

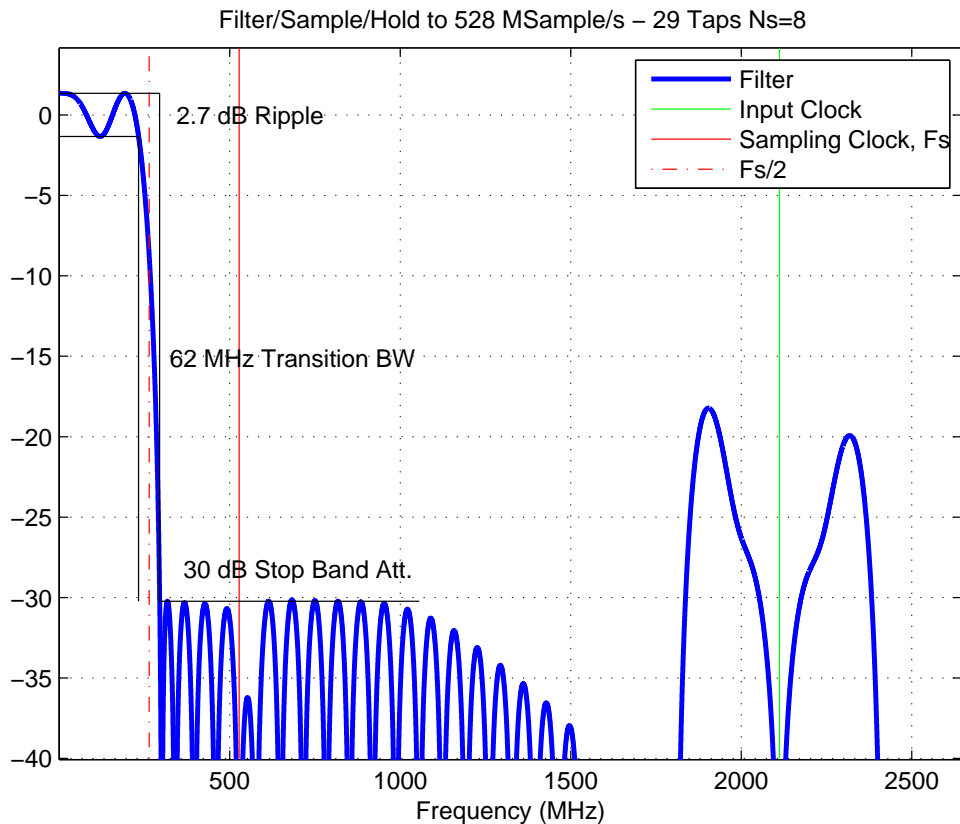
*"The Industry's Most Selective On-chip, Wide band,
Low Pass Filter for W-USB"*

Features

- Frequency from DC to 233 MHz
- Passband Ripple 2.7 dB
- Stopband Attenuation 30 dB
- Transition Bandwidth 62 MHz
- Sampling Rate 528 Msps
- 29 Tap Coefficients
- Spurious Free Dynamic Range 60 dB
- Low Noise Figure 6 dB
- No Group Delay Distortion
- Programmable Gain 0 to 30 dB in 2 dB steps
- 1.8 V Operation
- Die Area 0.5 by 0.5 mm
- Reduces ADC Sample Rates and Resolution

Applications

- W-USB



KR-SIF-LP-233-02 W-USB Sampled-IF Filter Transfer Function

W-USB Sampled-IF Filter

KR-SIF-LP-233-02 Preliminary Data Sheet

Description

The Kaben KR-SIF-LP-233-02 filter is the industry's first on-chip analog filter for W-USB application. This receiver cell is a key building block for wide bandwidth and no phase dispersion, such as for W-USB.

Kaben's unique filter offers a passband frequency of DC to 233 MHz. The FIR filter gives linear phase and no group delay distortion. The gain can be varied between 30 and 44 dB in 2 dB steps to accommodate a wide range of input signal levels.

The sharp transition bandwidth allows sampling at the minimum rate of 528 Msps without additional digital filtering.

Unlike a traditional digital FIR filter, the KR-SIF-LP-233-02 provides $\sin x/x$ attenuation (approximately 20 dB) of any signal located at the aliased sidebands about the sampling clock frequency. The Anti-Alias filter also allows for out-of-band signals to be larger than the 60 dB dynamic range.

Support

For system's design, we provide a kit that includes high-level models in Matlab/Simulink, Systemview, and Verilog-A. System-level models offer various modes of abstraction for flexibility in simulation speed vs. accuracy.

At the circuit design level, we deliver GDS II files and a Cadence library containing schematics, symbols, and cell layouts.

The Filter IP block can be available in most popular technologies.

Electrical Characteristics

Parameter	Conditions	Min	Typ	Max	Units
Passband Frequency		DC		233	MHz
Passband Ripple				2.7	dB
Stopband Attenuation			30		dB
Transition Bandwidth			62		MHz
Sampling Rate			528		MHz
Spurious Free Dynamic Range				60	dB
Noise Figure			10		dB
Gain	2 dB steps	30		44	dB
Digital Supply Voltage		1.6		1.8	V
Analog Supply Voltage		1.6		1.8	V
Operating Temperature		-40		85	°C

