

## 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:** ( $T_A = +25^\circ\text{C}$ 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 ( $T_A = 75^\circ\text{C}$ ),  $P_D$  ..... 350mW  
 Operating Temperature Range,  $T_{opr}$  .....  $-20^\circ$  to  $+75^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-40^\circ$  to  $+125^\circ\text{C}$

### **Electrical Characteristics:** ( $V_{CC} = 12\text{V}$ , $T_A = +25^\circ\text{C} \pm 3^\circ\text{C}$ $f = 4.5\text{mHz}$ , $\Delta f = \pm 25\text{kHz}$ , $f_M = 400\text{Hz}$ , AM MOD = 30% unless otherwise specified)

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

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

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

**Pin Connection Diagram**

