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## 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, $T_A$ .....	$-30^\circ$ to $+70^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ 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	$\mu V$
Detector Output Voltage	9		–	3	–	V
Detector Output Impedance	–		–	400	–	$\Omega$
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	$\Omega$
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**

