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## 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°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +125°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Band Switch</b>						
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	$\mu\text{A}$
<b>Inverter, Operational Amplifier, Zener</b>						
Output Saturation Voltage	$V_{8(sat)}$		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

