LINEAR INTEGRATED CIRCUITS

LM748
LM748C

OPERATIONAL AMPLIFIERS

- SHORT CIRCUIT PROTECTION
- OFFSET VOLTAGE NULL CAPABILITY
- LARGE COMMON MODE AND DIFFERENTIAL VOLTAGE RANGE
- NO LATCH-UP
- SLEW-RATE = 5.5V/μs (G_v = 10, C_C = 3.5 pF)

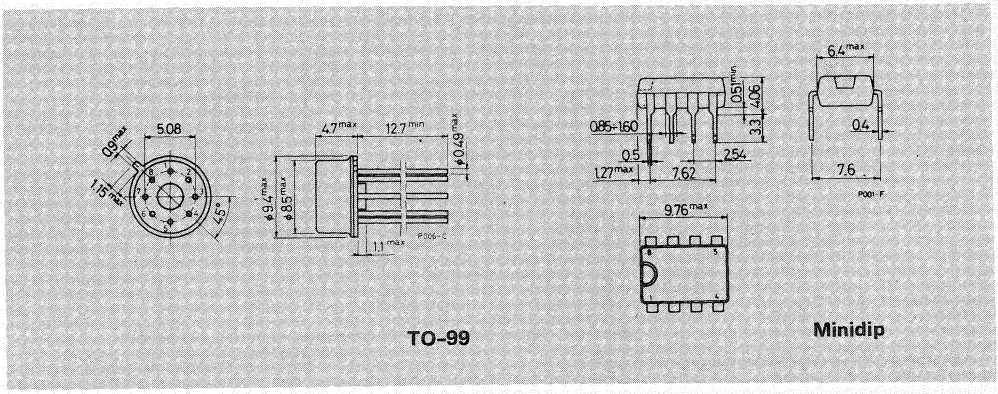
The LM748 series consists of general purpose operational amplifiers, intended for a wide range of analog applications where tailoring of frequency characteristics is desirable. High common mode voltage range and absence of "Latch-up" tendencies make the LM748 series ideal for use as a voltage follower. The high gain and wide range of operating voltage provide superior performance in integrators, summing amplifiers and general feedback applications. Unity gain frequency compensation is achieved by means of a single 30 pF capacitor.

ABSOLUTE MAXIMUM RATINGS		LM748	LM748C
V_s	Supply voltage	± 22V	± 22V
V_i (1)	Input voltage	± 15V	± 15V
ΔV_i	Differential input voltage	± 30V	± 30V
T_{op}	Operating temperature	-55 to 125 °C	0 to 70 °C
	Output short circuit duration (2)	indefinite	indefinite
P_{tot}	Power dissipation at T_{amb} = 70°C: **TO-99**	520 mW	520 mW
	Minidip	—	665 mW
T_{stg}	Storage temperature	65 to 150 °C	-55 to 150 °C

1) For supply voltage less than ± 15V, input voltage is equal to the supply voltage
2) The short circuit duration is limited by thermal dissipation.

MECHANICAL DATA

Dimensions in mm



TO-99 **Minidip**

ELECTRICAL CHARACTERISTICS (continued)

Parameter		Test conditions	LM748			LM748C			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
	Transient respon. (unity gain)	T_{amb}= 25°C V_i= 20 mV C_c= 30 pF R_L= 2 kΩ $C_L \leqslant$ 100 pF							
	Rise time			0.2			0.2		µs
	Overshoot			5			5		%
I_s	Supply current	T_{amb}= 25°C		1.9	2.8		1.9	2.8	mA
P_S	Power consumption	T_{amb}= 25°C V_s= ±15V		60	85		60	85	mW
		V_s= ±15V T_{amb}= T_{min}		60	100		60	100	mW
		T_{amb}= T_{max}		45	75				mW

Note: These specifications, unless otherwise specified, apply for V_s= ±15V and T_{amb}= -55 to 125°C for LM748. For LM748C these specifications apply for T_{amb}= 0 to 70°C (C_c = 30 pF).

Fig. 1 - Voltage offset null circuits

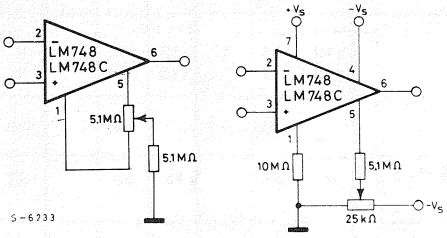


Fig. 2 - Transient response test circuit

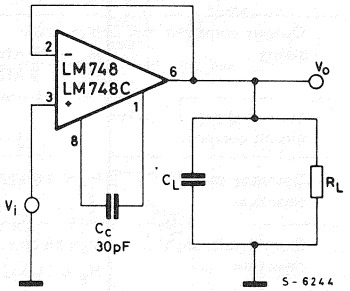


Fig. 3 - Input noise voltage vs. frequency

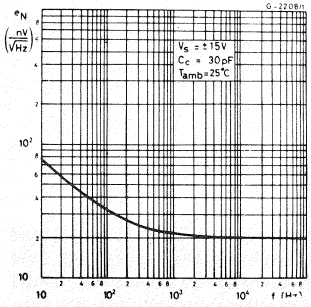


Fig. 4 - Input noise current vs. frequency

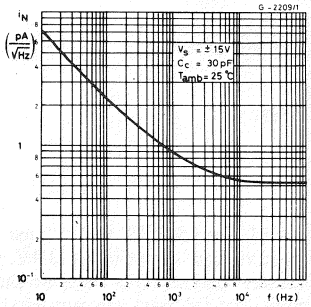


Fig. 5 - Broadband noise for various bandwidths

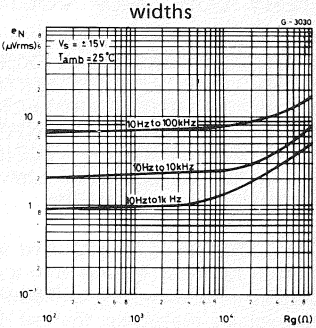


Fig. 6 - Open loop frequency and phase response vs. frequency

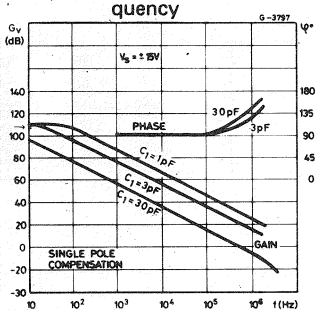


Fig. 7 - Output voltage swing vs. frequency

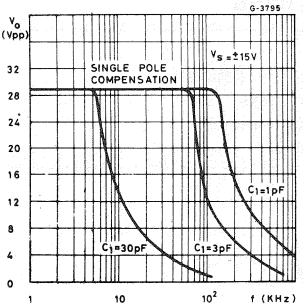


Fig. 8 - Slew-rate

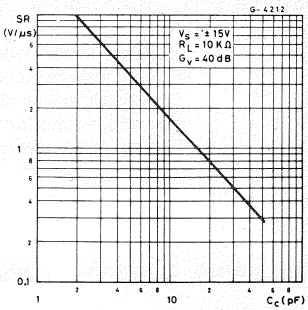


Fig. 9 - Compensation capacitance vs. closed loop voltage gain

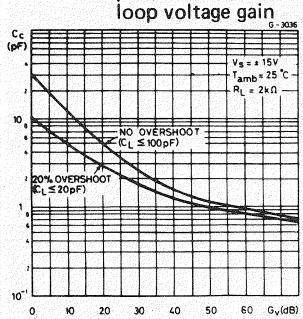


Fig. 10 - Input resistance and input capacitance vs. frequency

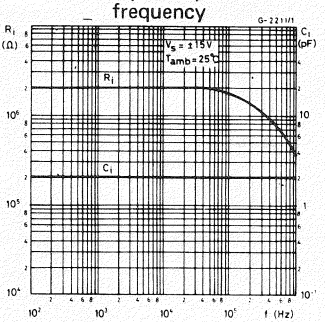


Fig. 11 - Output resistance vs. frequency