

INTRODUCTION

The KA3361B is designed for use in FM dual conversion communication. It contains a complete narrow band FM demodulation system operable to less than 2.5V supply voltage. This low-power narrow-band FM IF system provides the second converter, second IF, demodulator. Filter Amp and squelch circuitry for communications and scanning receivers.

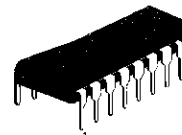
FEATURES

- Low power consumption (4.0mA typ. at $V_{CC} = 4.0V$)
- Excellent input sensitivity (-3dB limiting, $2.0 \mu V_{rms}$ typ)
- Minimum number of external components required.
- Operating Voltage : 2.5 ~ 7.0V

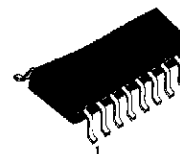
APPLICATIONS

- Cordless phone (for home use)
- FM dual conversion communications equipment

16-DIP-300A



16-SOP-225



ORDERING INFORMATION

Device	Package	Operating Temperature
KA3361B	16-DIP-300A	-20 ~ +70°C
KS3361BD	16-SOP-225	

PIN CONFIGURATION

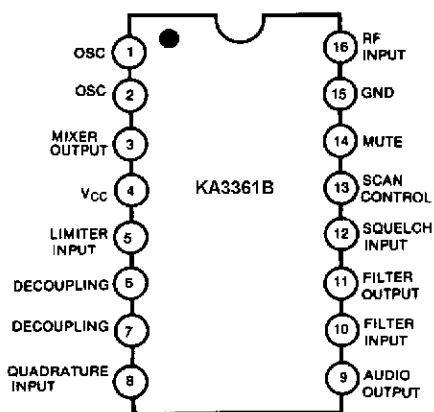


Fig. 1

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Value	Unit
Max. Supply Voltage	$V_{CC(MAX)}$	10	V
Supply Voltage Range	V_{CC}	2.5 to 7.0	V
Detector Input Voltage	$V_{I(DET)}$	1.0	$V_{p,p}$
RF Input Voltage ($V_{CC} \geq 4.0\text{V}$)	$V_{I(RF)}$	1.0	V_{rms}
Mute Function	V_{MUTE}	-0.5 ~ +5.0	V_{peak}
Operating Temperature	T_{OPR}	-20 ~ +70	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 ~ +150	$^\circ\text{C}$

Absolute maximum ratings are those values beyond which permanent damage to the device may occur. These are stress ratings only and functional operation of the device at or beyond them is not implied. Long exposure to these conditions may affect device reliability.

ELECTRICAL CHARACTERISTICS

($V_{CC} = 4.0\text{V}$, $f_o = 10.7\text{MHz}$, $\Delta f = \pm 3\text{KHz}$, $f_{MOD} = 1\text{KHz}$, $T_a = 25^\circ\text{C}$, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Operating Current	I_{CC}	Squelch off ($V_{12} = 2\text{V}$) Squelch on ($V_{12} = \text{GND}$)	—	4.0 6.0	—	mA mA
Input Limiting Voltage	$V_{I(LIM)}$	-3.0dB limiting	—	2.0	—	μV
Detector Output Voltage	$V_{O(DET)}$	—	—	2.0	—	V_{dc}
Detector Output Impedance	$Z_{O(DET)}$	—	—	400	—	Ω
Audio Output Voltage	V_O	$V_{in} = 10\text{mV}$	100	160	—	mV_{rms}
Filter Gain	G_V	$f = 10\text{KHz}$, $V_{in} = 5\text{mV}$	40	48	—	dB
Filter Output DC Voltage	$V_{O(DC)}$	—	—	1.5	—	V_{dc}
Trigger Hysteresis of Filter	V_{TH}	—	—	50	—	mV
Mute Switch-on Resistance	$R_{ON(MUTE)}$	Mute "Low"	—	10	—	Ω
Mute Switch-off Resistance	$R_{OFF(MUTE)}$	Mute "High"	—	10	—	$\text{M}\Omega$
Scan Control "Low" Output	$V_{L(SCAN)}$	Mute off ($V_{12} = 2\text{V}$)	—	—	0.5	V_{dc}
Scan Control "High" Output	$V_{H(SCAN)}$	Mute on ($V_{12} = \text{GND}$)	3.0	—	—	V_{dc}
Mixer Conversion Gain	$G_{V(MIXER)}$	—	—	24	—	dB
Mixer Input Resistance	$R_{I(MIXER)}$	—	—	3.3	—	$\text{k}\Omega$
Mixer Input Capacitance	$C_{I(MIXER)}$	—	—	2.2	—	pF

The schematic diagram illustrates the pin configuration and external components for the KA3361B integrated circuit. The IC is represented by a central block with 16 pins, numbered 1 through 16. The connections are as follows:

- Pin 1:** Connected to a 10.245MHz oscillator circuit, which includes a 220pF capacitor and a 455KHz filter.
- Pin 2:** Connected to a 220pF capacitor.
- Pin 3:** Connected to a 455KHz filter.
- Pin 4:** Connected to a 0.1μF capacitor.
- Pin 5:** Connected to a 0.1μF capacitor.
- Pin 6:** Connected to a 0.1μF capacitor.
- Pin 7:** Connected to a 0.1μF capacitor.
- Pin 8:** Connected to a 20K resistor and a QUAD COIL TOKO TYPE RMC 2A6597HM.
- Pin 9:** Connected to a 0.1μF capacitor.
- Pin 10:** Connected to a 102 resistor, a 470K resistor, a 1N4148 diode, a 750 resistor, a 0.1μF capacitor, and a 510Ω resistor.
- Pin 11:** Connected to a 0.1μF capacitor.
- Pin 12:** Connected to a 120K resistor, a 50K resistor, a 5K resistor, and a 3.3μF capacitor.
- Pin 13:** Connected to a 5K resistor.
- Pin 14:** Connected to a 5K resistor.
- Pin 15:** Connected to a 0.01μF capacitor and a 51 resistor.
- Pin 16:** Connected to a 0.01μF capacitor.

The diagram also shows the connection of the RF INPUT, SCAN CONTROL, SQUELCH SENSITIVITY, AUDIO VOLUME, and AUDIO OUT signals to the IC. The Vcc supply is connected to pins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16.

In the above typical application, the audio signal is recovered using a conventional quadrature FM detector. The absence of an input signal is indicated by the presence of noise above the desired audio frequencies. This "noise band" is monitored by an active filter and a detector. A squelch trigger circuit indicates the presence of noise (or a tone) by an output which can be used to control scanning. At the same time, an internal switch is operated which can be used to mute the audio.

Dimensions in Millimeters

