

# BA4112

# FM-IF detector

The BA4112 IC is a narrow band FM-IF detection IC that is designed to be used in FM transceivers.

## Features

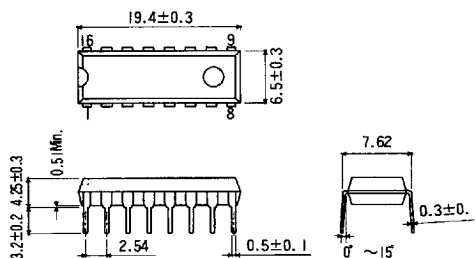
- available in a DIP16 package that is compatible with Motorola part no. MC3357P
- low power consumption (typically 3.0 mA)
- limiting sensitivity is typically  $-3$  dB at  $5.0 \mu\text{V}$
- circuit between 2nd mixer and detector output requires few external components, which allows smaller transceiver sizes

## Applications

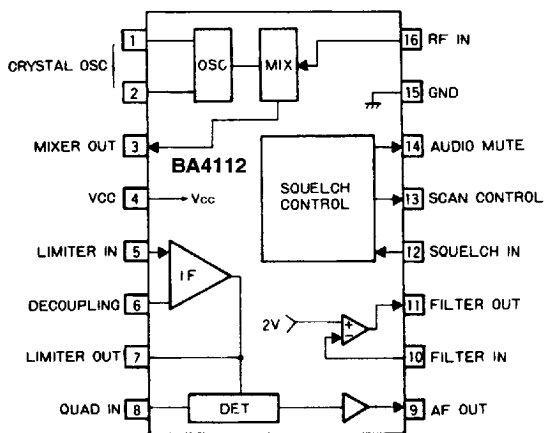
- VHF-band FM transceivers
- cordless telephones

## Dimensions (Units : mm)

### BA4112 (DIP16)



## Block diagram



**Absolute maximum ratings (T<sub>a</sub> = 25°C)**

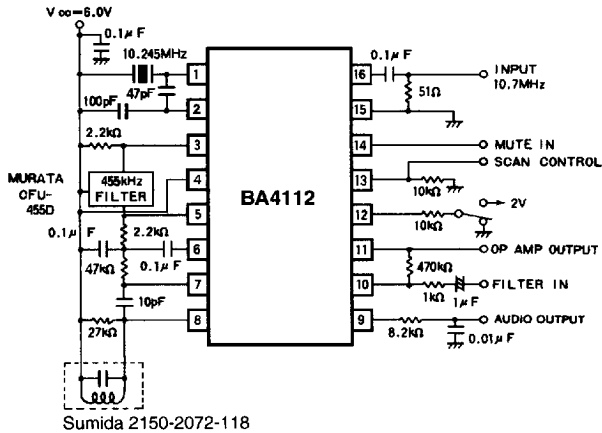
Parameter	Symbol	Limits	Unit	Conditions
Power supply voltage	V <sub>CC</sub>	12	V	
Power dissipation	P <sub>d</sub>	500	mW	Reduce power by 5 mW/°C for each degree above 25°C.
Operating temperature	T <sub>opr</sub>	-10 ~ +60	°C	
Storage temperature	T <sub>stg</sub>	-25 ~ +75	°C	

**Electrical characteristics (unless otherwise noted, T<sub>a</sub> = 25°C, V<sub>CC</sub> = 6.0 V, f<sub>IN</sub> = 10.7 MHz, Δf = ±3 kHz, f<sub>m</sub> = 1 kHz)**

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Quiescent current	I <sub>Q</sub>	2.0	3.0	5.0	mA	No signal, squelch on
20 dB signal/noise sensitivity	20 dB S/N	15	-20	25	dBμV	
Detector output level	V <sub>ODC</sub>	250	350	500	mV	V <sub>IN</sub> = 80 dBμV
Detector output distortion	THD		1.8	3.0	%	V <sub>IN</sub> = 80 dBμV
Detector output DC voltage	V <sub>ODC</sub>	2.0	3.0	4.0	V	V <sub>IN</sub> = 0 V
Detector output impedance	Z <sub>OUT</sub>	280	400	520	Ω	
Filter amplifier gain	G <sub>V</sub>	41	46		dB	V <sub>IN</sub> = 1 mV 10 kHz
Filter output DC voltage	V <sub>ODC-f</sub>	1.5	2.0	2.5	V	
Squelch hysteresis	Hys	50	100	150	mV	
Mute low resistance	R <sub>mL</sub>		10	50	Ω	V <sub>I2</sub> = GND
Mute high resistance	R <sub>mH</sub>	1.0	10		MΩ	V <sub>I2</sub> = 2.0 V
Scan low voltage	V <sub>ScL</sub>		0	0.5	V	V <sub>I2</sub> = 2.0 V
Scan high voltage	V <sub>ScH</sub>	3.0	5.0	5.9	V	V <sub>I2</sub> = GND
Mixer conversion gain	A <sub>vm</sub>	17	20		dB	f <sub>IN</sub> = 10.7 MHz

**Note:** For the test circuit, see Figure 1

**Figure 1 Test circuit**



**Figure 2 Application example**

