

NTE853 Integrated Circuit Low Power, Narrow Band, FM IF System

Description:

The NTE853 is a low power narrow band FM IF system which includes: Oscillator, Mixer, Limiting Amplifier, Quadrature Discriminator, Active Filter, Squelch, Scan Control and Mute Switch. The NTE853 is designed for use in FM dual conversion communications equipment.

Features:

- Low Drain Current (3mA Typ @ $V_{CC} = 6V$)
- Excellent Sensitivity: Input Limiting Voltage ($-3.0dB$) = $5.0\mu V$ (Typ)
- Low Number of External Parts Required

Absolute Maximum Ratings: ($T_A = +25^\circ C$, unless otherwise specified)

Power Supply Voltage (Pin4), $V_{CC(max)}$ 12V
 Operating Supply Voltage Range (Pin4), V_{CC} 4V to 8V
 Detector Input Voltage (Pin8), $1V_{p-p}$
 Input Voltage ($V_{CC} \geq 6V$, Pin16), V_{16} $1V_{RMS}$
 Mute Function (Pin14), V_{14} $-0.5V$ to $5V_{pk}$
 Operating Junction Temperature, T_J $+150^\circ C$
 Operating Ambient Temperature Range, T_A -30° to $+70^\circ C$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ C$

Electrical Characteristics: ($V_{CC} = 6V$, $f_O = 10.7MHz$, $\Delta f = \pm 3kHz$, $f_{mod} = 1kHz$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Pin	Test Conditions	Min	Typ	Max	Unit
Drain Current, Squelch OFF	4		—	2	—	mA
Drain Current, Squelch ON	4		—	3	5	mA
Input Limiting Voltage	16	$-3dB$ Limiting	—	5	10	μV
Detector Output Voltage	9		—	3	—	V
Detector Output Impedance	—		—	400	—	Ω
Recovered Audio Output Voltage	9	$V_{in} = 10mV$	200	350	—	mV_{rms}

Electrical Characteristics (Cont'd): ($V_{CC} = 6V$, $f_O = 10.7MHz$, $\Delta f = \pm 3kHz$, $f_{mod} = 1kHz$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Pin	Test Conditions	Min	Typ	Max	Unit
Filter Gain	–	$V_{in} = 10mV$, 10kHz	40	46	–	dB
Filter Output Voltage	11		1.8	2.0	2.5	V
Trigger Hysteresis	–		–	100	–	mV
Mute Function, LOW	14		–	15	50	Ω
Mute Function, HIGH	14		1	10	–	$M\Omega$
Scan Function, LOW	13	Mute OFF, $V_{12} = 2V$	–	0	0.5	V
Scan Function, HIGH	13	Mute ON, $V_{12} = GND$	5.0	–	–	V
Mixer Conversion Gain	3		–	20	–	dB
Mixer Input Resistance	16		–	3.3	–	$k\Omega$
Mixer Input Capacitance	16		–	2.2	–	pF

Pin Connection Diagram

