

NTE1837 Integrated Circuit TV Tuner Controller

Description:

The NTE1837 is a tuner controller integrated circuit in a 16-Lead DIP type package containing functions such as band switch, inverter, and low-pass filter. This device can be used as a frequency synthesizer or a voltage synthesizer, depending on the external application circuit.

Functions:

- Band Switch (Equivalent to the NTE1658: Refer to the Truth Table)
- Inverter
- Low-Pass Filter (Voltage Follower, Operational Amplifier)

Features:

- 2-Input, 5-Output Band Switch
- Band Switch (NTE1658) Available by Changing Over C Pin
- High Maximum Output Current, Low Saturation Voltage
- Meet CATV Tuner Requirements
- Frequency Synthesizer or Voltage Synthesizer Application depending on Inverter and Operational Amplifier Connections

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

Band Switch

V_{CC1} Maximum Supply Voltage, $V_{16\text{max}}$	18V
V_{CC2} Maximum Supply Current, $I_{1\text{max}}$	10mA
Maximum Load Current	
$I_{12}, I_{13\text{max}}$ ($I_1 = 6\text{mA}$)	-60mA
$I_{14}, I_{15\text{max}}$ ($V_{CC1} = 12\text{V}$)	-60mA
$I_{11\text{max}}$	25mA
Maximum AB Input Current, $I_2, I_{3\text{max}}$	2mA
Maximum Applied Voltage (SW), $V_{11\text{max}}$	35V

Inverter, Operation Amplifier

V_{CC3} Maximum Supply Voltage, $V_{6\text{max}}$	35V
V_{CC3} Maximum Supply Current, $I_{6\text{max}}$	5mA
Maximum Applied Voltage, $V_{8\text{max}}$	35V
Maximum Load Current, $I_{8\text{max}}$	5mA
Maximum Input Voltage, $V_{7\text{max}}$	8V
Maximum Input Current, $I_{7\text{max}}$	1mA
Maximum Input Voltage, $V_{9\text{max}}$	$V_{CC} - 1\text{V}$

Common to 1, 2

Allowable Power Dissipation ($T_A \leq +65^\circ\text{C}$), $P_{d\text{max}}$	600mW
Operating Temperature Range, T_{opr}	-20° to $+65^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+125^\circ\text{C}$

Operating Characteristics: ($T_A = +25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Band Switch						
Quiescent Current	I_{CC}		0	–	9	mA
Output Saturation Voltage	F (sat)		0	–	0.7	V
	SW (sat)		0	–	0.7	V
Input Threshold Voltage	V_{TH}		0.8	1.5	3.0	V
Output Leakage Current	I_L		0	–	–50	μA
Inverter, Operational Amplifier, Zener						
Output Saturation Voltage	$V_{8 \text{ (sat)}}$		0	–	0.3	V
Input Threshold Voltage	V_{TH}		2.5	–	4.5	V
Input Offset Voltage	V_{IO-1}		–100	–	+100	mV
	V_{IO-2}		–100	–	+100	mV
Input Bias Current	I_{BIAS}		–	–	–190	nA

Note 1. Current flowing into IC: Plus (No Sign)
 Current flowing out of IC: Minus

Truth Table

Input			Output				
A (Pin3)	B (Pin2)	C (Pin4)	F1 (Pin15)	F2 (Pin14)	F3 (Pin13)	F4 (Pin12)	SW (Pin11)
L	L	Open	H	Z	Z	Z	Z
H	L	Open	Z	H	Z	Z	L
L	H	Open	Z	Z	H	Z	L
H	H	Open	Z	Z	Z	H	L
L	L	GND	H	Z	Z	H	Z
H	L	GND	Z	H	Z	H	L
L	H	GND	Z	Z	H	Z	L
H	H	GND	Z	Z	H	H	L

Note 2. Z: High Impedance

Pin Connection Diagram

