

PCM64P

**ADVANCE INFORMATION
Subject to Change**

18-Bit Audio DIGITAL-TO-ANALOG CONVERTER

FEATURES

- **18-BIT MONOLITHIC AUDIO D/A CONVERTER**
- **LOW -96dB MAX THD+N AT FS (16-BIT LINEARITY WITH EXTERNAL ADJUST)**
- **VERY FAST SETTLING CURRENT OUTPUT (200ns)**
- **PARALLEL INPUTS, 42-PIN PLASTIC "SHRINK" DIP**
- **USER PROVIDES 10V REFERENCE AND OP AMP TO OPTIMIZE COST EFFECTIVENESS**
- **-15V, +5V SUPPLIES, 415mW POWER DISSIPATION**

APPLICATIONS

- **HIGH ACCURACY DIRECT DIGITAL WAVEFORM SYNTHESIS**
- **PROFESSIONAL AND HIGH END DIGITAL AUDIO**

DESCRIPTION

The PCM64JP/KP is a precision 18-bit digital-to-analog converter that features 16-bit linearity and ultra low distortion over a very wide frequency range. It is based on the highly accurate and stable 18-bit DAC729. The PCM64P greatly reduces cost by allowing the user to supply an external reference and current-to-voltage converter. This enables optimum cost/performance designs to be achieved when the very good temperature drift and stability specifications of the DAC729 are not necessarily required.

The PCM64P comes in a 42-pin double-wide plastic "shrink" DIP package. Applications include very low distortion frequency synthesis and very high end consumer and professional digital audio applications.

International Airport Industrial Park • P.O. Box 11400 • Tucson, Arizona 85734 • Tel.: (602) 746-1111 • Twx: 910-952-1111 • Cable: BBRCORP • Telex: 66-6461

PDS-786

SPECIFICATIONS

ELECTRICAL

All specifications at +25°C, +V_{DD} = +5.00V, and -V_{CC} = -15.0V unless otherwise noted.

PARAMETER	CONDITIONS	PCM64P			UNITS
		MIN	TYP	MAX	
RESOLUTION				18	Bits
DYNAMIC RANGE			108		dB
INPUT					
DIGITAL INPUT Logic Family Logic Level: V_{IH} V_{IL} Data Format	$I_{IH} = +10\mu A$ $I_{IL} = -300\mu A$	TTL Compatible +2.4 0.0 Parallel CSB, COB, CTC ⁽¹⁾			V V
DYNAMIC CHARACTERISTICS					
TOTAL HARMONIC DISTORTION + NOISE ⁽²⁾ F = 991Hz (0dB) F = 991Hz (-20dB) F = 991Hz (-60dB)	$F_s = 176.4\text{kHz}$ with external bits 1-4 adjust ⁽³⁾		-100 -86 -46	-96 -82 -42	dB dB dB
TOTAL HARMONIC DISTORTION + NOISE F = 991Hz (0dB) F = 991Hz (-20dB) F = 991Hz (-60dB)	$F_s = 176.4\text{kHz}$ without external bits adjust		-96 -78 -38	-93 -76 -36	dB dB dB
NOISE	20Hz to 20kHz at bipolar zero			3	nArms
TRANSFER CHARACTERISTICS					
ACCURACY Gain Error Bipolar Zero Error				± 0.5 ± 6.0	% μA
DRIFT Gain Bipolar Zero	0°C to +70°C 0°C to +70°C		± 10 ± 2		ppm/°C ppm of FSR/°C
POWER SUPPLY SENSITIVITY +V _{CC} -V _{CC} +V _{DD}			± 0.003 ± 0.003 ± 0.001		%FSR/%V _{CC} %FSR/%V _{CC} %FSR/%V _{DD}
WARM-UP TIME				1	minute
OUTPUT					
ANALOG OUTPUT Output Range ⁽⁴⁾ Internal R _{FEEDBACK} Output Impedance		-1.00 10k, 10k, 5k, 5k 3.0		+1.00 5k	mA Ω k Ω
SETTLING TIME 1mA Step	10 Ω to 100 Ω load		200		ns
REFERENCE REQUIREMENTS					
REFERENCE INPUT Input Voltage Input Current Input Current	Unipolar Bipolar	9.9	10	10.1 1 2	V mA mA
POWER SUPPLY REQUIREMENTS					
Voltage Range: -V _{CC} +V _{DD} Current: -V _{CC} +V _{DD} Power Dissipation	-V _{CC} = -15V, V _{DD} = +5V	-14.5 +4.75	-22 +17 415	-15.5 +5.25	V V mA mA mW
TEMPERATURE RANGE					
Specification Storage		0 -50		+70 +100	°C °C

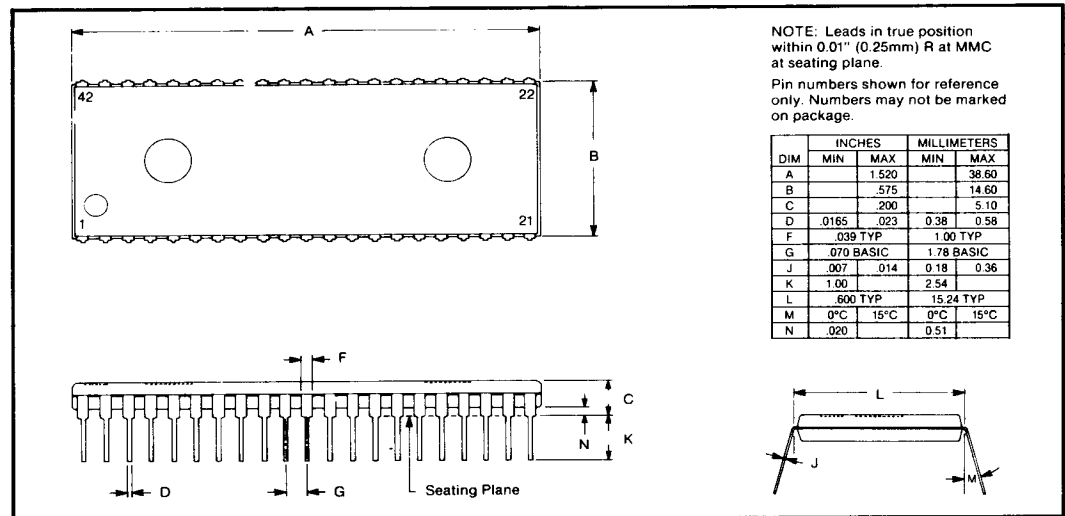
NOTES: (1) CTC code requires external inversion of MSB bit input. (2) Ratio of Distortion rms + Noise rms/Signal rms. (3) F_s = Sample rate of DAC (4 × 44.1kHz). (4) Tolerance of I_{OUT} and R_{FEEDBACK} is approximately ±1%.

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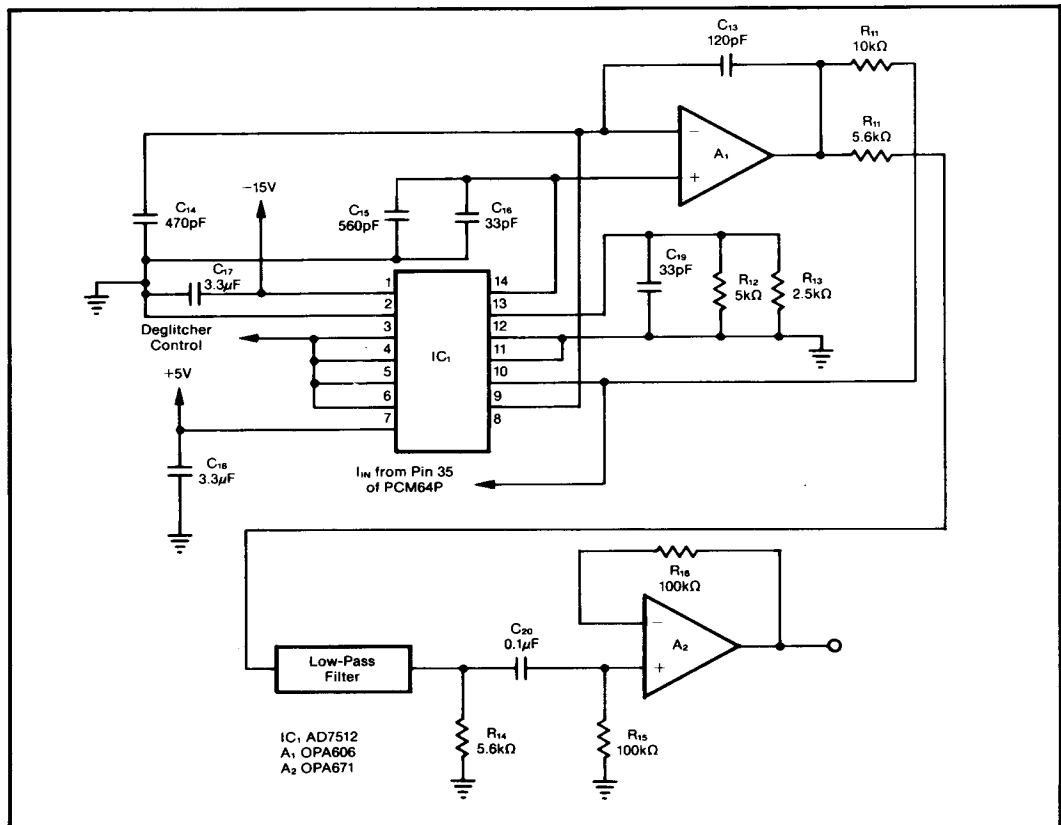
6.2

AUDIO, COMMUNICATIONS, DSP D/A CONV.

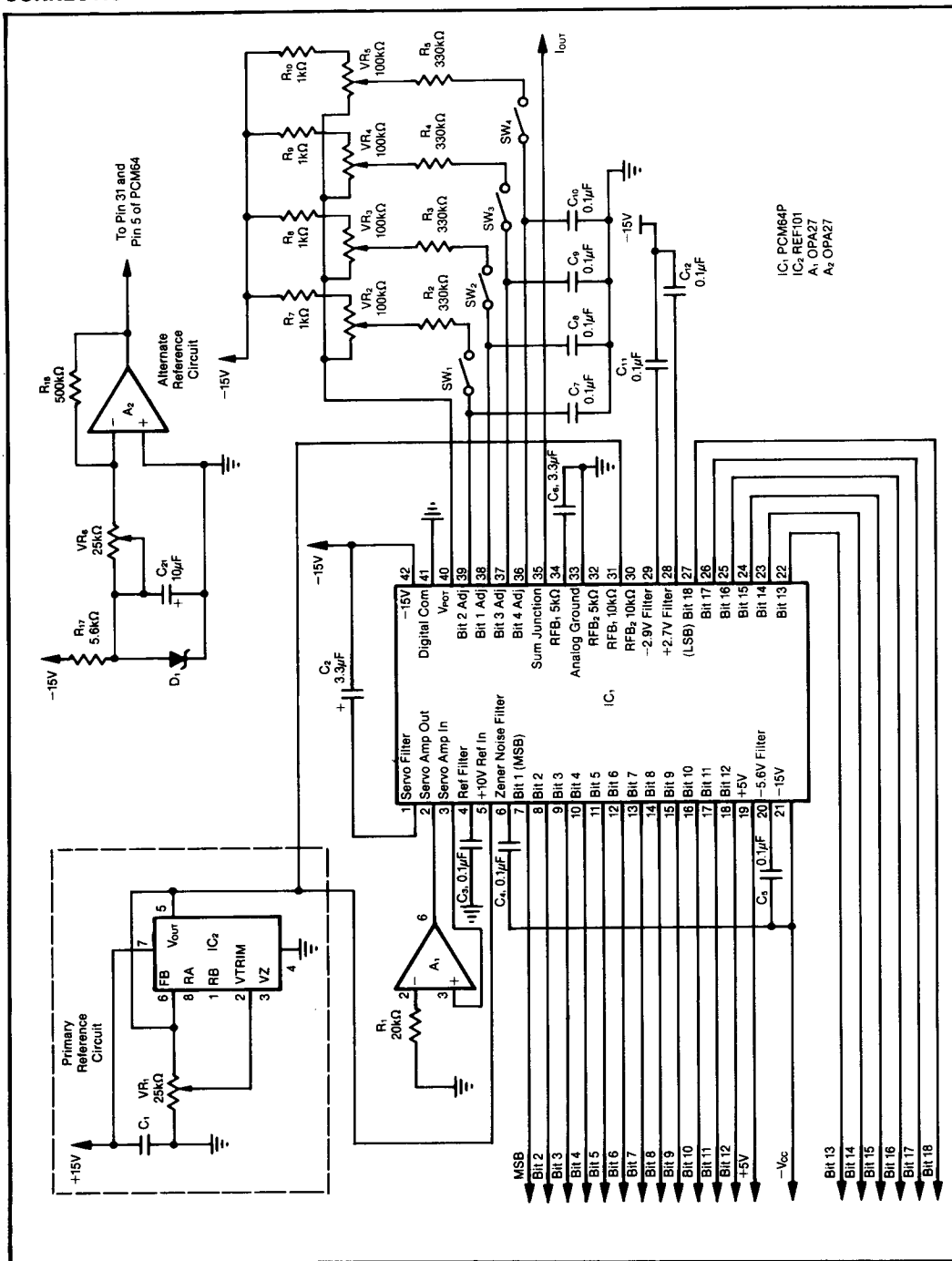
MECHANICAL



OUTPUT DEGLITCHING CIRCUITRY



CONNECTION DIAGRAM



PCM64P

6.2

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