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# NTE1616
# Integrated Circuit
# TV Sound IF Amp/Detector, Driver

**Description:**

The NTE1616 is a TV sound integrated circuit in a 14–Lead DIP type package that can be operated with no adjustment, using ceramic filters externally. This device contains a DC controlled attenuator, which has wide effective area and gentle characteristic in the changing, so it is convenient especially for a remote controlled set.

**Features:**

- Gentle Changing DC Controlled Attenuator is Convenient for Remote Controlled Sets.
- Operation with Ceramic Filters makes TV Sound Circuit No Adjustment Completely
- SRPP Output Circuit can be Driven Directly
- Muting Works Quickly
- Low Distortion Demodulation

**Absolute Maximum Ratings:** ($T_A$ = +25°C unless otherwise specified)

Power Supply Voltage, $V_{CC}$ . . . . . 0 to 15V
Voltage (Pin13, Pin14), $V_{13}$, $V_{14}$ . . . . . 0 to 15V
Output Current (Pin2), $I_2$ . . . . . 0 to 20mA
Power Dissipation ($T_A$ = 75°C), $P_D$ . . . . . 350mW
Operating Temperature Range, $T_{opr}$ . . . . . –20° to +75°C
Storage Temperature Range, $T_{stg}$ . . . . . –40° to +125°C

**Electrical Characteristics:** ($V_{CC}$ = 12V, $T_A$ = +25°C ±3°C f = 4.5mHz, Δf = ±25kHz, $f_M$ = 400Hz, AM MOD = 30% unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Total Supply Current | $I_{CC}$ | $V_{CC}$ = 12V Zero Carrier | 15 | 20 | 25 | mA |
| IF Limiting Voltage | $V_{i(lim)}$ | –3dB point | – | 200 | 400 | $\mu V_{rms}$ |
| Detector Output Voltage | $V_{O\ AF}$ | $V_i$ = 10m$V_{rms}$ | 450 | 600 | 750 | m$V_{rms}$ |
| Detector Output Distortion | $THD_{DET}$ | $V_i$ = 10m$V_{rms}$ | – | 0.4 | 1.0 | % |
| AM Rejection | AMR | $V_i \geq$ 3m$V_{rms}$ | –44 | –55 | – | dB |
| DC VR Maximum Attenutation | $ATT_{VR}$ | $f_{in}$ = 400Hz, $V_i$ = 600m$V_{rms}$ | 70 | 80 | – | dB |
| DC VR Distortion | $THD_{VR}$ | $f_{in}$ = 400Hz, $V_i$ = 600m$V_{rms}$ $V_8$ | – | 0.4 | 1.0 | % |

**Electrical Characteristics (Cont'd):** ($V_{CC}$ = 12V, $T_A$ = +25°C ±3°C f = 4.5mHz, Δf = ±25kHz, $f_M$ = 400Hz, AM MOD = 30% unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| AF Voltage Gain | $G_{VAF}$ | $f_{in}$ = 400Hz, $V_i$ = 100m$V_{rms}$, $R_3$ = 1kΩ | 11.5 | 15.0 | – | dB |
| IF Input Resistance | $R_{in}$ | | – | 1.5 | – | kΩ |
| IF Input Capacitance | $C_{in}$ | | – | 2.0 | – | pF |
| Pin4 Input Resistance | $R_{in4}$ | | – | 20 | – | kΩ |
| Pin4 Input Capacitance | $C_{in4}$ | | – | 2.9 | – | pF |

**Pin Connection Diagram**