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

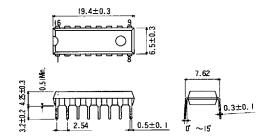
- available in a DIP16 package that is compatible with Motorola part no. MC3357P
- low power consumption (typically 3.0 mA)
- limiting sensitivity is typically –3 dB at 5.0 μV
- circuit between 2nd mixer and detector output requires few external components, which allows smaller transceiver sizes

Applications

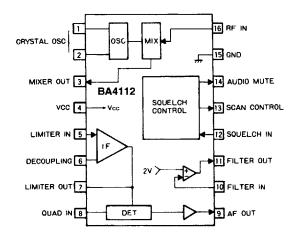
- VHF-band FM transceivers
- cordless telephones

Dimensions (Units:mm)

BA4112 (DIP16)



Block diagram



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Absolute maximum ratings ($T_a = 25$ °C)

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

Electrical characteristics (unless otherwise noted, T_a = 25°C, V_{CC} = 6.0 V, f_{IN} = 10.7 MHz, Δf = ± 3 kHz, f_m = 1 kHz)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Quiescent current	ΙQ	2.0	3.0	5.0	mA	No signal, squelch on
20 dB signal/noise sensitivity	20 dB S/N	15	-20	25	dΒμV	
Detector output level	V _{ODC}	250	350	500	mV	$V_{IN} = 80 \text{ dB}\mu\text{V}$
Detector output distortion	THD		1.8	3.0	%	$V_{IN} = 80 \text{ dB}\mu\text{V}$
Detector output DC voltage	V _{ODC}	2.0	3.0	4.0	V	V _{IN} = 0 V
Detector output impedance	Z _{OUT}	280	400	520	Ω	
Filter amplifier gain	G∨	41	46		dB	$V_{IN} = 1 \text{ mV } 10 \text{ kHz}$
Filter output DC voltage	V _{ODC-f}	1.5	2.0	2.5	V	
Squelch hysteresis	Hys	50	100	150	mV	
Mute low resistance	R _m L.		10	50	Ω	$V_{12} = GND$
Mute high resistance	R _m H	1.0	10		ΜΩ	$V_{12} = 2.0 \text{ V}$
Scan low voltage	V _{Sc} L		0	0.5	V	$V_{12} = 2.0 \text{ V}$
Scan high voltage	V _{Sc} H	3.0	5.0	5.9	V	V ₁₂ = GND
Mixer conversion gain	Avm	17	20		dB	f _{IN} = 10.7 MHz

Note: For the test circuit, see Figure 1

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Figure 1 Test circuit

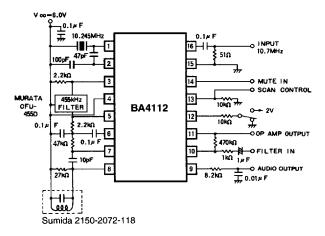


Figure 2 Application example

