## **D51 Series**



## C-Message Response

# Telephone Message & Circuit Noise Measurement

#### **Description**

The D51 is designed specifically to provide the C-message weighting frequency response specified in Bell System Technical Reference 41009 for telephone message circuit noise measurement. The theoretical C-message characteristic simulates the perceived response of the human ear to telephone noise.

The D51 filter provides a close, ±1db approximation to the theoretical C-message weighting function from 60 Hz to 5.0 kHz.

## **Applications**

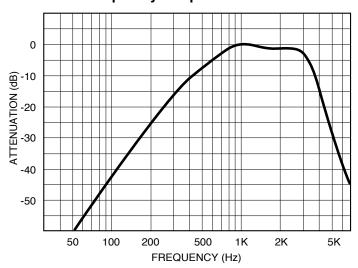
- Telephone Message Circuit Noise Measurement
- Test Equipment



Frequency Hz	Attenuation dB	Tolerance ±dB
60	55.7	1
100	42.5	1
200	25.0	1
300	16.5	1
400	11.4	1
500	7.5	1
600	4.7	1
700	2.7	1
800	1.5	1
900	0.6	1
1000	0.0	0.1
1200	0.2	1
1300	0.5	1
1500	1.0	1
1800	1.3	1
2000	1.3	1
2500	1.4	1
2800	1.9	1
3000	2.5	1
3300	5.2	1
3500	7.6	1
4000	14.5	1
4500	21.5	1
5000	28.5	1



### **Frequency Response Curve**



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## **D51 Series**

## **Specifications**

(25°C and Vs ± 15 Vdc)

## Pin-Out and Package Data Ordering Information

#### **Analog Input Characteristics**

Impedance 10 k $\Omega$  min. Source Impedance 600  $\Omega$  max.

Bias Current<sup>2</sup> (

Voltage Range ± 10 V peak

Maximum Safe Voltage ± Vs

#### **Analog Output Characteristics**

Impedance (Closed Loop)  $< 1 \Omega$  typ.

10  $\Omega$  max.

 $\begin{array}{lll} \mbox{Linear Operating Range} & \pm \ 10 \ \mbox{V} \\ \mbox{Maximum Current}^3 & \pm \ 2 \ \mbox{mA} \\ \mbox{Offset Voltage} & \pm \ 5 \ \mbox{mV} \\ \mbox{Offset Temp. Coeff.} & 50 \ \mbox{\muV / °C} \\ \mbox{Noise}^4 & 50 \ \mbox{\muVRMS} \\ \end{array}$ 

**Gain** (non-inverting)  $0 \pm 0.1 \text{ dB} @ 1 \text{ kHz}$ 

### Power Supply (±Vs)

Rated Voltage ± 15 Vdc

Operating Range ± 5 to ± 18 Vdc

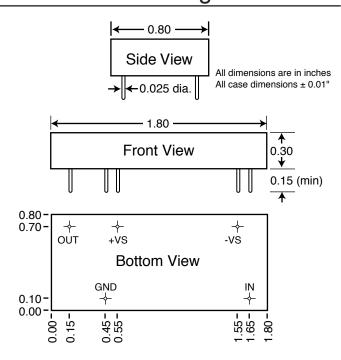
Maximum Safe Voltage  $\pm$  18 Vdc Quiescent Current  $\pm$  1.5 mA typ.  $\pm$  2.0 mA max.

**Temperature** 

Operating 0 to + 70 °C Storage -25 to + 85 °C

#### Notes:

- Maximum allowable series input resistance if gain accuracy's are to be maintained.
- 2. Capacitor coupled.
- Output is short circuit protected to common. DO NOT CONNECT TO ±Vs.
- 4. DC to 50 kHz excluding DC offset with input grounded.



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