

MC3361

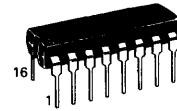
**LOW POWER
 FM IF**

**SILICON MONOLITHIC
 INTEGRATED CIRCUIT**

LOW POWER NARROW BAND FM IF

... includes Oscillator, Mixer, Limiting Amplifier, Quadrature Discriminator, Active Filter, Squelch, Scan Control, and Mute Switch. The MC3361 is designed for use in FM dual conversion communications equipment.

- Operates From 2.0 V to 8.0 V Supply
- Low Drain Current 4.2 mA Typ @ $V_{CC} = 4.0$ Vdc
- Excellent Sensitivity: Input Limiting Voltage —
 -3.0 dB = 2.0 μ V Typ
- Low Number of External Parts Required
- Operating Frequency Up to 60 MHz

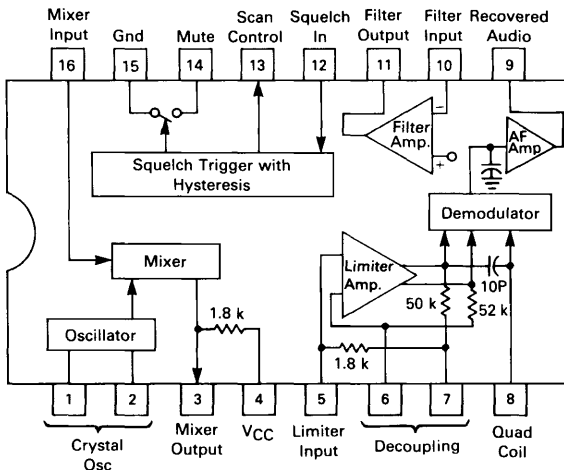


**P SUFFIX
 PLASTIC PACKAGE
 CASE 648-08**

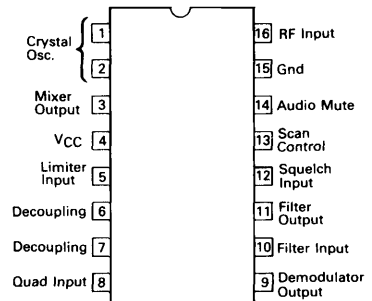


**D SUFFIX
 PLASTIC PACKAGE
 CASE 751B-03
 SO-16**

FIGURE 1 — FUNCTIONAL BLOCK DIAGRAM



PIN CONNECTIONS



MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise noted)

Rating	Pin	Symbol	Value	Unit
Power Supply Voltage	4	$V_{CC(\text{max})}$	10	Vdc
Operating Supply Voltage Range	4	V_{CC}	2.0 to 8.0	Vdc
Detector Input Voltage	8	—	1.0	V _{p-p}
Input Voltage ($V_{CC} \geq 4.0$ Volts)	16	V_{16}	1.0	V _{rms}
Mute Function	14	V_{14}	-0.5 to +5.0	V _{pk}
Junction Temperature	—	T_J	150	$^\circ\text{C}$
Operating Ambient Temperature Range	—	T_A	-30 to +70	$^\circ\text{C}$
Storage Temperature Range	—	T_{stg}	-65 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($V_{CC} = 4.0$ Vdc, $f_o = 10.7$ MHz, $\Delta f = \pm 3.0$ kHz, $f_{\text{mod}} = 1.0$ kHz, $T_A = 25^\circ\text{C}$, unless otherwise noted.)

Characteristic	Pin	Min	Typ	Max	Unit
Drain Current (No signal)	4	—	—	—	mA
Squelch Off		—	4.2	7.0	
Squelch On		—	5.2	9.0	
Recovered Audio Output Voltage ($V_{iN} = 10$ mV _{rms})	9	100	150	270	mV _{rms}
Input Limiting Voltage (-3.0 dB Limiting)	16	—	2.0	6.0	μV
Total Harmonic Distortion	9	—	0.8	—	%
Recovered Output Voltage (No Input Signal)	9	60	150	—	mV _{rms}
Drop Voltage AF Gain Loss	9	-8.0	-0.5	—	dB
Detector Output Impedance	—	—	450	—	Ω
Filter Gain (10 kHz) ($V_{iN} = 0.3$ mV _{rms})	—	40	49	—	dB
Filter Output Voltage	11	—	1.7	—	Vdc
Mute Function Low	14	—	10	50	Ω
Mute Function High	14	1.0	10	—	M Ω
Scan Function Low (Mute Off) ($V_{12} = 1.0$ Vdc)	13	—	0	0.5	Vdc
Scan Function High (Mute On) ($V_{12} = \text{Gnd}$)	13	3.0	3.5	—	Vdc
Trigger Hysteresis	—	—	45	100	mV
Mixer Conversion Gain	3	—	28	—	dB
Mixer Input Resistance	16	—	3.3	—	k Ω
Mixer Input Capacitance	16	—	2.2	—	pF

FIGURE 2 — TEST CIRCUIT

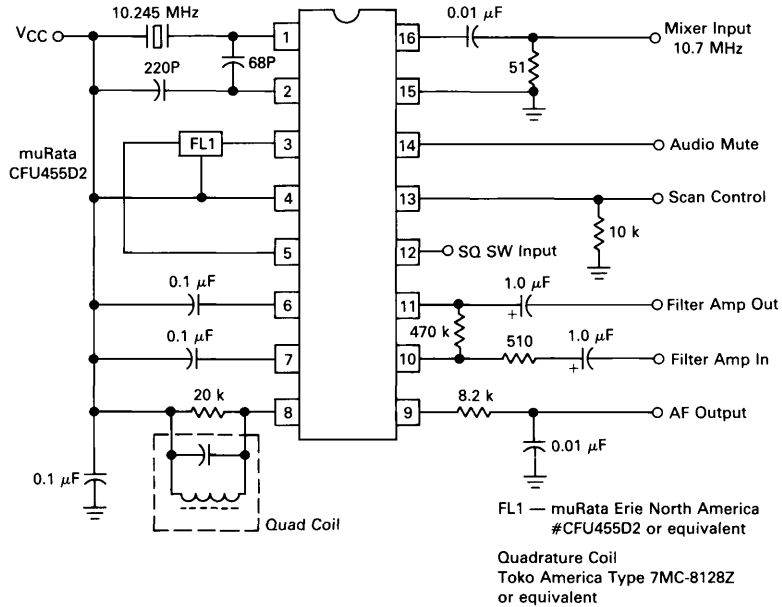


FIGURE 3 — AUDIO OUTPUT, DISTORTION

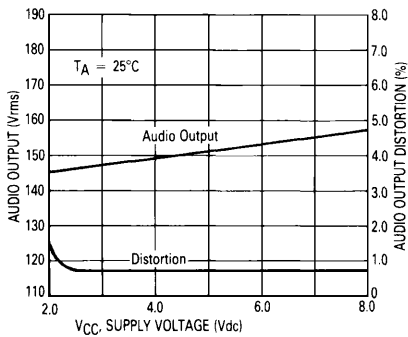


FIGURE 4 — AUDIO OUTPUT, DISTORTION

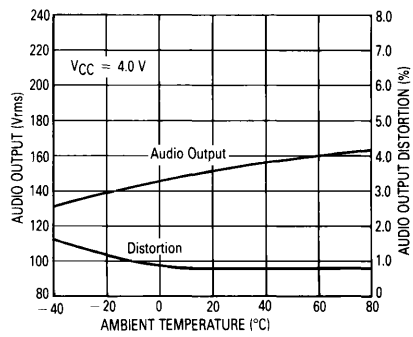
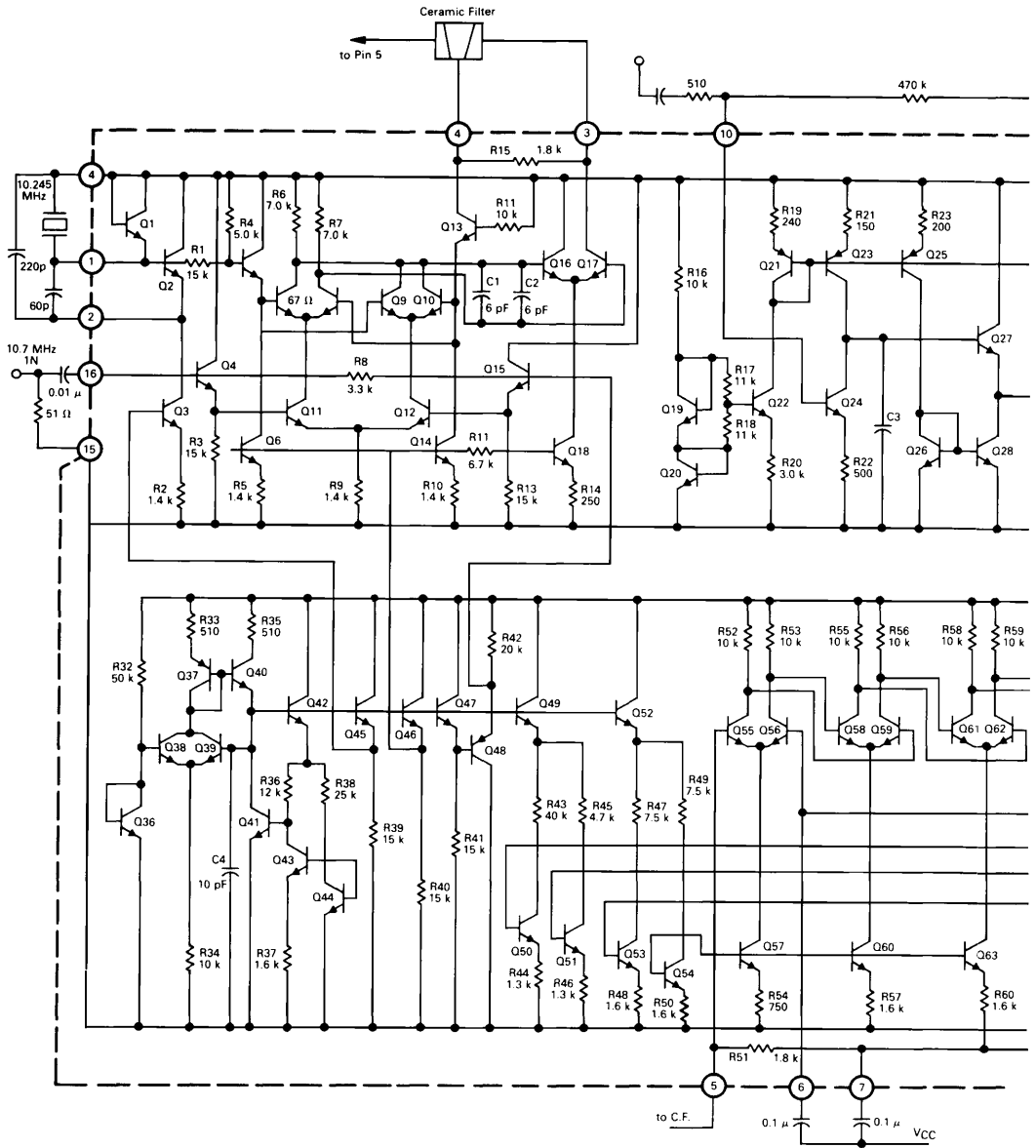
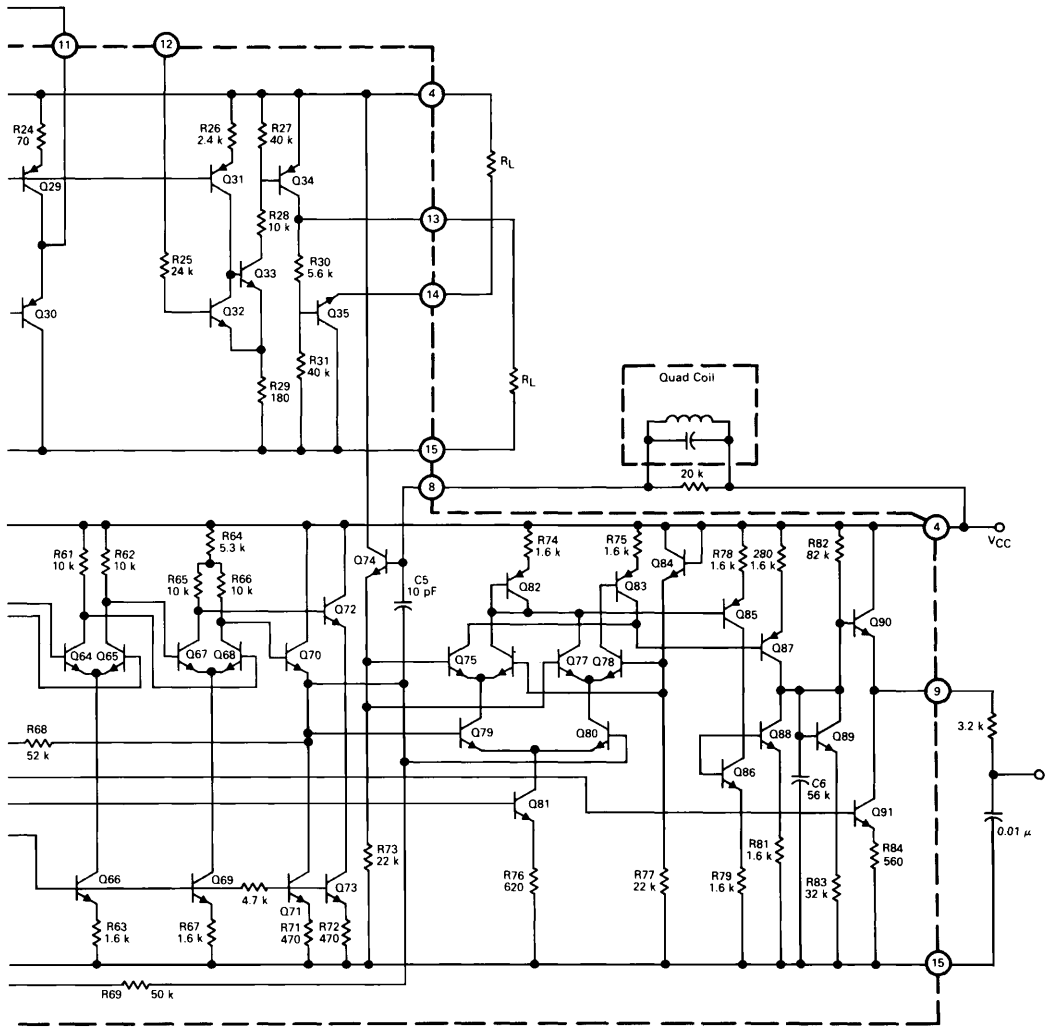


FIGURE 5 — LOW VOLTAGE LOW POWER
NARROW BAND FM IF

CIRCUIT SCHEMATIC



2



2

FIGURE 6 — INPUT LIMITING VOLTAGE

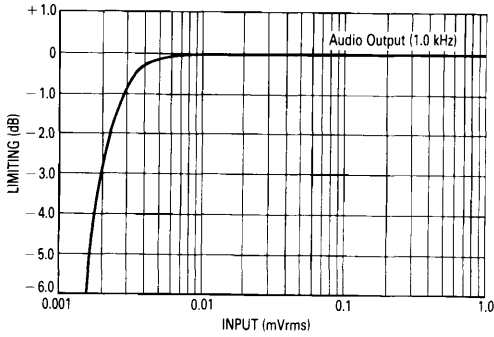


FIGURE 7 — OVERALL GAIN, NOISE, AND A.M. REJECTION

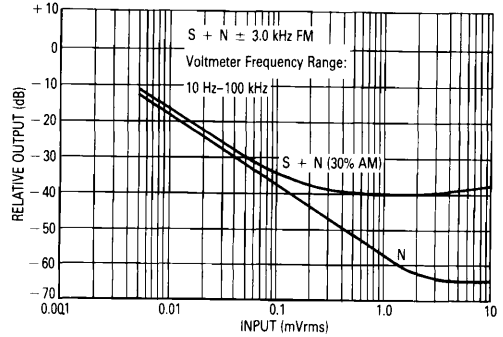


FIGURE 8 — FILTER AMP RESPONSE

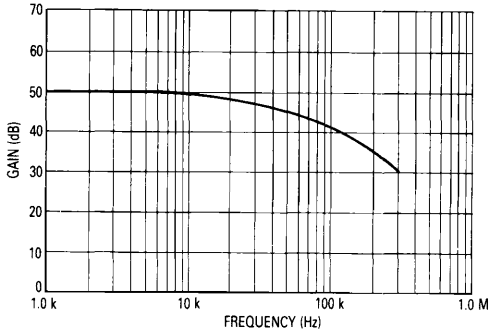


FIGURE 9 — FILTER AMP GAIN

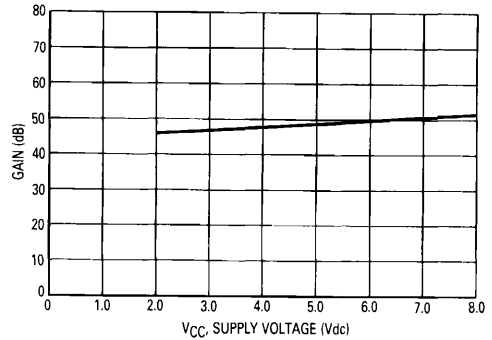


FIGURE 10 — SUPPLY CURRENT

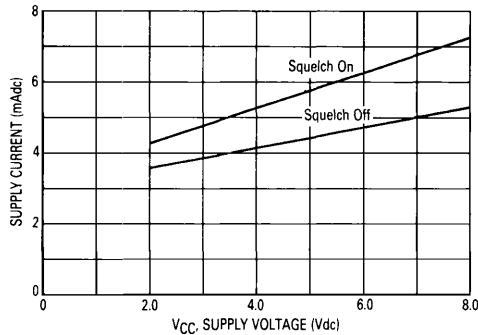
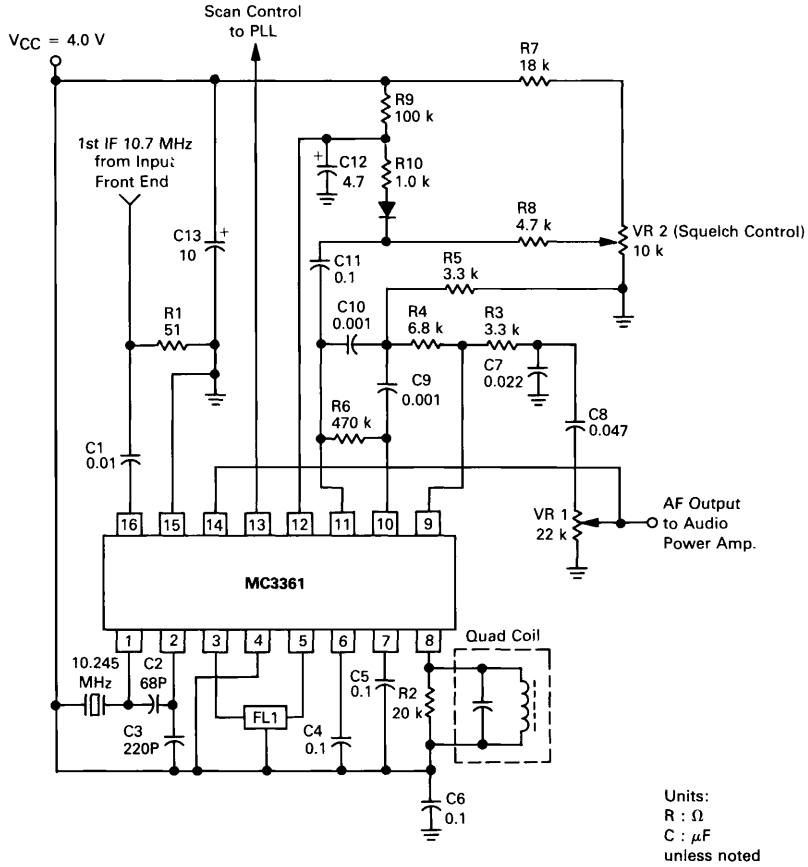


FIGURE 11 — TYPICAL APPLICATION



FL1 muRata Erie North America
Type CFU455D2 or
equivalent

Quadrature Coil
Toko America
Type 7MC-8128Z
or equivalent