



**ELECTRONIC  
INNOVATIONS  
IN ACTION**

**SEMICONDUCTORS**

07/02/01  
Integrated Circuit

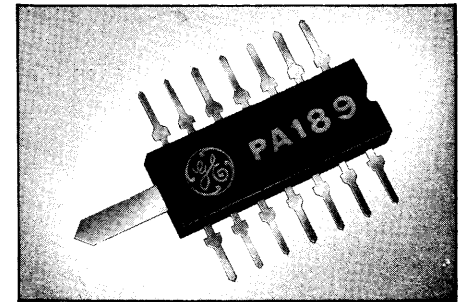
85.24 3/68  
Supersedes 85.24 8/67

**PA189**

LETRON VERBODEN TOEGANG  
8 München 50, Schwanstr. 60,  
Telefon 54 60 81 - 85.

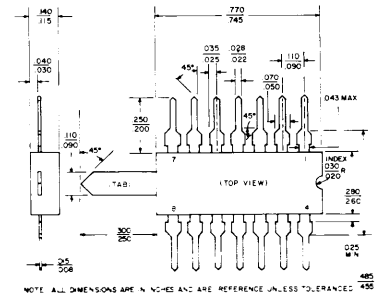
# IF Amplifier/Discriminator

The PA189 integrated circuit is a low cost, high gain IF Amplifier/Discriminator that is housed in a plastic dual-in-line package. It is intended for use within the consumer/industrial markets and may be adapted to meet a wide variety of TV and FM requirements.



absolute maximum ratings:

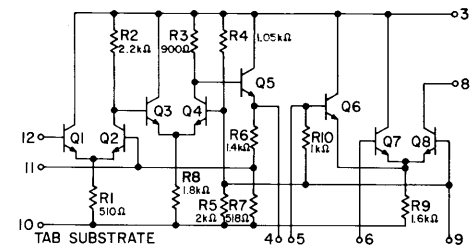
Supply Voltage	30 V
Input Voltage (Pins 11 & 12)	-4 Vdc Min. +4 Vdc Max.
Total Dissipation at 25°C	1.5 watts
Derating Factor	17 mW/°C
Operating Temperature	-55 to +110°C
Storage Temperature	-65 to +150°C



**PACKAGE OUTLINE**

electrical specifications: (at 25°C) (unless otherwise specified)

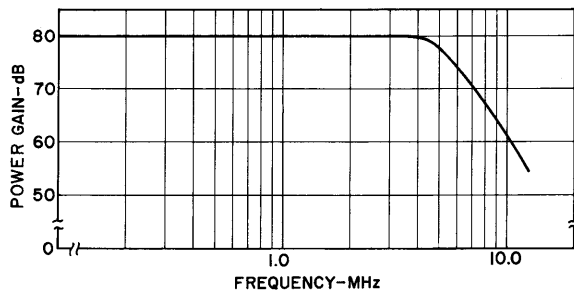
Nominal Supply Voltage	Typ. 12 V
Input Impedance at 4.5 MHz	500 ohms
Output Impedance at 4.5 MHz	10 kohms
Output Current Swing (current available)	4 mA
Overall Voltage Gain at 4.5 MHz (R <sub>L</sub> = 1k)	80 dB
Bandwidth, 3 dB down	5 MHz typ.



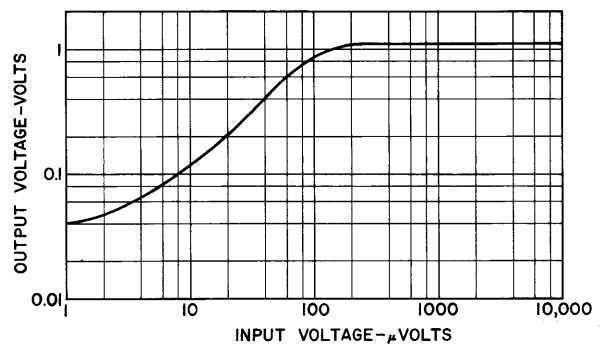
**CIRCUIT DIAGRAM**

Note: Audio specs are subject to changes in external circuitry and applications.

Baier  
19.10.1969

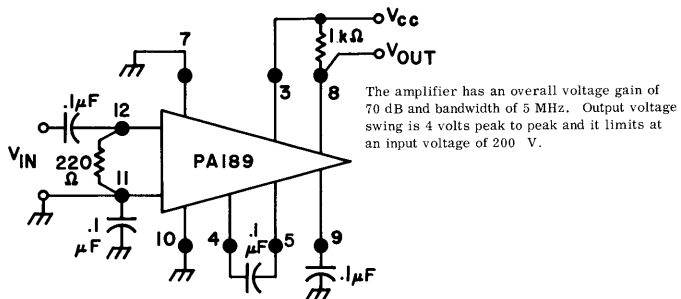


**FREQUENCY RESPONSE**



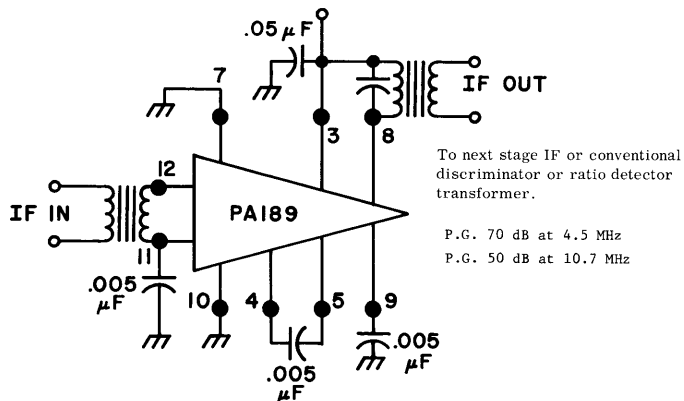
**LIMITING CHARACTERISTICS**

**SUGGESTED APPLICATIONS**



The amplifier has an overall voltage gain of 70 dB and bandwidth of 5 MHz. Output voltage swing is 4 volts peak to peak and it limits at an input voltage of 200 V.

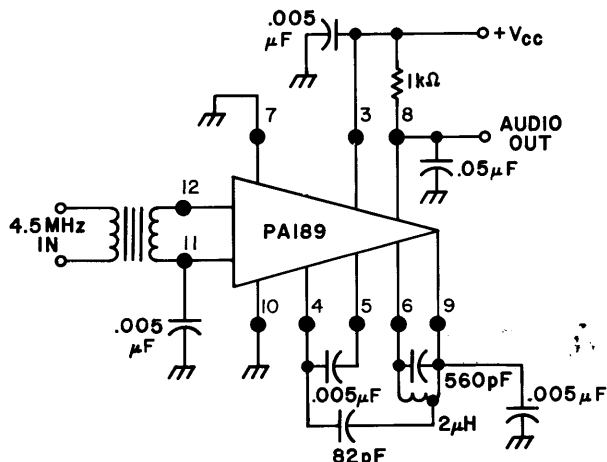
**Figure 1.**  
High-Gain Amplifier



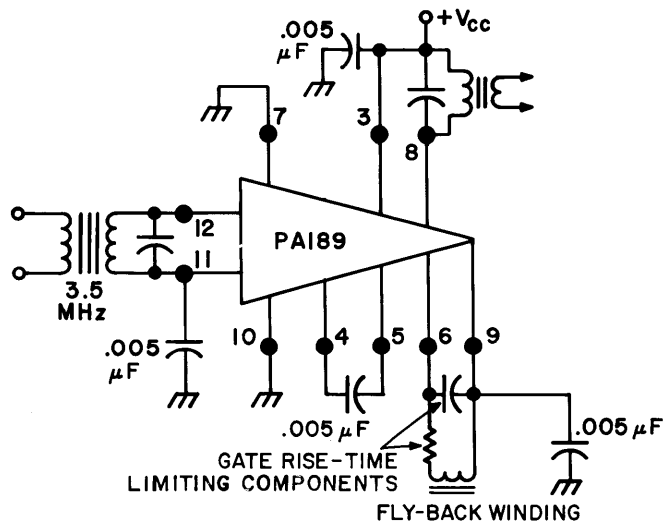
To next stage IF or conventional discriminator or ratio detector transformer.

P.G. 70 dB at 4.5 MHz  
P.G. 50 dB at 10.7 MHz

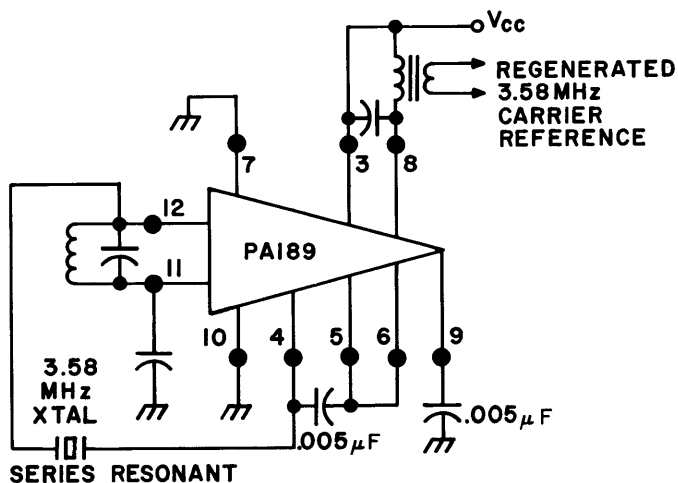
**Figure 2.**  
IF Amplifier 4.5 MHz, 10.7 MHz



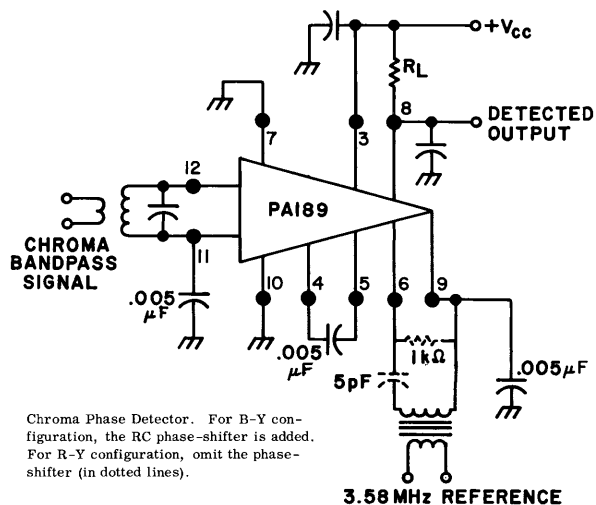
**Figure 3.**  
FM Discriminator Using The  
Quadrature Detector Principle



**Figure 4.**  
Chroma Burst Gate



**Figure 5.**  
Chroma Reference Oscillator



Chroma Phase Detector. For B-Y configuration, the RC phase-shifter is added. For R-Y configuration, omit the phase-shifter (in dotted lines).

**Figure 6.**  
Chroma Phase Detector