

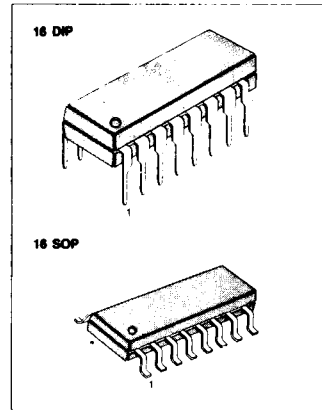


DOLBY* B-TYPE NOISE REDUCTION PROCESSOR

The KA22712 is a monolithic integrated circuit designed for use in Dolby*B-type noise reduction systems.

FEATURES

- Few external components
- Low quiescent circuit current (typ $I_{CCQ} = 4.5mA$)
- High crosstalk rejection ratio
- Built in NR-switch, REC/PB-switch
- Recommended supply voltage: $V_{CC} = 6.5V \sim 16V$



BLOCK DIAGRAM

ORDERING INFORMATION

Device	Package	Operating Temperature
KA22712	16 DIP	-30°C ~ +85°C

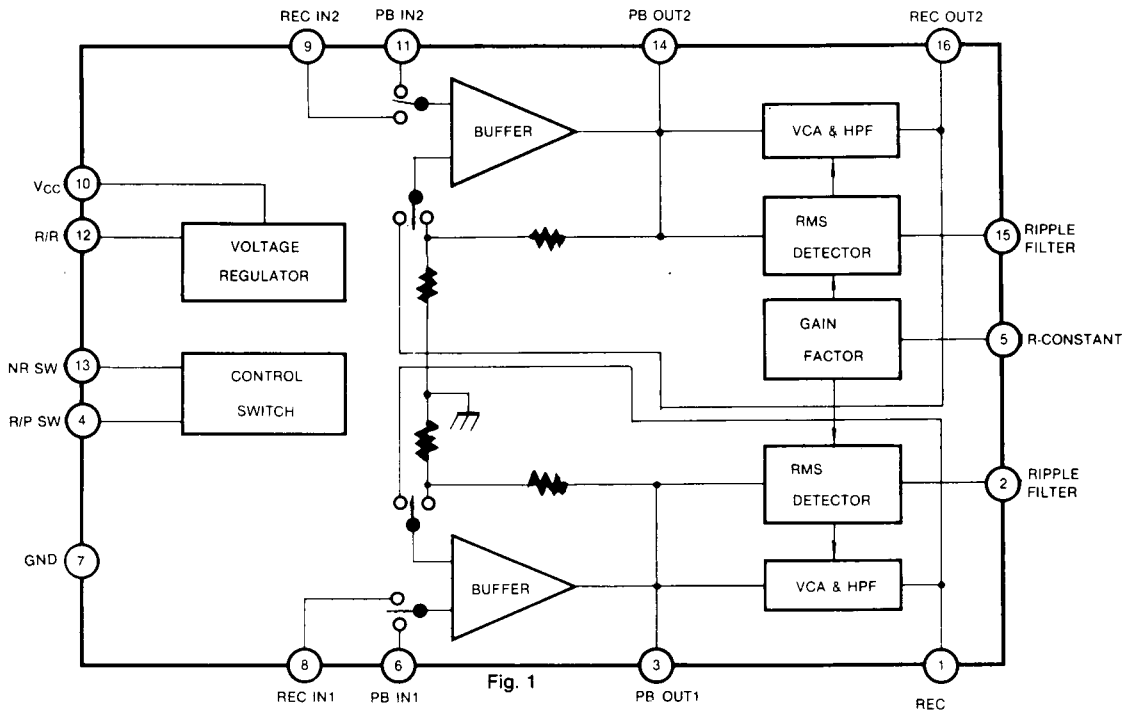


Fig. 1

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PIN CONFIGURATION

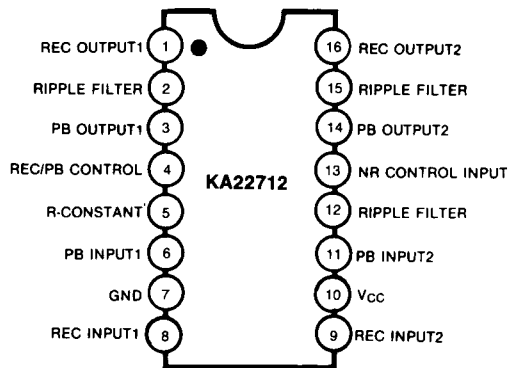


Fig. 2

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V _{CC}	16	V
Power Dissipation	P _D	750	mW
Operating Temperature	T _{OPR}	-30 ~ +85	°C
Storage Temperature	T _{STG}	-40 ~ +125	°C

Note: Derated above Ta = 25°C in the proportion of 10mW/°C

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, Vcc = 9V, f = 1KHz, 0dB = 245mV (-10dBm) at REC OUT, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I _{CCQ}	REC mode, NR-off, V _i = 0	3.5	4.5	6	mA
Buffer Voltage Gain	G _v	REC mode, PBout = 0dB	22	24	26	dB
NR-REC Boost	G _{v(BST)}	RECout = -25dB, f = 500Hz	1.4	2.9	4.4	dB
		RECout = -25dB, f = 2KHz	5.5	7.0	8.5	dB
		RECout = -25dB, f = 5KHz	3.9	5.4	6.9	dB
		RECout = -40dB, f = 10KHz	9.1	10.4	11.9	dB
		RECout = 0dB, f = 10KHz	-1.1	0.4	1.9	dB
NR-Boost Balance	CB	NR-REC boost CH to CH ratio		0	1	dB
MAX. RECout level	V _{O(MAX)}	REC mode, NR-off THD = 1%	14	16		dB
RECout Distortion	THD	REC mode, NR-off RECout = 10dB		0.04	0.1	%
		REC mode, NR-on RECout = 10dB		0.04	0.1	%
NR-effect S/N	S/N	REC mode, R _e = 2.2K Filter = CCIR/ARM	65	69		dB
Crosstalk	CT	NR-off OUTPUT = 0dB PB to REC		-75	-65	dB
		CH to CH, NR-off OUTPUT = 0dB		-68	-62	dB
Input Impedance	Z _i		30	47	60	KΩ
Switch Control Voltage	V _{CTL}	High mode	2.4			V
		Low mode	0		0.4	V
Input Level	REC V _i	REC mode, NR-off RECout = 0dB	19.5	24.5	31.0	mV
	PB V _i	PB mode, NR-off RECout = 0dB	19.5	24.5	31.0	mV
Output Level	V _o	REC mode, NR-off RECout = 0dB Testpoint = PB output	346	388	436	mV

TEST CIRCUIT

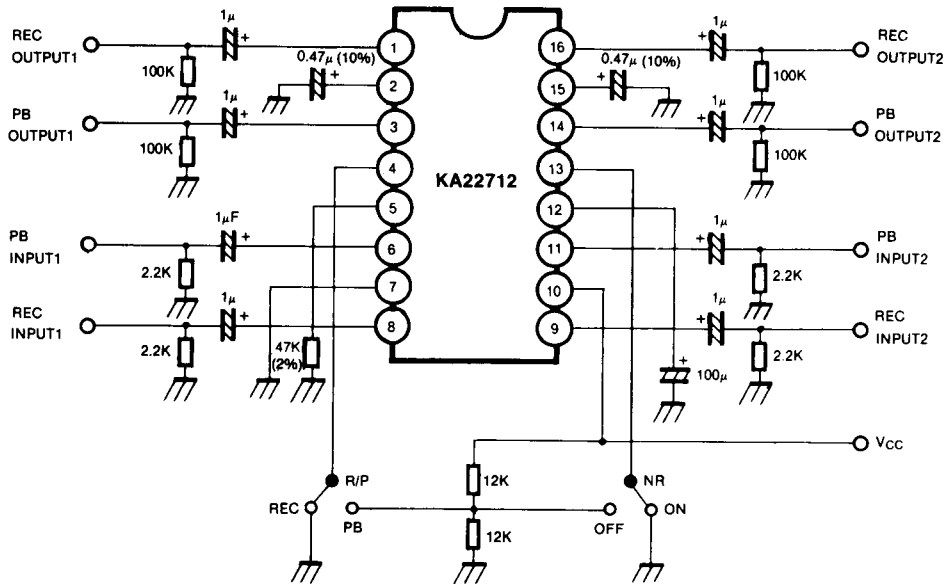
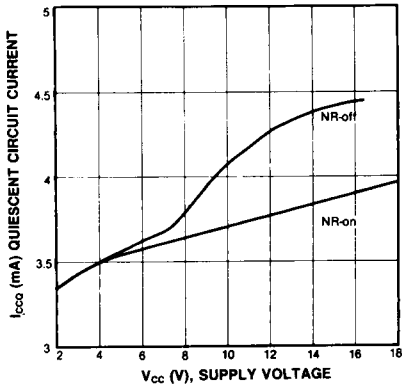


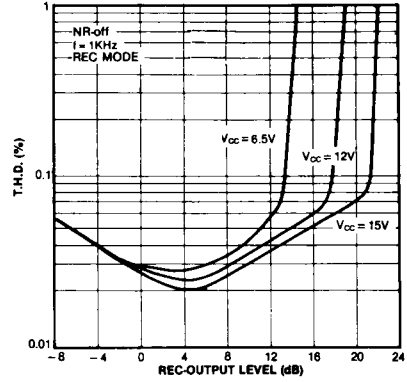
Fig. 3

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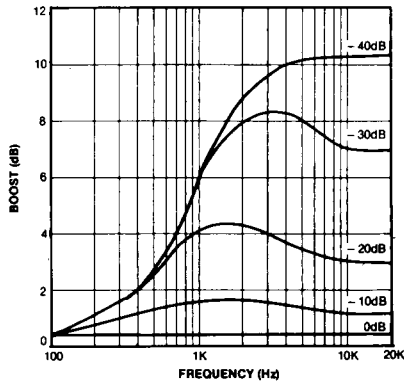
QUIESCENT CIRCUIT CURRENT-SUPPLY VOLTAGE



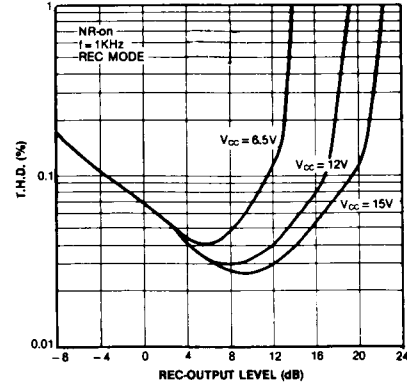
TOTAL HARMONIC DISTORTION (REC)



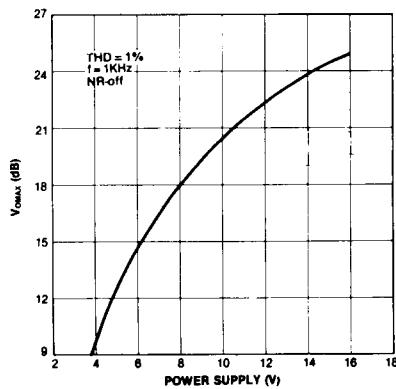
REC (ENCODE) CHARACTERISTIC



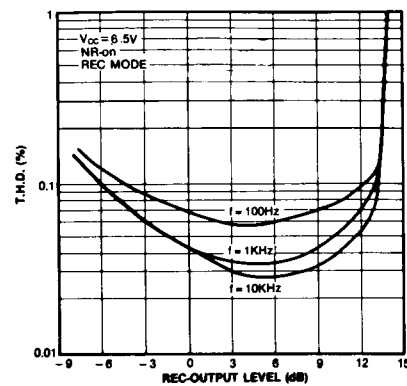
TOTAL HARMONIC DISTORTION (REC)



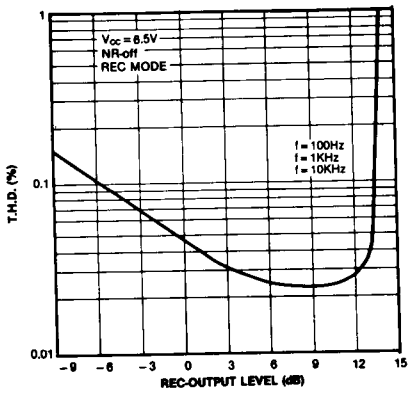
MAX REC-OUTPUT LEVEL



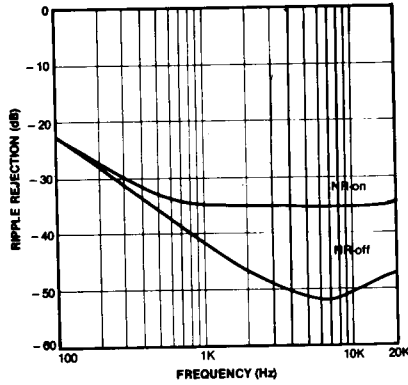
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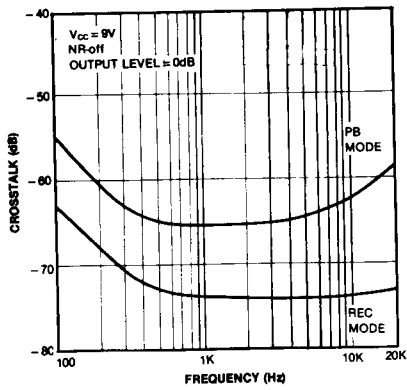
TOTAL HARMONIC DISTORTION (REC)



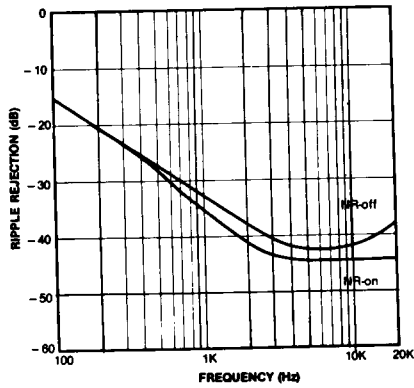
RIPPLE REJECTION (REC)



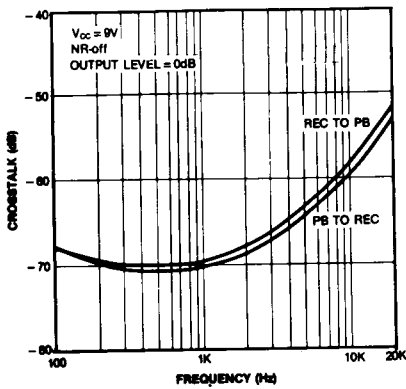
CROSSTALK (CH TO CH)



RIPPLE REJECTION (PB)



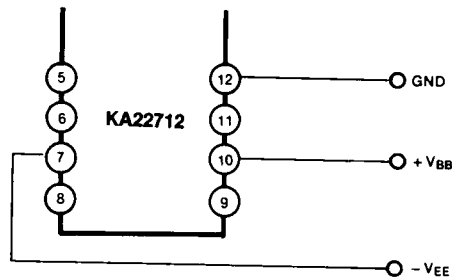
CROSSTALK (BETWEEN REC TO PB)



APPLICATION INFORMATION

1) POWER SUPPLY

The KA22712 can be operated at 6.5V—16V in case of single and $\pm 3.25V - \pm 8V$ in dual power supply.



Dual power connection
Fig. 4

2) SWITCH CONTROL VOLTAGE

All function of KA22712 are controlled by internal electronic switches. The function switch is operated by D.C. voltage of NR and R/P control pins.

NR, R/P	V_H	V_L
Condition	PB	REC
	NR-off	NR-on

Single Power	Dual Power
$2.4V \leq V_H$	$V_H \geq V_{EE} + 2.4V$
$0.4V \geq V_L$	$V_{EE} + 0.4V \geq V_L$

3) REFERENCE LEVEL

The reference output level of Dolby noise reduction system is defined as Dolby level. The Dolby level of KA22712 is 245mV (-10dBm) at $f = 400Hz$.