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NTE1648 and NTE1649 Integrated Circuit Telephone Tone Ringer

Description:

The NTE1648 and NTE1649 are bipolar integrated circuits in an 8-Lead DIP type package designed for telephone bell replacement.

Functions:

- Two Oscillators
- Output Amplifier
- Power Supply Control Circuit

Features:

- Designed for Telephone Bell Replacement
- Low Current Drain
- Small Size 8-Lead MINIDIP Package
- Adjustable 2-Frequency Tone
- Adjustable Warbling Rate
- Built-in Hysteresis Prevents False Triggering and Rotary Dial "CHIRPS"
- Extension Tone Ringer Modules
- Alarms or Other Altering Devices
- External Triggering or Ringer Disable (NTE1648)
- Adjustable for Reduced Supply Initiation Current (NTE1649)

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

| | |
|----------------------------------------------|-----------------------------------------|
| Supply Voltage, V_{CC} | 30V |
| Power Dissipation, P_D | 400mW |
| Operating Temperature Range, T_{opr} | -45° to $+65^{\circ}\text{C}$ |
| Storage Temperature Range, T_{stg} | -65° to $+150^{\circ}\text{C}$ |

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, All voltage referenced to GND unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------------|-----------------|-------------------------------------------------------------------------|-----|------|----------------|---------------|
| Operating Supply Voltage | V_{CC} | | – | – | 29 | V |
| Initiation Supply Voltage | V_{SI} | Note 1 | 17 | 19 | 21 | V |
| Initiation Supply Current | I_{SI} | NTE1649–6.8k–Pin2 to GND, Note 1 | 1.4 | 2.5 | 4.2 | mA |
| Sustaining Voltage | V_{SUS} | Note 2 | 9.7 | 11.0 | 12.0 | V |
| Sustaining Current | I_{SUS} | No Load, $V_{CC} = V_{SUS}$, Note 2 | 0.7 | 1.4 | 2.5 | mA |
| Trigger Voltage | V_{TR} | NTE1648 ONLY, $V_{CC} = 15\text{V}$, Note 3 | 9.0 | 10.5 | 12.0 | V |
| Trigger Current | I_{TR} | NTE1648 ONLY, Note 3 | – | 20.0 | 1000 Note 5 | μA |
| Disable Voltage | V_{DIS} | NTE1648 ONLY, Note 4 | – | – | 0.5 | V |
| Disable Current | I_{DIS} | NTE1648 ONLY, Note 4 | –40 | –50 | – | μA |
| Output Voltage High | V_{OH} | $V_{CC} = 21\text{V}$, $I_B = -15\text{mA}$, Pin6 = 6V, Pin7 = GND | 17 | 19 | 21 | V |
| Output Voltage Low | V_{OL} | $V_{CC} = 21\text{V}$, $I_B = 15\text{mA}$, Pin6 = 6V, Pin7 = GND | – | – | 1.6 | V |
| Sink Current | I_{IN} (Pin3) | Pin3 = 6V, Pin4 = GND | – | – | 500 | nA |
| | I_{IN} (Pin7) | Pin7 = 6V, Pin6 = GND | – | – | 500 | nA |
| High Frequency | f_{H1} | $R_3 = 191\text{k}$, $C_3 = 6800\text{pf}$ | 461 | 512 | 563 | Hz |
| | f_{H2} | $R_3 = 191\text{k}$, $C_3 = 6800\text{pf}$ | 576 | 640 | 704 | Hz |
| Low Frequency | f_L | $R_2 = 165\text{k}$, $C_2 = 0.47\mu\text{f}$ | 9 | 10 | 11 | Hz |

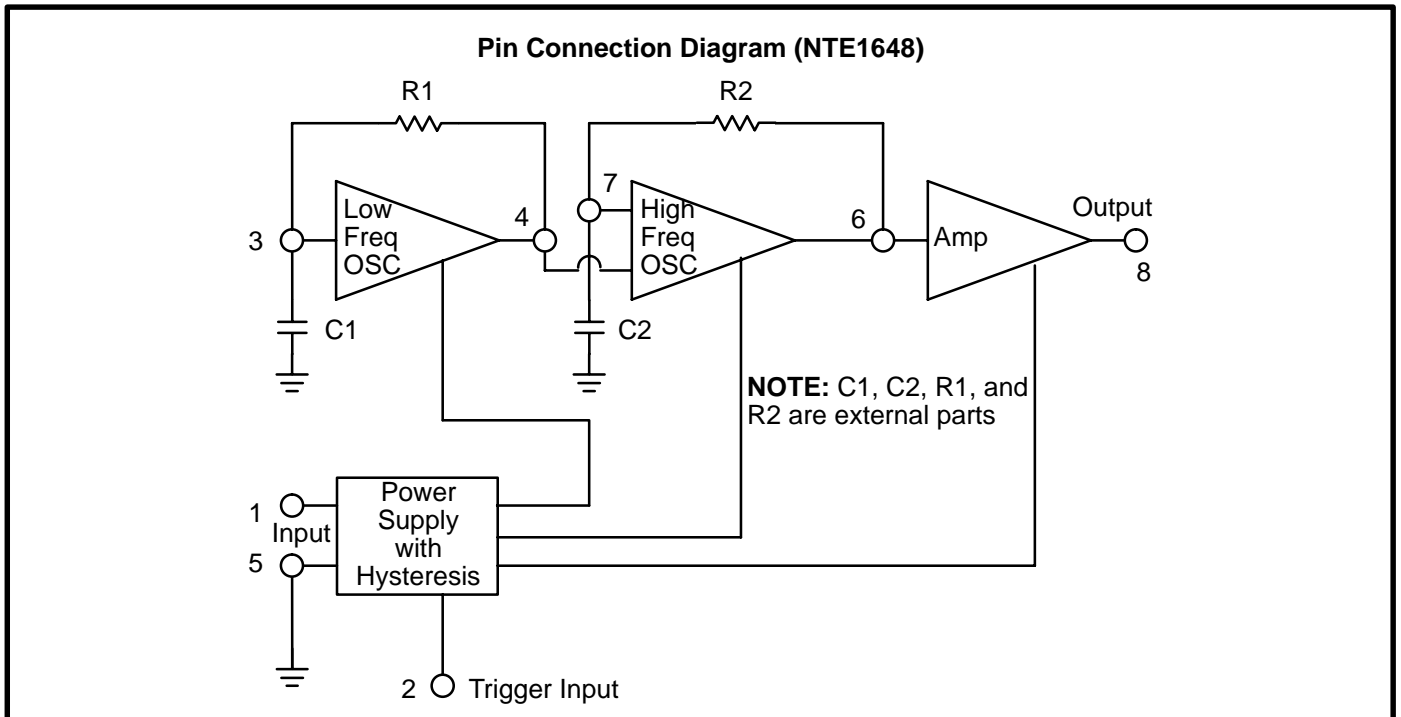
Note 1. Initiation supply voltage (V_{SI}) is the supply voltage required to start the tone ringer oscillating.

Note 2. Sustaining voltage (V_{SUS}) is the supply voltage required to maintain oscillation.

Note 3. V_{TR} and I_{TR} are the conditions applied to trigger in to start oscillation for $V_{SUS} \leq V_{CC} \leq V_{SI}$.

Note 4. V_{DIS} and I_{DIS} are the conditions applied to trigger in to inhibit oscillation for $V_{SI} \leq V_{CC}$.

Note 5. Trigger current must be limited to this value externally.



Pin Connection Diagram (NTE1649)

