
Power-on tuning	500 MHz · RF ATT = 10 dB · IF ATT = 20 dB · BW = 80 MHz

SPI control and pin assignments

Parameter	Specification
1	SCK
2	SDI
3	/SS
4	SDO
5	NC
6, 7	+12 V
8, 9	GND

Environmental limits

Parameter	Specification
Operating temperature	−40 … +60 °C
Storage temperature	−58 … +85 °C

Mechanical dimensions

Parameter	Specification
Enclosure, excluding connectors	100 × 100 × 18 mm
General dimensional tolerance	±0.2 mm · for dimensions without individual tolerances
Individual tolerances shown	100 ±0.05 / 18 ±0.05 mm
Maximum weight	≤0.6 kg
RF	SMA-K
Mounting holes	4 × Ø2.7 mm
Hole centre spacing shown	95.1 mm

Mechanical Outline



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.