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## NTE805 Integrated Circuit IF Gain Block for FM Receiver

**Description:**

The NTE805 provides function of an IF gain block and is designed for use in communications and FM receivers. The device consists of a three-stage limiting amplifier operating from a regulated power supply, and 330Ω input and output terminations with 7.0pF of shunt capacitance required for 10.7MHz ceramic filters. The device also offers a 7.7 voltage regulated supply for external use from pin 6.

**Features:**

- Gain at 10.7MHz: 35dB Typ.
- Operating Voltage Range: 10V to 20V
- Excellent Temperature Stability
- Power Supply Rejection Ratio: 40dB Typ.

**Absolute Maximum Ratings:**

Supply Voltage,  $V_{CC}$  ..... 20V  
 Supply Current,  $I_{CC}$  ..... 30mA  
 Input Voltage (Pin 1 and Pin 3),  $V_1$  ..... ±3.0V  
 Internal Power Consumption ( $P_D$  at 70°C) ..... 400mW  
 Output Current (Pin 6) ..... 10mA  
 Operating Temperature Range,  $T_A$  ..... -25° to +70°C  
 Storage Temperature Range,  $T_S$  ..... -65° to +150°C

Note 1. Derate at the rate of 8.3mW°C at temperatures above +25°C

**Operating Conditions:** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 12\text{V}$  unless otherwise specified)

| Parameter                 | Symbol   | Test Pin | Test Conditions    | Min | Typ | Max | Unit |
|---------------------------|----------|----------|--------------------|-----|-----|-----|------|
| Supply Current            | $I_{CC}$ | 8        |                    | 14  | 18  | 25  | mA   |
| Total Device Dissipation  | $P_d$    |          |                    | -   | -   | 400 | mW   |
| Terminal Voltage (Note 2) | $V_1$    | 1        |                    | -   | 1.2 | -   | V    |
|                           | $V_2$    | 1        |                    | -   | 1.2 | -   | V    |
|                           | $V_3$    | 1        |                    | -   | 2.4 | -   | V    |
|                           | $V_5$    | 1        |                    | -   | 2.0 | -   | V    |
|                           | $V_6$    | 1        | $I_6 = 5\text{mA}$ | 7.2 | 7.7 | 8.3 | V    |
|                           | $V_7$    | 1        |                    | -   | 2.0 | -   | V    |

Note 2. All DC Voltage readings are with respect to network ground.

**Dynamic Electrical Characteristics:** ( $T_A = 25^\circ\text{C}$ ,  $V_{CC} = 12\text{V}$ ,  $f = 10.7\text{MHz}$ , unless otherwise specified)

| Parameter                                      | Symbol     | Test Pin | Test Conditions   | Min | Typ | Max | Unit                     |
|--|------------|----------|---|-----|-----|-----|--------------------------|
| Output Voltage Swing                           | $V_{OM}$   | 5        |   | -   | 110 | -   | $\text{mV}_{\text{rms}}$ |
| Output Noise Voltage                           |            | 5        |   | -   | 1.5 | -   | $\text{mV}_{\text{rms}}$ |
| Input Impedance<br>Parallel Input Resistance   | $R_{in}$   | 1-2      |   | 270 | 330 | 390 | $\Omega$                 |
| Parallel Input Capacitance                     | $C_{in}$   | 1-2      |   | 5   | 7   | 10  | $\text{pF}$              |
| Output Impedance<br>Parallel Output Resistance | $R_{out}$  | 5        |   | 270 | 330 | 390 | $\Omega$                 |
| Parallel Output Capacitance                    | $C_{out}$  | 5        |   | 5   | 7   | 10  | $\text{pF}$              |
| Output Voltage Gain                            | $A_{Vout}$ | 5        | $V_{in} = 100\text{mV}_{\text{rms}}$ , $f = 1\text{MHz}$  | -   | 35  | -   | $\text{dB}$              |
| Power Supply Rejection                         | $V_{SR}$   | 5        | $V_{in} = 250\text{mV}_{\text{rms}}$ , $f = 100\text{Hz}$ | -   | -40 | -   | $\text{dB}$              |

**Pin Connection Diagram**

