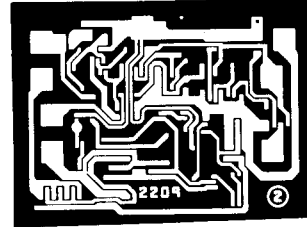


**ULN-2209M I-F GAIN BLOCK WITH VOLTAGE REGULATOR**

**ULN-2209M  
I-F GAIN BLOCK WITH  
VOLTAGE REGULATOR**

**FEATURES**

- Gain at 10.7MHz: 50dB Typical
- Operating Voltage Range: 10V–20V
- Excellent Temperature Stability
- Power Supply Rejection Ratio: 40dB Typical
- 8-Pin Dual In-Line Plastic Package

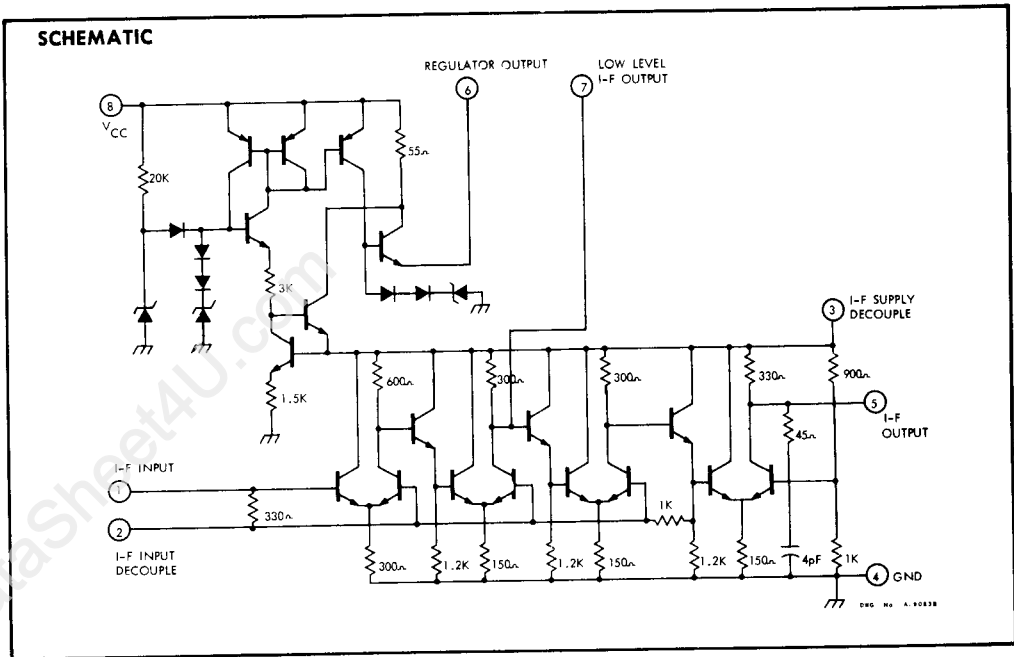


**T**HE TYPE ULN-2209M provides the function of a i-f gain block and is designed for use in communications and f-m receivers.

The device consists of a four-stage limiting amplifier operating from a regulated power supply, and 330Ω input and output terminations with 7.0 pF of shunt capacitance required for 10.7 MHz ceramic filters. The Type ULN-2209M offers a 7.7 volt regulated supply for external use from pin 6.

**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage $V_{CC}$ .....	30V
Supply Current, $I_{CC}$ .....	3.0mA
Input Voltage (Pins 1 and 3).....	±3.0V
Output Current (Pin 6).....	10mA
Operating Temperature, $T_A$ .....	-25°C to +70°C
Storage Temperature, $T_{STG}$ .....	-65°C to +150°C



**STATIC ELECTRICAL CHARACTERISTICS**

Operating Conditions  $T_A = 25^\circ\text{C}$ ,  $V_{CC} = +12\text{V}$

Parameter	Symbol	Test Pin	Test Figure	Test Conditions	Limits			Units	
					Min.	Typ.	Max.		
Supply Current	$I_{CC}$	8	1		11	18	25	mA	
Total Device Dissipation	$P_d$	—	—				400	mW	
Terminal Voltage (See Note 1)	$V_1$	1	1	$I_C = 5\text{mA}$		1.4		V	
	$V_2$	2	1			1.4		V	
	$V_3$	3	1			2.6		V	
	$V_5$	5	1			2.0		V	
	$V_6$	6	1			7.2	7.8	8.3	V
	$V_7$	7	1				2.0		V

Note 1. All d-c voltage readings are with respect to network ground.

**DYNAMIC ELECTRICAL CHARACTERISTICS**

Operating Conditions:  $T_A = 25^\circ\text{C}$ ,  $V_{CC} = +12\text{V}$ , Frequency = 10.7MHz unless otherwise noted

Parameter	Symbol	Test Pin	Test Figure	Test Conditions	Limits			Units
					Min.	Typ.	Max.	
Input Limiting Threshold (at -3dB point)	$V_{TH}$	1	1			500		$\mu\text{V}$
Output Voltage Swing	$V_{OM}$	5	1		110			mVrms
Output Noise Voltage		5	2			4	16	mVrms
Input Impedance								
Parallel Input Resistance	$R_{in}$	1-2	—		270	330	390	$\Omega$
Parallel Input Capacitance	$C_{in}$	1-2	—		5	7	10	pF
Output Impedance								
Parallel Output Resistance	$R_{out}$	5	—		270	330	390	$\Omega$
Parallel Output Capacitance	$C_{out}$	5	—		5	7	10	pF
Output Voltage Gain	$A_{V_{out}}$	5	1	$V_{in} = 100\text{mVrms}$ , $f = 10.7\text{MHz}$	40	50	57	dB
Power Supply Rejection	$V_{SR}$	5	3	$V_{in} = 250\text{mVrms}$ , $f = 100\text{Hz}$		-40		dB

2

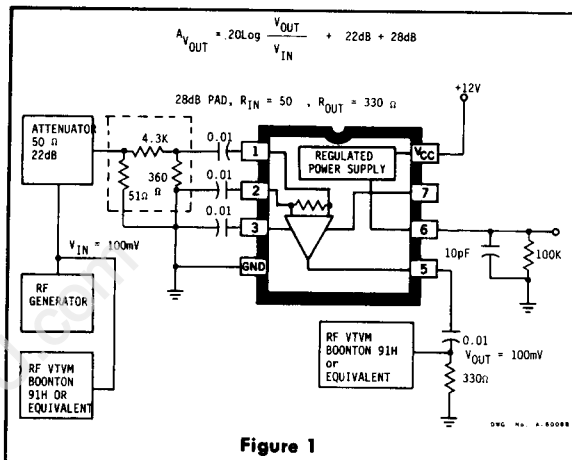


Figure 1

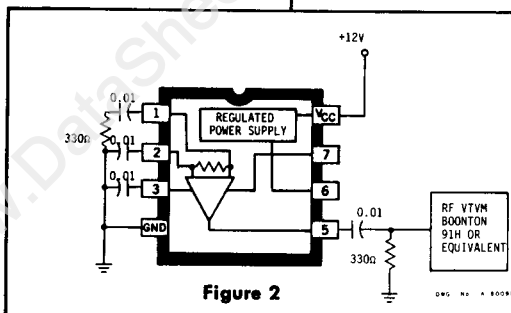


Figure 2

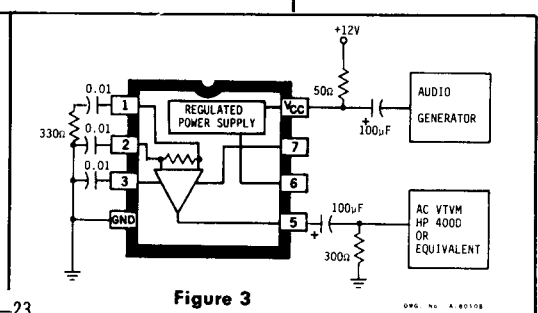


Figure 3