



**μPC4557**  
**DUAL HIGH-PERFORMANCE**  
**OPERATIONAL AMPLIFIER**

**Description**

The μPC4557 is a dual operational amplifier which features higher output drive current than that of the μPC4558. This feature allows driving of headphone speakers directly. Other characteristics of this device are low noise and no crossover distortion, which make it the ideal choice for audio applications.

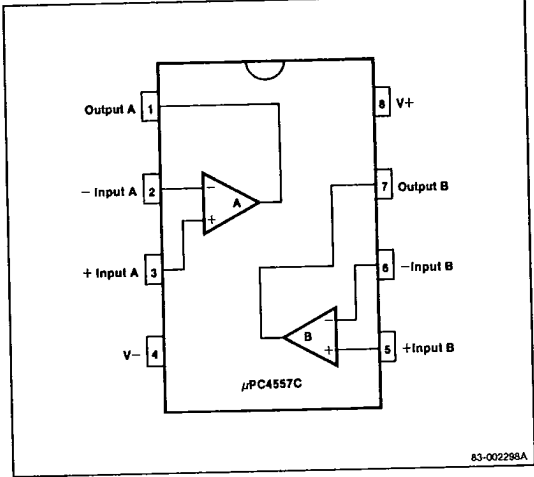
**Features**

- Internal frequency compensation
- Large common-mode and differential input voltage ranges
- No latch-up
- Low noise

**Ordering Information**

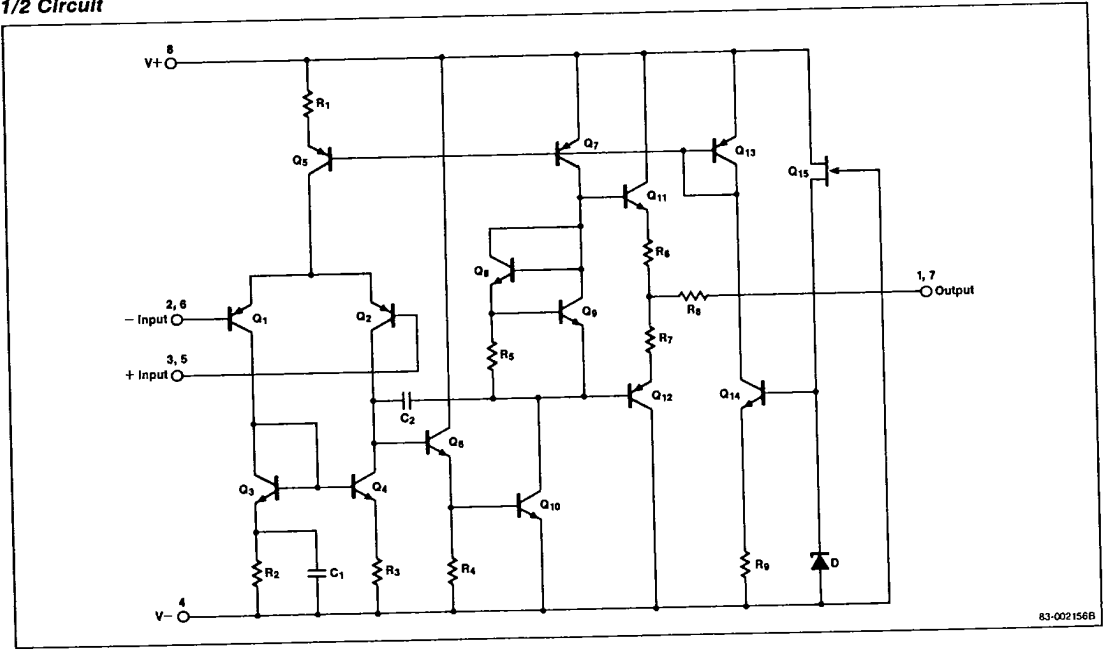
Part Number	Package	Operating Temperature Range
μPC4557C	Plastic DIP	0°C to +70°C

**Pin Configuration**



**Equivalent Circuit**

**1/2 Circuit**





**μPC4557**

**Absolute Maximum Ratings**

T<sub>A</sub> = 25°C

Voltage Between V <sup>+</sup> and V <sup>-</sup>	36 V
Power Dissipation (Note 1)	700 mW
Differential Input Voltage	±30 V
Input Voltage (Note 2)	±15 V
Output Short Circuit Duration	5 s
Operating Temperature Range	0 to +70°C
Storage Temperature Range	-55 to +125°C

- Notes: 1. When the ambient temperature is more than 25°C, derate linearly at 7 mW/°C, (T<sub>Jmax</sub>) = 125°).  
 2. For supply voltages less than ±15 V, the absolute maximum input voltage is equal to the supply voltage.

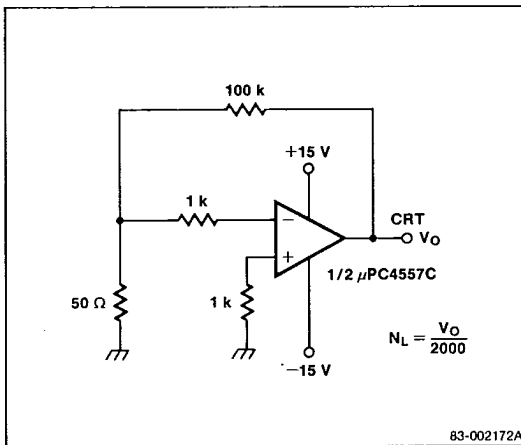
Comment: Stress above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**Electrical Characteristics**

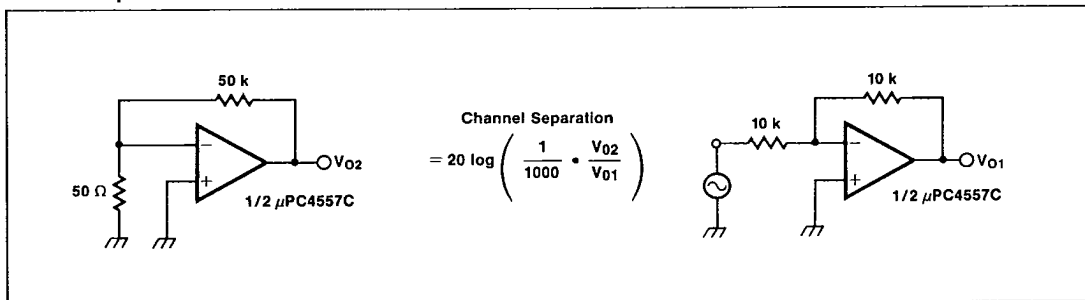
T<sub>A</sub> = 25°C, V<sub>±</sub> = ±15 V

Parameter	Symbol	Limits			Unit	Test Conditions
		Min.	Typ.	Max.		
Input Offset Voltage	V <sub>IO</sub>	0.5	6.0		mV	R <sub>S</sub> ≤ 10 kΩ
Input Offset Current	I <sub>IO</sub>	5	200		nA	
Input Bias Current	I <sub>b</sub>	180	500		nA	
Large Signal Voltage Gain	A <sub>voL</sub>	86	100		dB	R <sub>L</sub> ≥ 2 kΩ, V <sub>O</sub> = ±10 V
Power Dissipation	P <sub>D</sub>	90	170		mW	Both channels
Common Mode Rejection Ratio	CMRR	70	90		dB	R <sub>S</sub> ≤ 10 kΩ
Supply Voltage Rejection Ratio	SVRR	30	150		μV/V	R <sub>S</sub> ≤ 10 kΩ
Output Voltage Swing	V <sub>om</sub>	±12	±14		V	R <sub>L</sub> ≥ 2 kΩ
Output Voltage Swing	V <sub>om</sub>	±10	±11.5		V	I <sub>O</sub> = ±25 mA
Common Mode Input Voltage Range	V <sub>icm</sub>	±12	±14		V	
Slew Rate	SR	1.0			V/μs	A <sub>V</sub> = 1
Input Noise Voltage	e <sub>n</sub>	6			μVp-p	R <sub>S</sub> = 1 kΩ, f = 1 Hz to 1 kHz
Channel Separation	CS	105			dB	f = 1 kHz

**Noise Measurement Circuit**



**Channel Separation Measurement Circuit**

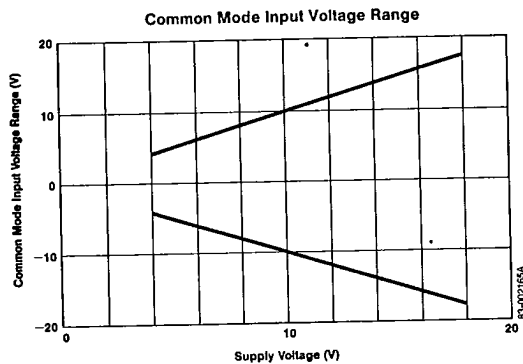
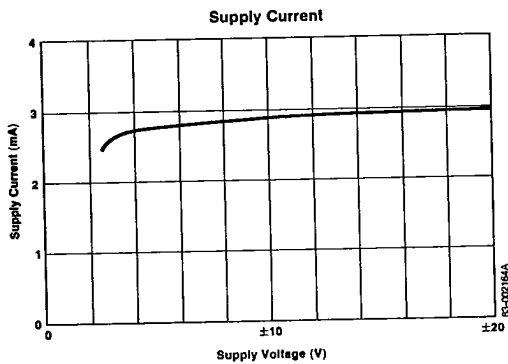
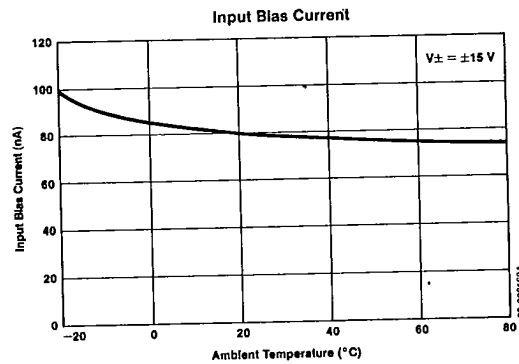
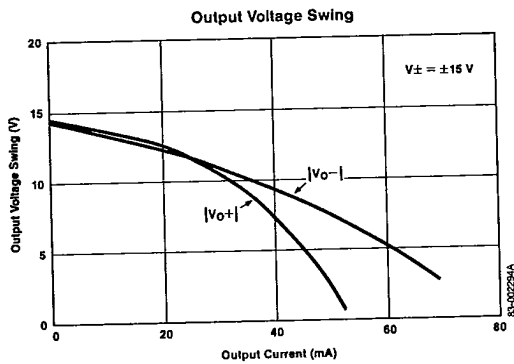
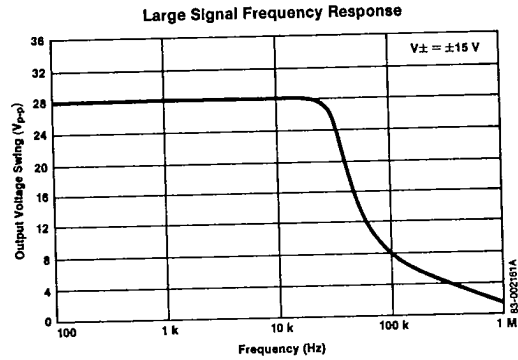
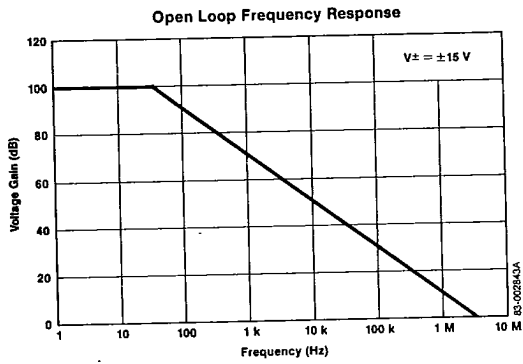


**NEC**

**μPC4557**

**Operating Characteristics**

$T_A = 25^\circ\text{C}$



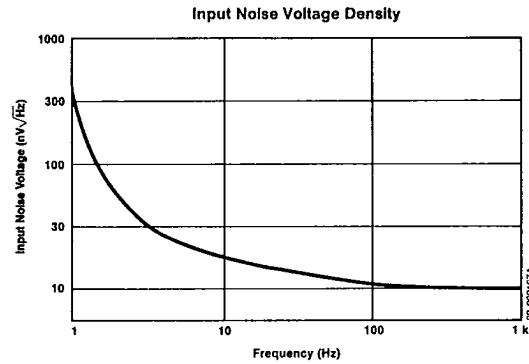
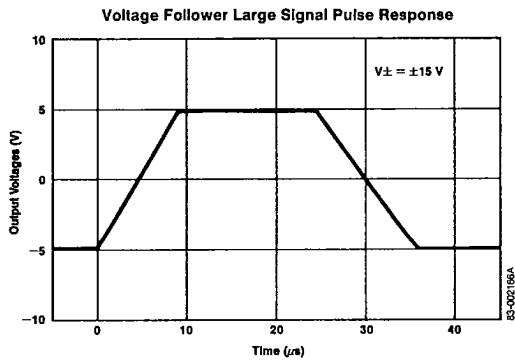
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**μPC4557**



**Operating Characteristics (Cont.)**

T<sub>A</sub> = 25°C



**Application Circuit**

**Head Phone AMP**

