



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089

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

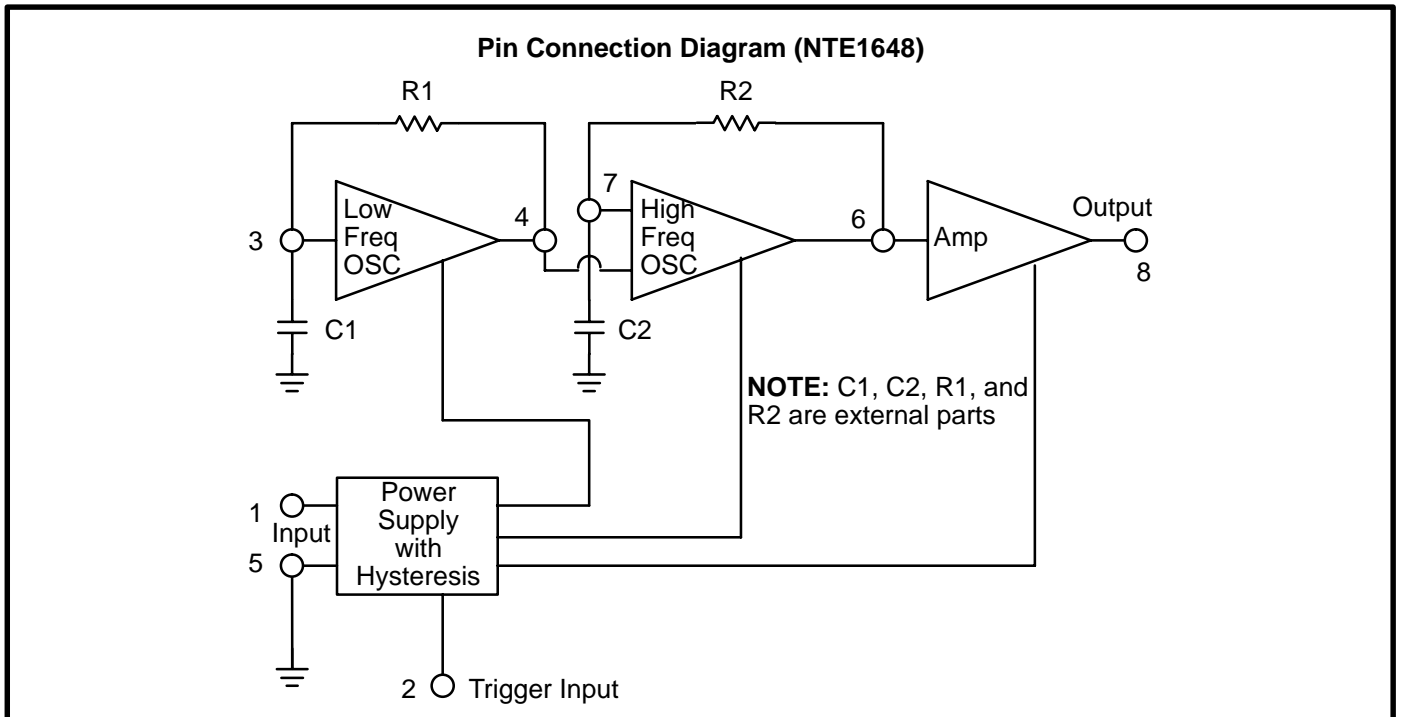
Note 1. Initiation supply voltage (V_{SI}) is the supply voltage required to start the tone ringer oscillating.

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)

