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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_I $\pm 3.0V$
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: ($T_A = +25^\circ\text{C}$, $V_{CC} = 12V$ 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	$I_6 = 5mA$	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	–	mV_{rms}
Output Noise Voltage		5		–	1.5	–	mV_{rms}
Input Impedance Parallel Input Resistance	R_{in}	1–2		270	330	390	Ω
Parallel Input Capacitance	C_{in}	1–2		5	7	10	pF
Output Impedance Parallel Output Resistance	R_{out}	5		270	330	390	Ω
Parallel Output Capacitance	C_{out}	5		5	7	10	pF
Output Voltage Gain	A_{Vout}	5	$V_{in} = 100\text{mV}_{\text{rms}}$, $f = 1\text{MHz}$	–	35	–	dB
Power Supply Rejection	V_{SR}	5	$V_{in} = 250\text{mV}_{\text{rms}}$ $f = 100\text{Hz}$	–	–40	–	dB

Pin Connection Diagram

