Achieving Low Power and High Speed in Paging System
IF IC for High-Speed Paging Systems

CXA3117N, CXA3176N, CXA3179N

High-speed paging systems that employ M-ary signals are about to enter service.
Sony strongly supports this new service with three IF ICs: the CXA3117N, the CXA3176N, and the CXA3179N.
The CXA3117N, which adopts a comparator system that does not require an A/D converter, and the CXA3179N, which supports AFC, can contribute significantly to parts count reductions and thus reduced production costs.
The CXA3176N implements a high-speed paging system that uses an A/D converter and supports AFC.

- **Low current consumption (CXA3117N/CXA3176N/CXA3179N)**
- **No A/D converter required in comparator system adopted (CXA3117N/CXA3179N)**
- **AFC support (CXA3176N/CXA3179N)**
- **RSSI dynamic range: 70 dB, detector output: 600 mVrms (CXA3176N)**

Low Current Consumption

At the same time as incorporating both a comparator that supports M-ary high-speed paging systems and a variable cut-off bit rate filter that responds to changes in the data rate, these products achieve a current consumption that is 20% lower than that of the POCSAG system based CXA1484AN.

Comparator System does not Require an A/D Converter

In the first generation of M-ary high-speed paging systems, the output of the detector was input to an A/D converter to acquire the two bits of data in the signal. However, the comparator-based system used in these products uses three comparators to perform a signal-processing operation equivalent to A/D conversion and acquire the two bits of digital data. This allows circuits that were previously implemented as two chips, an IF IC and an A/D converter, to be implemented in a single IF IC.

AFC Support

A circuit that cancels the frequency offset of the receiver oscillator is required in 900-MHz band paging systems and in narrow band systems. The CXA3176N and CXA3179N include an offset detection circuit that uses S-curve characteristics, and implement an AFC circuit by feeding back the output of this circuit to the first oscillator.

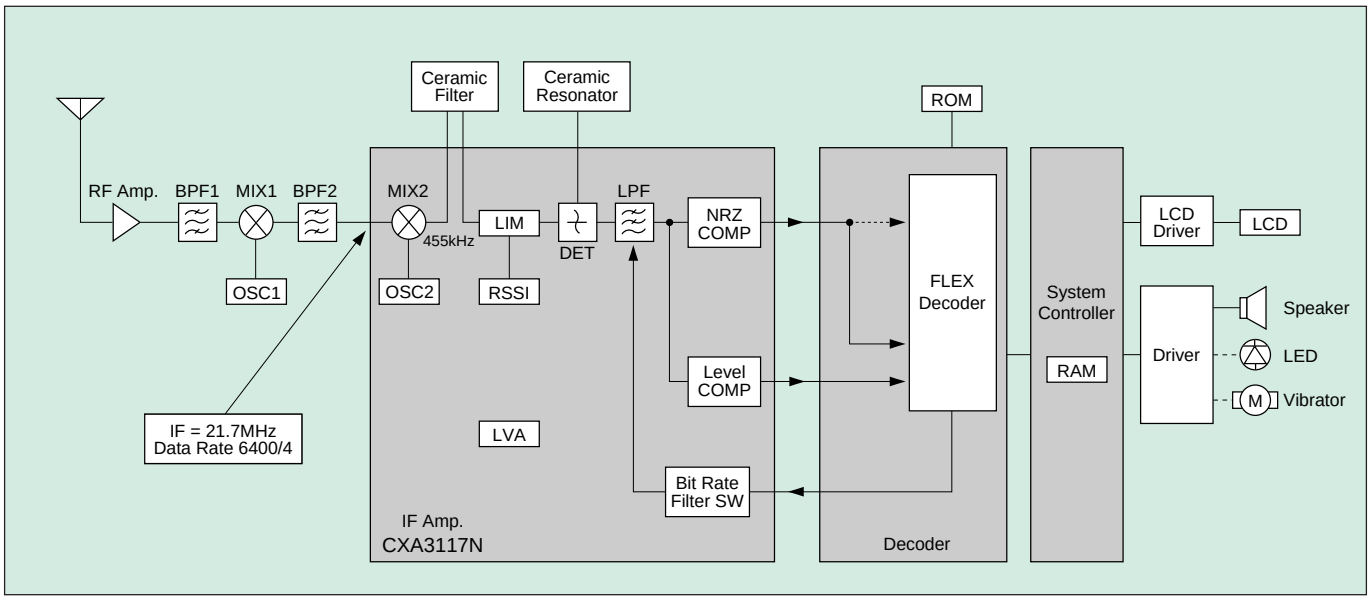
RSSI Dynamic Range: 70 dB, Detector Output: 600 mVrms

In addition to providing the extremely wide RSSI dynamic range of 70 dB, the CXA3176N also features excellent temperature characteristics. These allow the CXA3176N to be used in a wide range of applications. Furthermore, the CXA3176N detector output operating point is automatically adjusted to achieve an optimal dynamic range in response to the supply voltage.

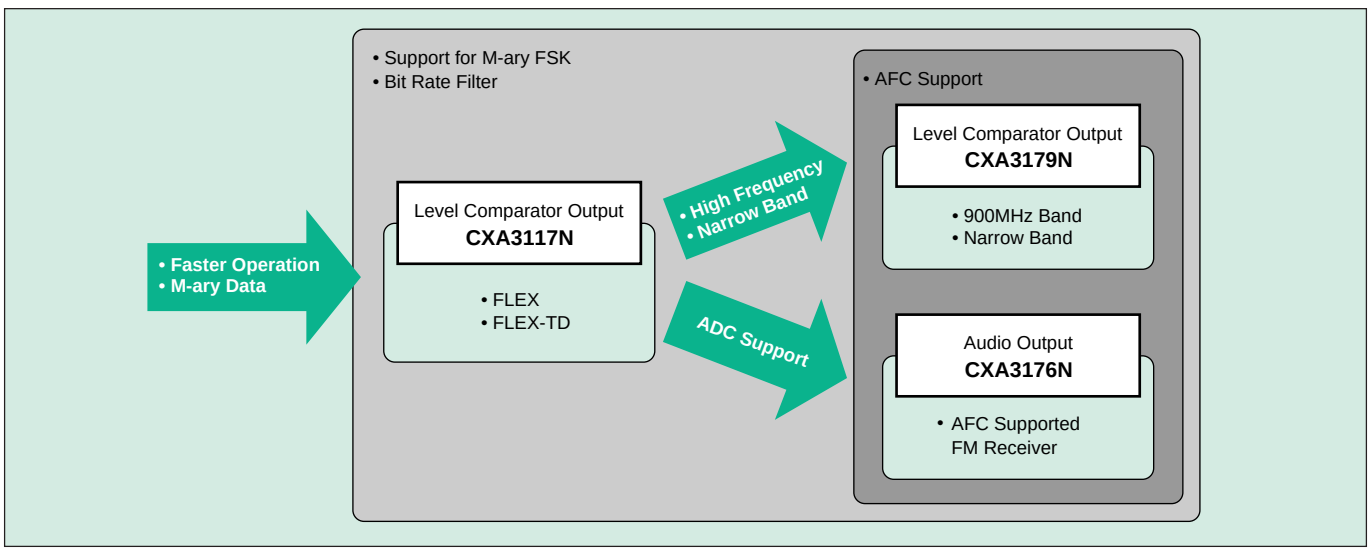
V O I C E

I am convinced that the comparator system proposed by Sony and used in the CXA3117N and CXA3179N will become the mainstream in M-ary paging systems in the future. I think that once you have tried these devices you will appreciate the validity of this system. Please look into these products for use in your systems.

New Products



■ **Figure 1 High-Speed Paging System**



■ **Figure 2 High-Speed Paging IF Amplifiers**

■ **Table 1 Lineup for High-Speed Paging System Supported IC**

Product name	CXA3117N	CXA3176N	CXA3179N
system	Double conversion		
Operating supply voltage (V)	1.1 to 4.0	$V_{CC}1$: 1.1 to 4.0 $V_{CC}2$: 2.5 to 4.0	1.1 to 4.0
Current consumption (mA)	1.1	$V_{CC}1$: 0.95 $V_{CC}2$: 0.2	1.1
Package	24-pin SSOP		
Features	• Regulator output for use by the front-end circuit • Built-in second mixer • RSSI function defecting the weak signal level Dynamic range: 45 dB (typ.) • Misoperation prevention function for continuous data • Bit rate filter switching • Level comparator output	• Regulator output for use by the front-end circuit • Built-in second mixer • RSSI function defecting the weak signal level Dynamic range: 70 dB (typ.) • AFC function • Standard audio output level: about 600 mVrms	• Regulator output for use by the front-end circuit • Built-in second mixer • RSSI function defecting the weak signal level Dynamic range: 45 dB (typ.) • AFC function • Bit rate filter switching • Level comparator output
Applications	IF amplifier in M-ary FSK pagers	IF amplifier in AFC supported FM receivers	IF amplifier in 900-MHz band and narrow band M-ary FSK pagers