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# NTE1761 (Active High) & NTE1762 (Active Low)
# Integrated Circuit
# Infrared Remote Control Preamp

**Features:**
- High Frequency Amplifier with a Control Range of 66dB
- Synchronous Demodulator and Reference Amplifier
- AGC Detector
- Pulse Shaper
- Q–Factor Killing of the Input Selectivity, which is Controlled by the AGC Circuit
- Input Voltage Limiter

**Absolute Maximum Ratings:**

Supply Voltage (Pin8), $V_{CC}$ . . . . . 13.2V
Output Current Pulse Shaper (Pin11), $I_{11}$ . . . . . 10mA
Voltages Between Pins (Note 1)
Pin2 and Pin15, $V_{2–15}$ . . . . . 4.5V
Pin4 and Pin13, $V_{4–13}$ . . . . . 4.5V
Pin5 and Pin6, $V_{5–6}$ . . . . . 4.5V
Pin7 and pin10, $V_{7–10}$ . . . . . 4.5V
Pin9 and Pin11, $V_{9–11}$ . . . . . 4.5V
Operating Ambient Temperature Range, $T_A$ . . . . . –25° to +125°C
Storage Temperature Range, $T_{stg}$ . . . . . –65° to +150°C

Note 1. All pins except Pin11 are short–circuit protected.

**DC Electrical Characteristics:** ($T_A$ = +25°C, $V_{CC}$ = $V_8$ = 5V unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Supply** (Pin8) | | | | | | |
| Supply Voltage | $V_{CC}$ | | 4.65 | 5.0 | 5.35 | V |
| Supoply Current | $I_{CC} = I_8$ | | 1.2 | 2.1 | 3.0 | mA |
| **Controlled High Frequency Amplifier** (Pin2 and Pin15) | | | | | | |
| Minimum Input Signal (Peak–to–Peak) | $V_{2–15(P–P)}$ | f = 36kHz, Note 2 | – | 15 | 25 | μV |
| | | f = 36kHz, Note 3 | – | – | 5 | μV |
| AGC Control Ragne (Without Q–Killing) | | | 60 | 66 | – | dB |
| Input Signal for Correct Operation (Peak–to–Peak) | $V_{2–15(P–P)}$ | Note 3 | 0.02 | – | 200 | mV |
| Q–Killing Inactive (Peak–to–Peak) | $V_{2–15(P–P)}$ | $I_3 = I_{14} < 0.5μA$ | – | – | 140 | μV |
| Q–Killing Active (Peak–to–Peak) | $V_{2–15(P–P)}$ | $I_{14} = I_3$ = Max | 28 | – | – | mV |

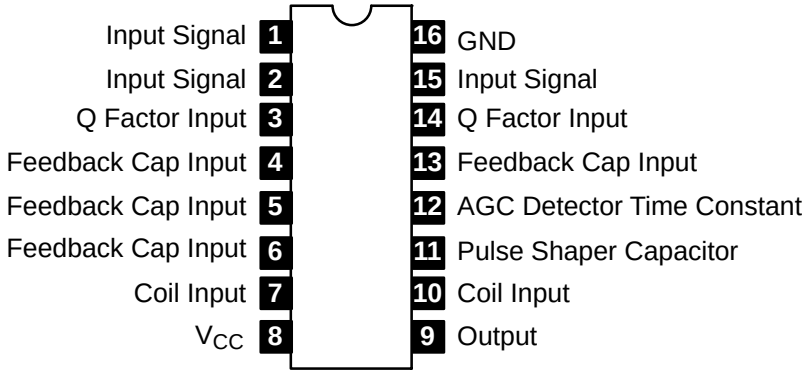
Note 2. For NTE1761, voltage at Pin9 is HIGH ($–I_9$ = 75μA).
For NTE1762, voltage at Pin9 is LOW ($I_9$ = 75μA).
Note 3. For NTE1761, voltage at Pin9 remains LOW. For NTE1762, voltage at Pin9 remains HIGH.

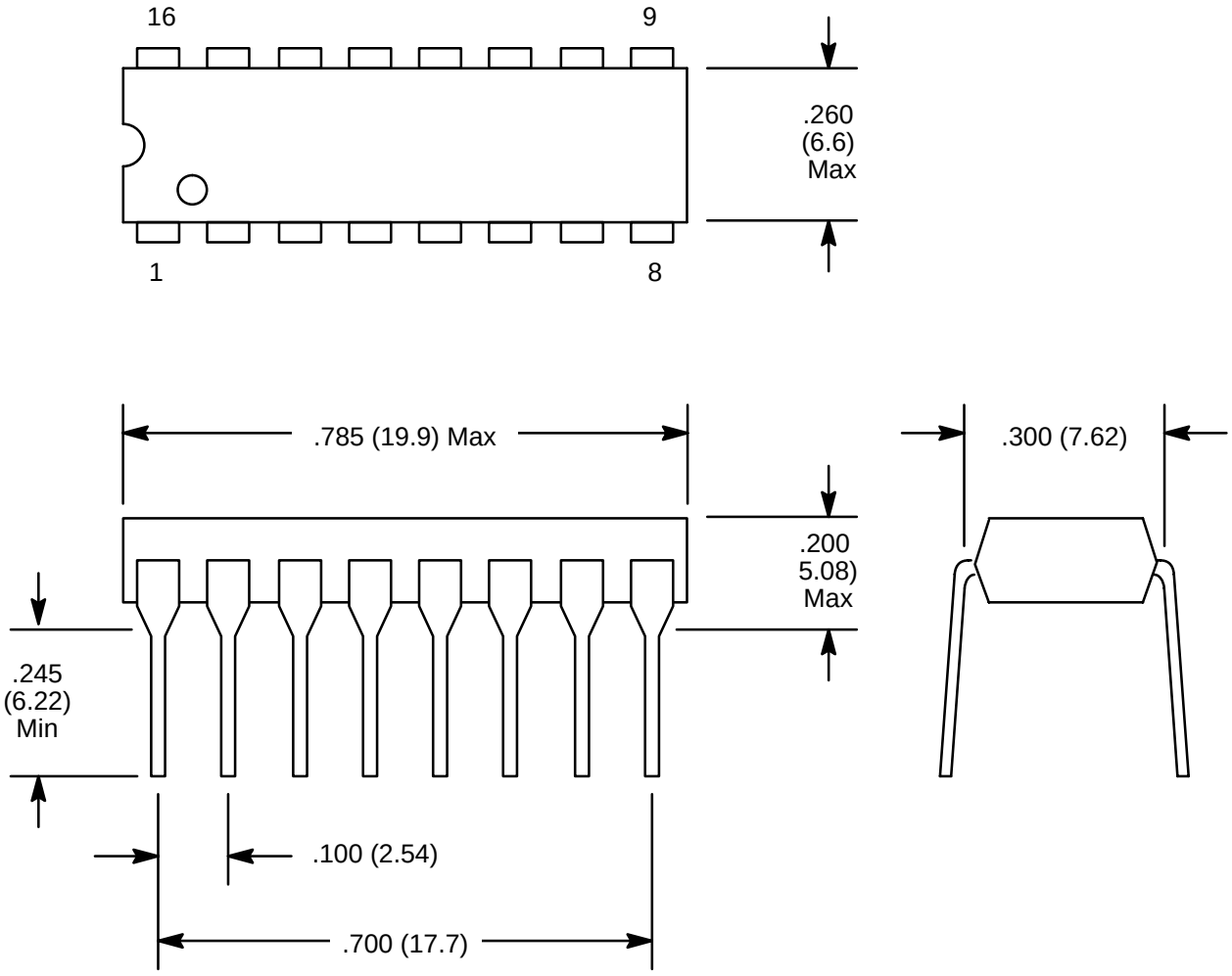
**DC Electrical Characteristics (Cont'd):** ($T_A$ = +25°C, $V_{CC}$ = $V_8$ = 5V unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Inputs** | | | | | | |
| Pin2 Voltage | $V_2$ | | 2.25 | 2.45 | 2.65 | V |
| Pin15 Voltage | $V_{15}$ | | 2.25 | 2.45 | 2.65 | V |
| Pin2 Resistance | $R_{2–15}$ | | 10 | 15 | 20 | kΩ |
| Pin2 Capacitance | $C_{2–15}$ | | – | 3 | – | pF |
| Input Limiting, Pin1 | $V_{1–16}$ | $I_1$ = 3mA | – | 0.8 | 0.9 | V |
| **Outputs** | | | | | | |
| Output Voltage HIGH (Pin9) | $–V_{9–8}$ | $–I_9$ = 75µA | – | 0.1 | 0.5 | V |
| Output Voltage LOW (Pin9) | $V_9$ | $I_9$ = 75µA | – | 0.1 | 0.5 | V |
| Output Current, Output Voltage HIGH | $–I_9$ | $V_9$ = 4.5V | 75 | 120 | – | µA |
| | | $V_9$ = 3.0V | 75 | 130 | – | µA |
| | | $V_9$ = 1.0V | 75 | 140 | – | µA |
| Output Current, Output Voltage LOW | $I_9$ | $V_9$ = 0.5V | 75 | 120 | – | µA |
| Output Resistance Between Pin7 and Pin10 | $R_{7–10}$ | | 3.1 | 4.7 | 6.2 | kΩ |
| **Pulse Shaper** (Pin11) | | | | | | |
| Trigger Level in Positive Direction | $V_{11}$ | Voltage Pin9 changes from HIGH to LOW | 3.75 | 3.9 | 4.05 | V |
| Trigger Level in Negative Direction | $V_{11}$ | Voltage Pin9 changes from LOW to HIGH | 3.4 | 3.55 | 3.7 | V |
| Hysteresis of Trigger Levels | $\Delta V_{11}$ | | 0.25 | 0.35 | 0.45 | V |
| **AGC Detector** (Pin12) | | | | | | |
| AGC Capacitor Charge Current | $–I_{12}$ | | 3.3 | 4.7 | 6.1 | µA |
| AGC Capacitor Discharge Current | $I_{12}$ | | 67 | 100 | 133 | µA |
| **Q–Factor Killer** (Pin3 and Pin14) | | | | | | |
| Output Current (Pin3) | $–I_3$ | $V_{12–16}$ = 2V | 2.5 | 7.5 | 15 | µA |
| Output Current (Pin14) | $–I_{14}$ | $V_{12–16}$ = 2V | 2.5 | 7.5 | 15 | µA |

Note 4. Undistorted output pulse with 100% AM input.

**Pin Connection Diagram**




16
9
.260
(6.6)
Max
1
8
.785 (19.9) Max
.300 (7.62)
.200
5.08)
Max
.245
(6.22)
Min
.100 (2.54)
.700 (17.7)