

AN7374K

Dolby* B-type, C-type Noise Reduction Processor

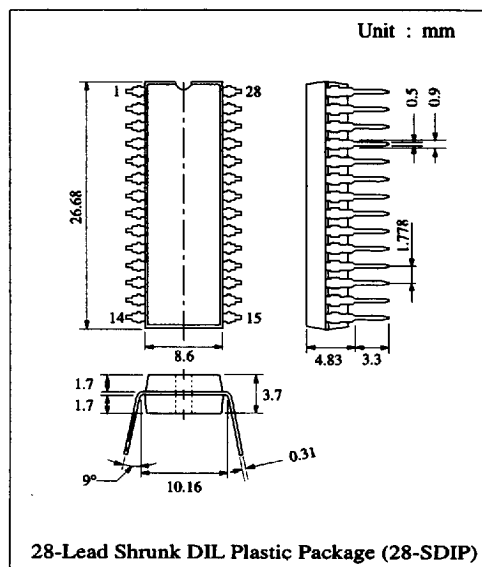
■ Description

The AN7374K is a monolithic integrated circuit providing dual channel Dolby B- and C-type noise reduction processors.

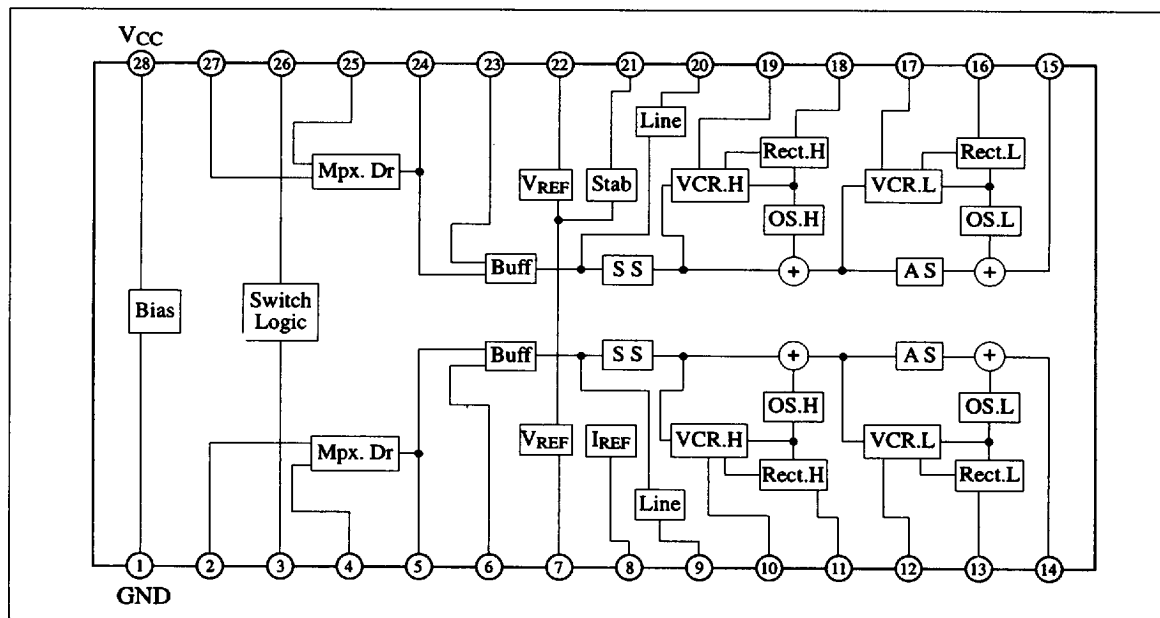
■ Features

- Very few external components
- External componentless spectral skewing circuit
- Unprocessed signal output available in encode and decode modes
- MPX filter driver switched ON in PB mode available for dubbing cassette decks application
- Usable for both single and split supply

- * This IC available only to the licensees of Dolby Laboratories Licensing Corporation from whom licensing and applications information may be obtained
- * "Dolby" and double D symbols are trade marks of Dolby Laboratories Licensing Corporation



■ Block Diagram



Panasonic

6932852 0014009 610

390

■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	13.5	V
Supply Current	I _{CC}	22	mA
Power Dissipation	P _D	300	mW
Operating Ambient Temperature	T _{opr}	-30 ~ +80	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

Operating Supply Voltage Range: V_{CC} = 9.0V ~ 13.0V

Voltage Split Supply: V_{CC} = ±4.6V ~ ±6.5V

■ Electrical Characteristics (V_{CC}=12V, Ta=25°C)

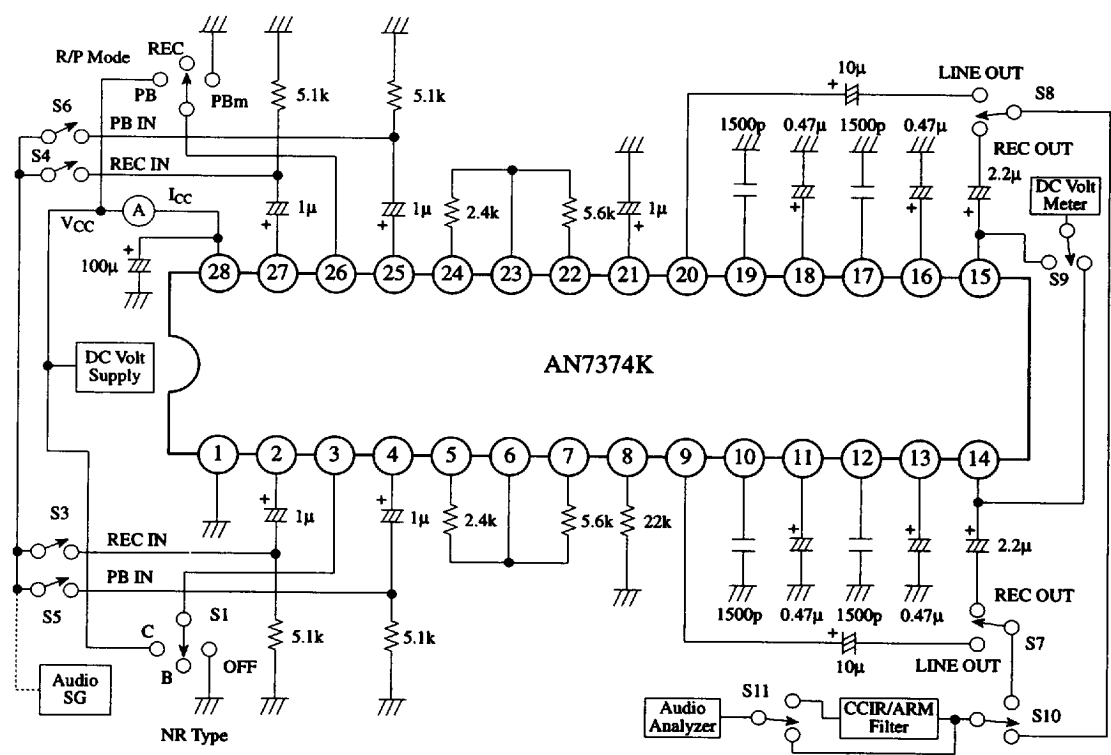
Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	I _{CC}	No signal, NR : Off, R/P : REC	12	15	19	mA
REC-IN to REC-OUT Gain	G _{rin}	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : REC	17	19	21	dB
PB-IN to REC-OUT Gain	G _{pin}	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : PB	22	24	26	dB
PB-MPX Gain Difference	DG _{mpx}	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : PB → P _{mpx}	-1	0	1	dB
LINE OUT Level	V _{Lout}	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : PB	500	580	670	mV
B-type Encode Boost (1)	B-R-1	V _{in} = -40dB, f = 10kHz, NR : B, R/P : REC	9.4	10.4	11.9	dB
B-type Encode Boost (2)	B-R-2	V _{in} = -30dB, f = 5kHz, NR : B, R/P : REC	6.7	8.2	9.7	dB
B-type Encode Boost (3)	B-R-3	V _{in} = -25dB, f = 1kHz, NR : B, R/P : REC	4.2	5.7	7.2	dB
B-type Encode Boost (4)	B-R-4	V _{in} = 0dB, f = 10kHz, NR : B, R/P : REC	-1.1	0.4	1.9	dB
C-type Encode Boost (1)	C-R-1	V _{in} = -60dB, f = 1kHz, NR : C, R/P : REC	18.1	19.6	21.6	dB
C-type Encode Boost (2)	C-R-2	V _{in} = -40dB, f = 5kHz, NR : C, R/P : REC	11.5	13.5	15.5	dB
C-type Encode Boost (3)	C-R-3	V _{in} = -30dB, f = 300Hz, NR : C, R/P : REC	8.7	10.7	12.7	dB
C-type Encode Boost (4)	C-R-4	V _{in} = -25dB, f = 5kHz, NR : C, R/P : REC	3.5	5.5	7.5	dB
C-type Encode Boost (5)	C-R-5	V _{in} = 0dB, f = 15kHz, NR : C, R/P : REC	-8.3	-6.3	-4.3	dB
Signal Handling	V _{omax}	V _{CC} =9V, THD=1%, f = 1kHz, NR : Off, R/P : REC	12	14		dB
Total Harmonic Distortion	THD _{off}	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : REC		0.02	0.15	%
	THD _C	V _{in} = 0dB, f = 1kHz, NR : C, R/P : REC		0.13	0.3	%
Signal to Noise Ratio	S/N	R _g =5.1kΩ (CCIR/ARM), NR : C, R/P : REC	60	62.5		dB
Crosstalk REC → PB	CT-R-P	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : PB		-80		dB
Crosstalk PB → REC	CT-P-R	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : REC		-80		dB
Crosstalk CH → CH	CT-C-C	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : REC		-80		dB
REC OUT Offset	V _{off}	No signal, NR : Off → C, R/P : REC	-70	0	70	mV
Channel Balance	D-G _v	V _{in} = 0dB, f = 1kHz, NR : Off, R/P : REC	-1.0	0	1.0	dB
Control Voltage PB	V _{c-P}	DC Voltage to pin 26	9.0		12.5	V
Control Voltage REC	V _{c-R}	DC Voltage to pin 26	5.0		7.0	V
Control Voltage PB _{mpx}	V _{c-Pm}	DC Voltage to pin 26	-0.5		3.0	V
Control Voltage C	V _{c-C}	DC Voltage to pin 3	9.0		12.5	V
Control Voltage B	V _{c-B}	DC Voltage to pin 3	5.0		7.0	V
Control Voltage OFF	V _{c-Off}	DC Voltage to pin 3	-0.5		3.0	V

■ 6932852 0014010 332 ■

Pin

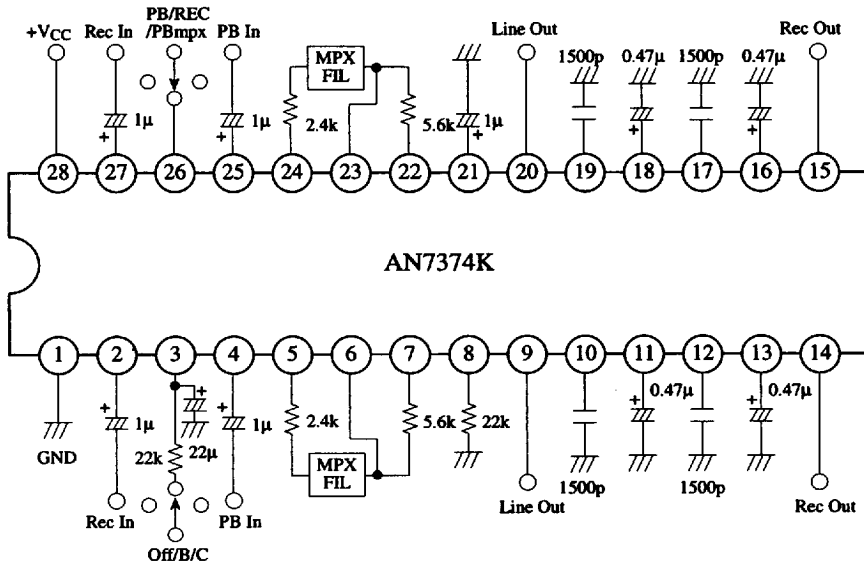
Pin No	Pin Name	Pin No	Pin Name
1	GND	15	RECT - OUT
2	REC - IN	16	LLS RECT
3	OFF / B / C Switch	17	LLS Control Resistance
4	PB - IN	18	HLS RECT
5	MPX - OUT	19	HLS Control Resistance
6	MPX - IN	20	LINE - OUT
7	V _{REF}	21	VR _{IN}
8	I _{REF}	22	V _{REF}
9	LINE - OUT	23	MPX - IN
10	HLS Control Resistance	24	MPX - OUT
11	HLS RECT	25	PB - IN
12	LLS Control Resistance	26	PB / REC / PBmpx Switch
13	LLS RECT	27	REC - IN
14	RECT - OUT	28	V _{CC}

Test Circuit

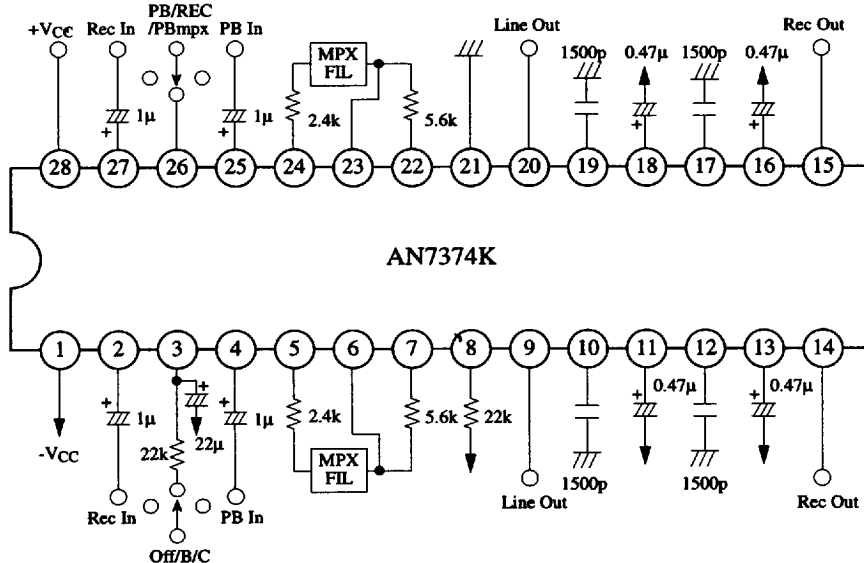


■ Application Circuits

Switchable Processor with Single Supply

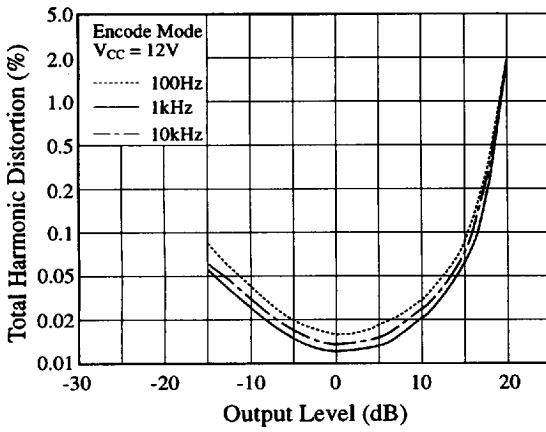


Switchable Processor with Split Supply

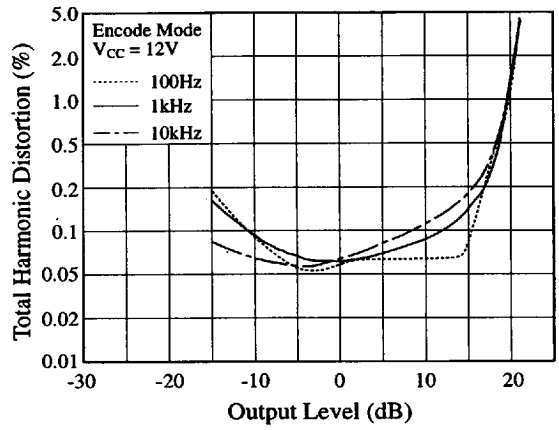


■ Characteristics Curve (Continue)

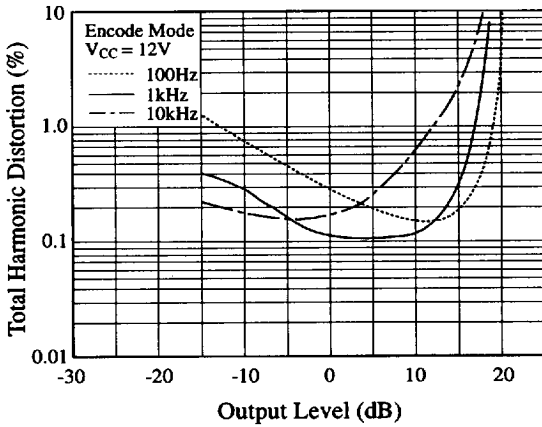
NR OFF Total Harmonic Distortion



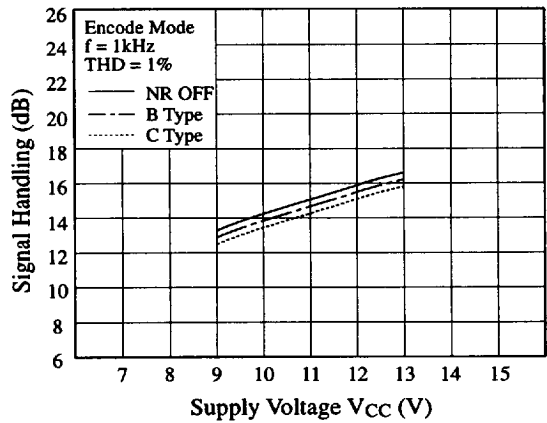
B Type Total Harmonic Distortion



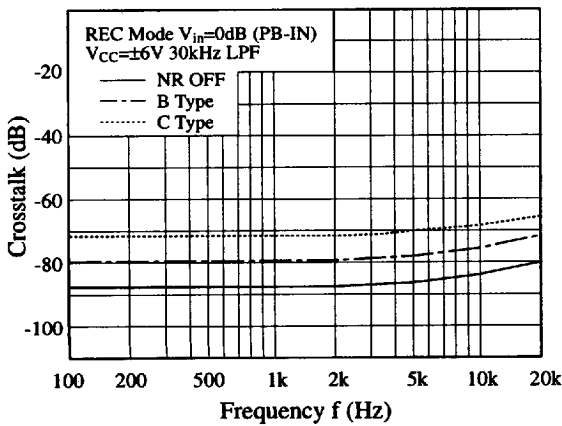
C Type Total Harmonic Distortion



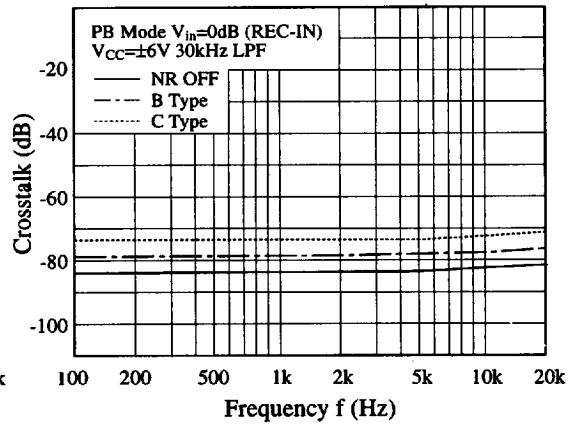
Signal Handling



Crosstalk (PB to REC)



Crosstalk (REC to PB)



■ Characteristics Curve (Continue)

