

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.

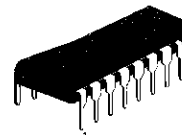
FEATURES

- 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

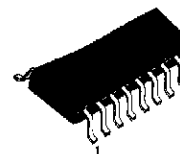
APPLICATIONS

- 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

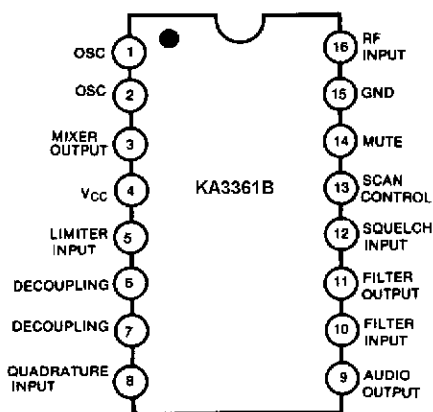


Fig. 1

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 diagram shows the KA3361B integrated circuit with 16 pins. The connections are as follows:

- Pin 1:** Connected to V_{CC} .
- Pin 2:** Connected to a 10.245MHz crystal oscillator circuit, which includes a 220pF capacitor and a 98pF capacitor.
- Pin 3:** Connected to a 455KHz FILTER.
- Pin 4:** Connected to the 455KHz FILTER.
- Pin 5:** Connected to the 455KHz FILTER.
- Pin 6:** Connected to a 0.1μF capacitor.
- Pin 7:** Connected to a 0.1μF capacitor.
- Pin 8:** Connected to a 20K resistor, which is part of a QUAD COIL TOKO TYPE RMC 2A6597HM circuit.
- Pin 9:** Connected to a 0.1μF capacitor.
- Pin 10:** Connected to a 0.1μF capacitor.
- Pin 11:** Connected to a 102 resistor, a 470K resistor, and a 750 resistor.
- Pin 12:** Connected to a 0.1μF capacitor.
- Pin 13:** Connected to a 51K resistor, labeled SCAN CONTROL.
- Pin 14:** Connected to a 50K resistor.
- Pin 15:** Connected to a 0.01μF capacitor and a 51 resistor, labeled RF INPUT.
- Pin 16:** Connected to V_{CC} .

Other components and labels include:

- QUAD COIL TOKO TYPE RMC 2A6597HM:** A component connected to pins 8 and 9.
- 1N4148:** A diode connected to pins 11 and 12.
- 51K, 50K, 51, 120K, 68K, 3.3μF, 10K, 0.01μF, 0.1μF, 20K, 102, 470K, 750, 510μF, 8 2K:** Various resistors and capacitors used in the circuit.
- RF INPUT:** The input for the radio frequency signal.
- SCAN CONTROL:** A control input for the scan function.
- SQUELCH SENSITIVITY:** A control input for the squelch sensitivity.
- AUDIO VOLUME:** A control input for the audio volume.
- AUDIO OUT:** The output for the audio signal.

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

