

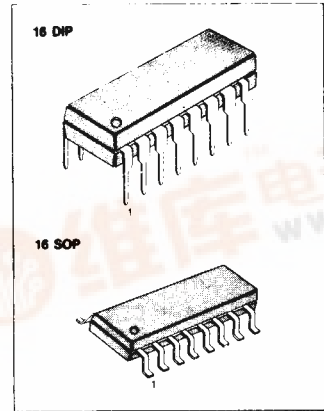


DOLBY* B-TYPE NOISE REDUCTION PROCESSOR

The KA2271 is a monolithic integrated circuit designed for use in Dolby* B-type noise reduction systems.

FEATURES

- Few external components
- Low quiescent circuit current (typ $I_{CCQ} = 4.3\text{mA}$)
- High crosstalk rejection ratio
- Built in NR-switch, REC/PB-switch
- Recommended supply voltage: $V_{CC} = 8\text{V} \sim 16\text{V}$



BLOCK DIAGRAM

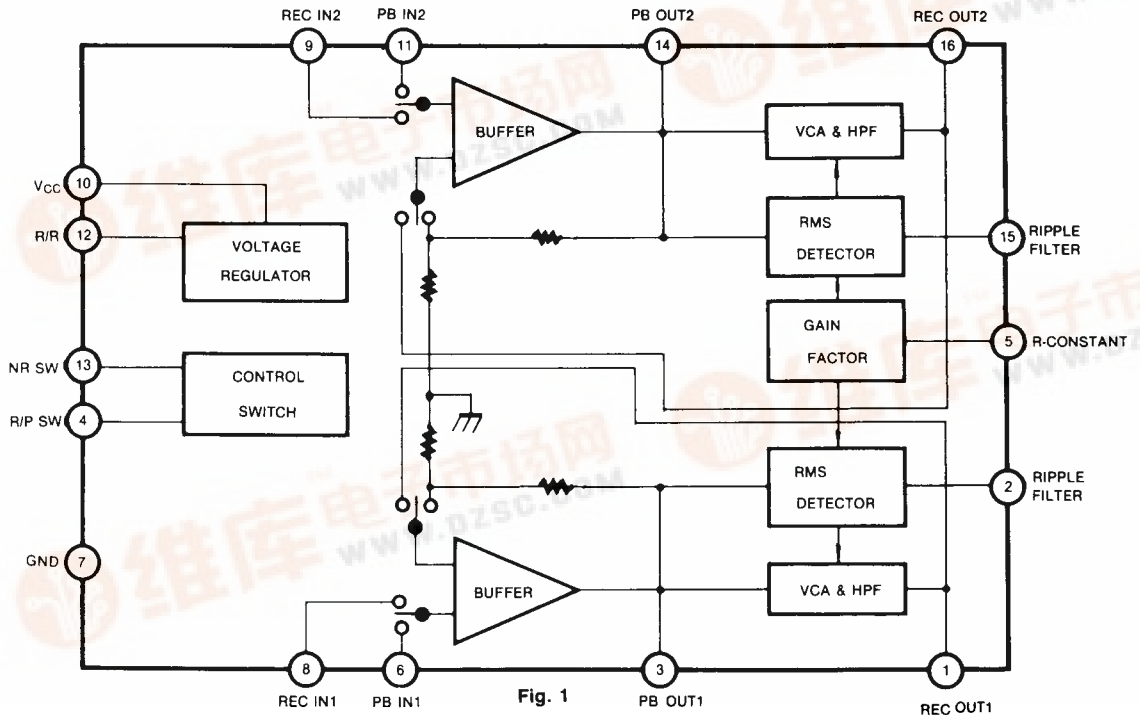


Fig. 1

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2271	16 DIP	-30°C ~ +85°C

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PIN CONFIGURATION

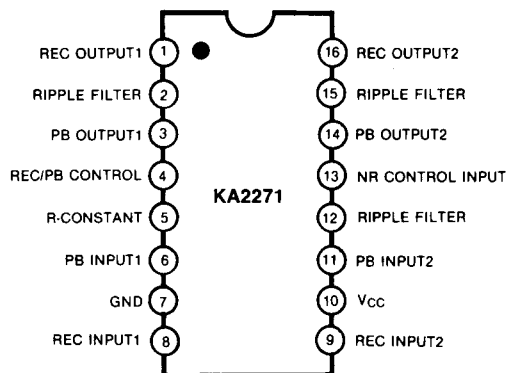


Fig. 2

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, V_{CC} = 12V, f = 1KHz, 0dB = 245mV (– 10dBm). at REC OUT, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I _{CCO}	REC mode, NR-off, V _I = 0	3.5	4.3	6	mA
Buffer Voltage Gain	G _V	REC mode, PBout = 0dB	25	27	29	dB
NR-REC Boost	G _{V (BST)}	RECout = – 25dB, f = 500Hz	1.4	2.5	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	9.7	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
REC Output Voltage	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 _G = 2.2K Filter = CCIR/ARM	65	69		dB
Crosstalk	CT	NR-off OUTPUT = 0dB PB to REC		– 70	– 65	dB
		CH to CH, NR-off OUTPUT = 0dB		– 70	– 65	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	489	549	616	mV

TEST CIRCUIT

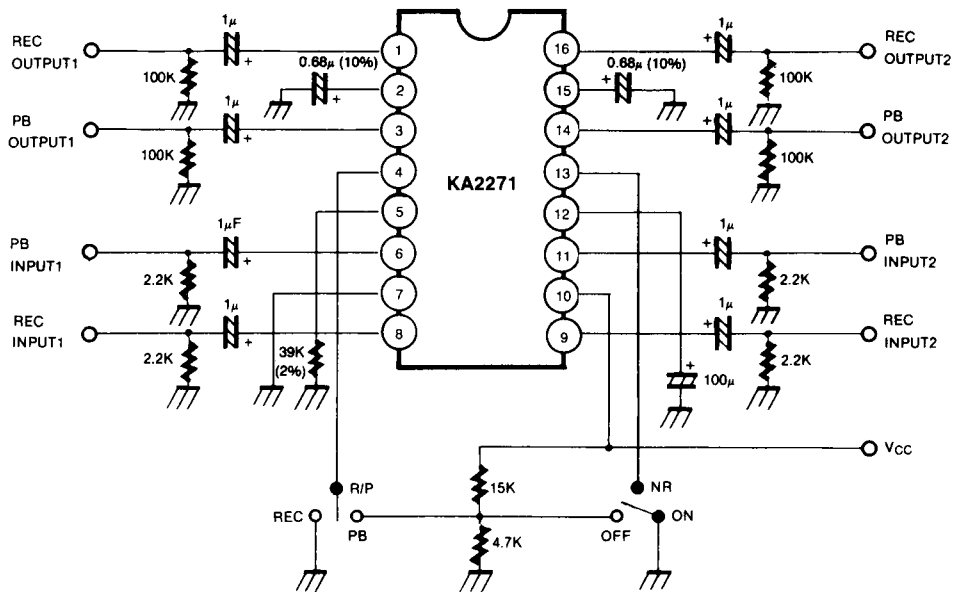
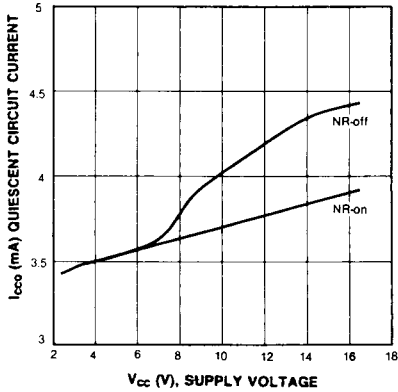
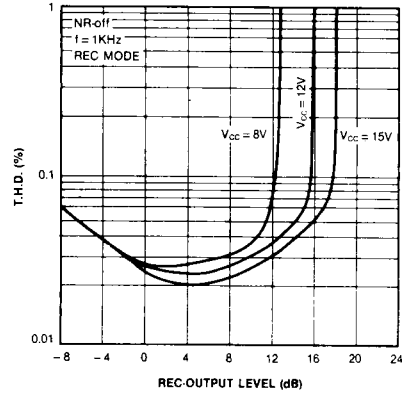


Fig. 3

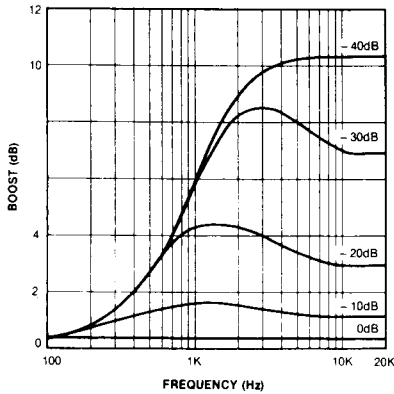
QUIESENTENT CIRCUIT CURRENT-SUPPLY VOLTAGE



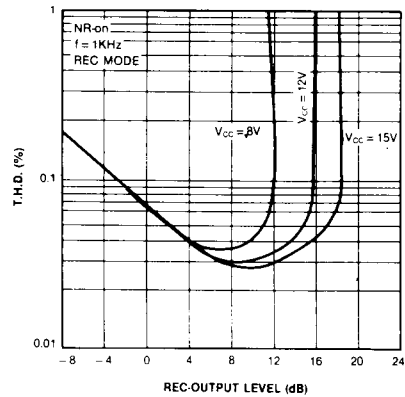
TOTAL HARMONIC DISTORTION (REC)



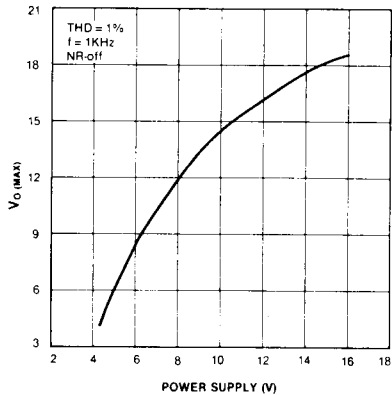
REC (ENCODE) CHARACTERISTIC



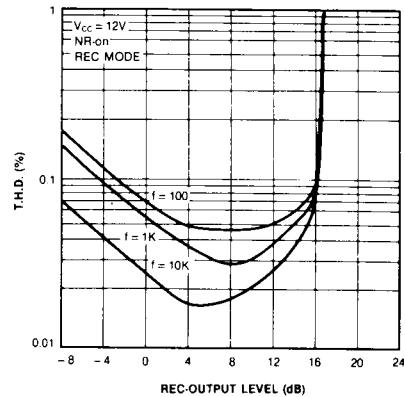
TOTAL HARMONIC DISTORTION (REC)



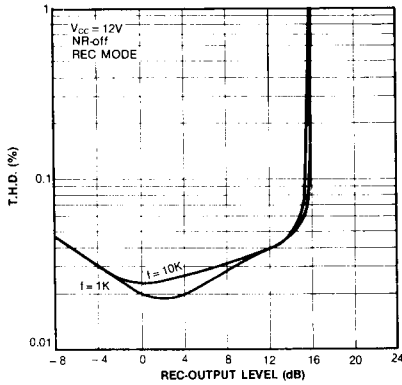
MAX REC-OUTPUT LEVEL



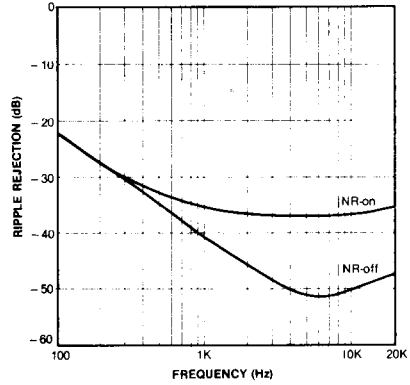
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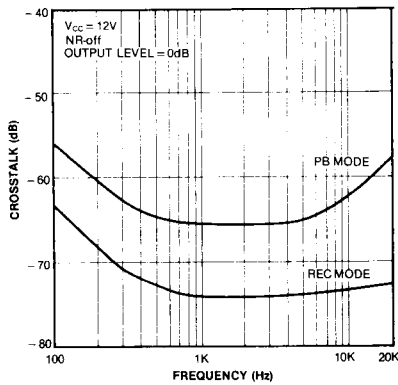
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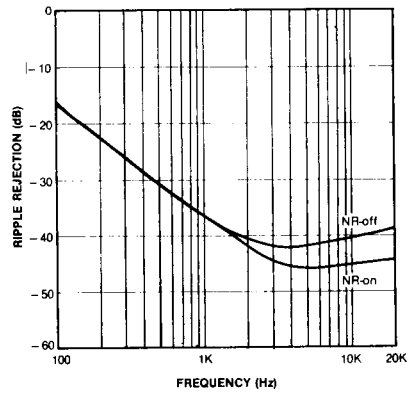
RIPPLE REJECTION (REC)



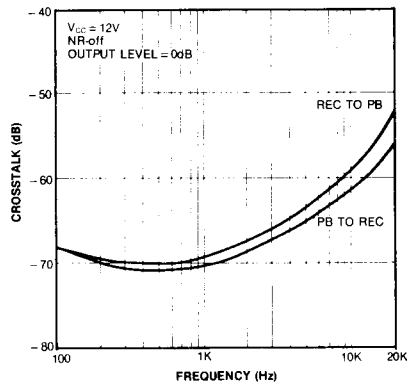
CROSSTALK (CH TO CH)



RIPPLE REJECTION (PB)



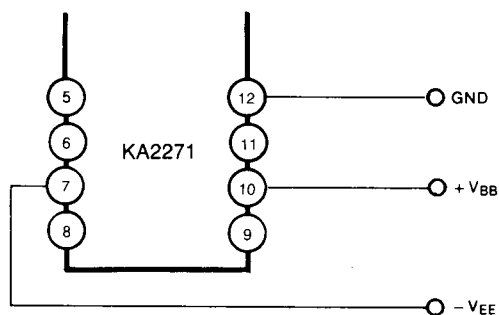
CROSSTALK (BETWEEN REC TO PB)



APPLICATION INFORMATION

1) POWER SUPPLY

The KA2271 can be operated at 8V – 16V in case of single and $\pm 4V - \pm 8V$ in dual power supply.



Dual power connection

Fig. 4

2) SWITCH CONTROL VOLTAGE

All function of KA2271 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 KA2271 is 245mV (–10dBm) at $f = 400\text{Hz}$.