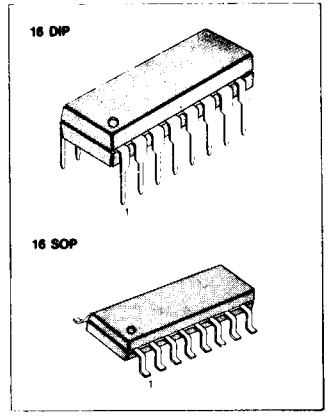
DOLBY* B-TYPE NOISE REDUCTION PROCESSOR

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} = 4.3mA)**
- **High crosstalk rejection ratio**
- **Built in NR-switch, REC/PB-switch**
- **Recommended supply voltage: V_{CC} = 8V ~ 16V**

BLOCK DIAGRAM

ORDERING INFORMATION

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

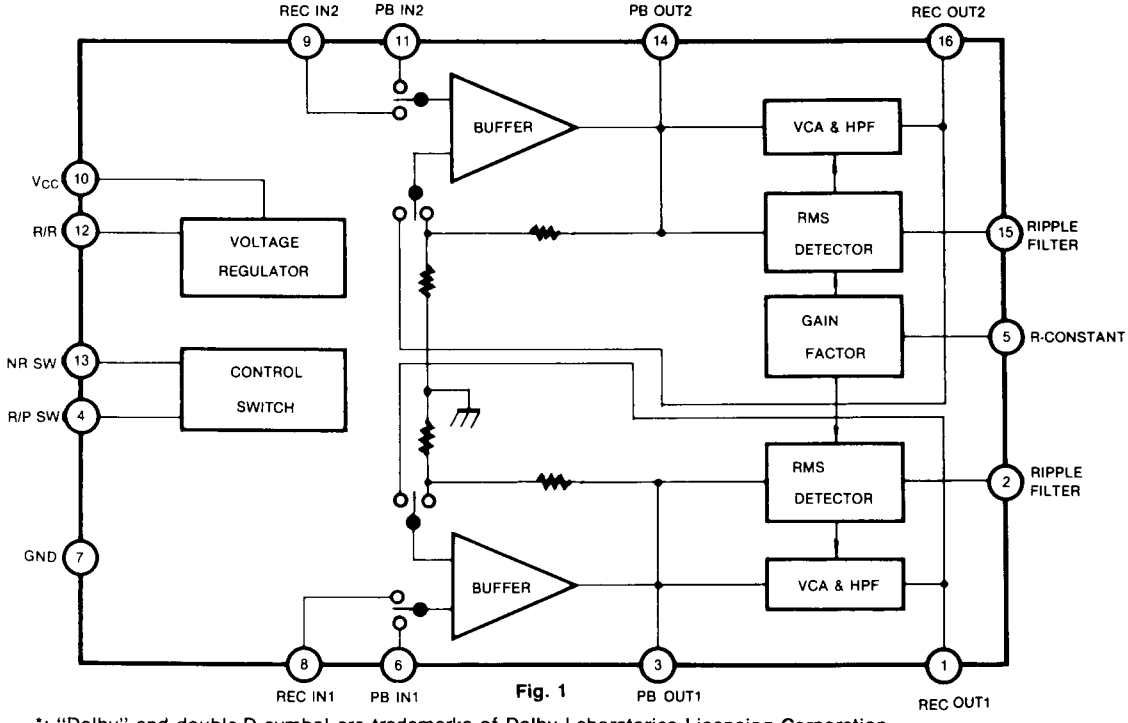


Fig. 1

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This I.C. is available only to licensees of Dolby Laboratories Licensing Corporation, San Francisco, from whom licensing and application information must be obtained.

PIN CONFIGURATION

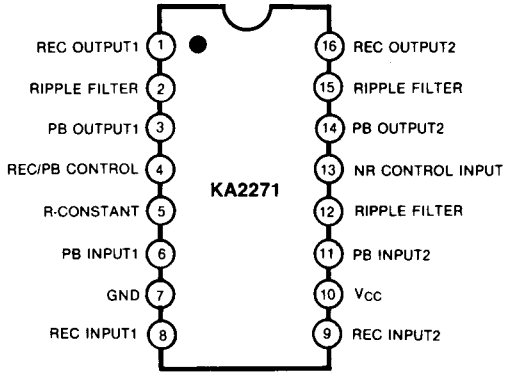


Fig. 2

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 propation 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_{CCQ}	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

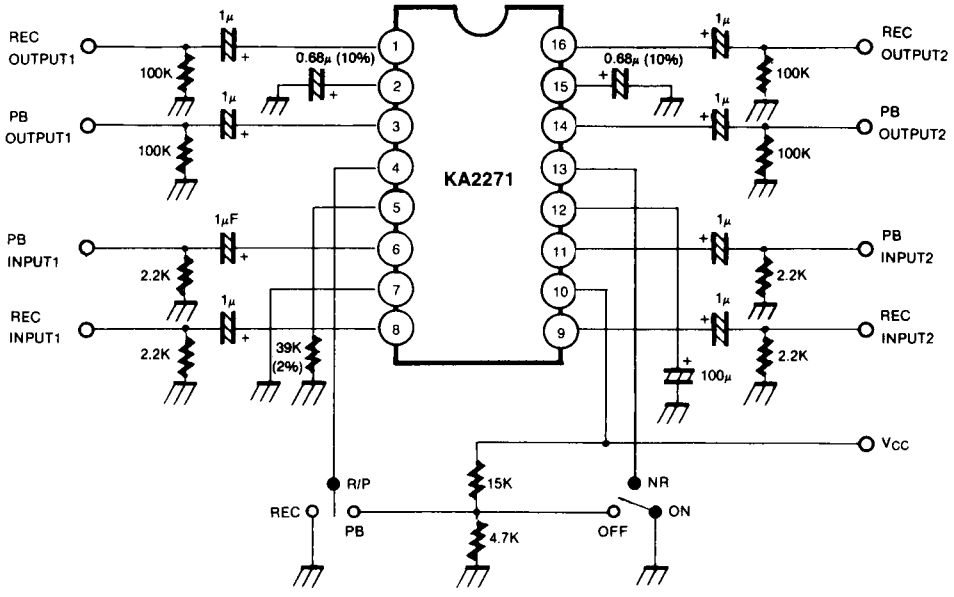
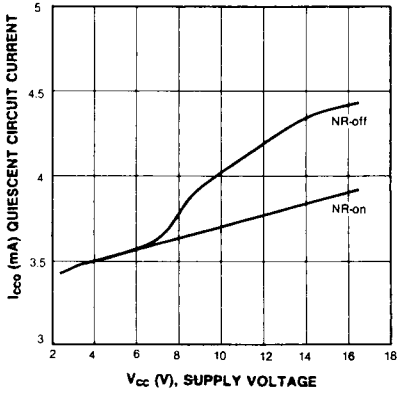
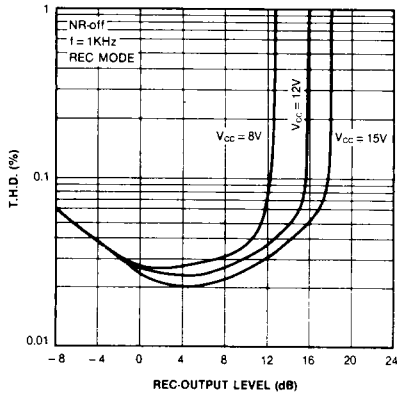


Fig. 3

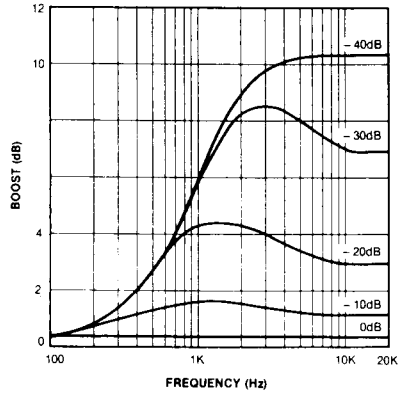
QUIESENTENT CIRCUIT CURRENT-SUPPLY VOLTAGE



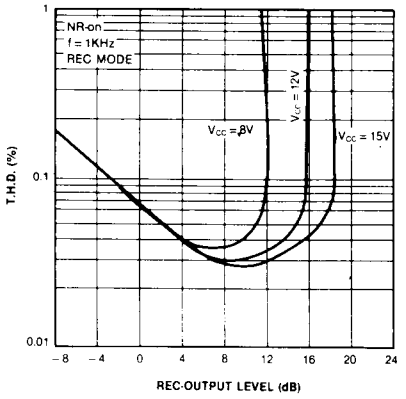
TOTAL HARMONIC DISTORTION (REC)



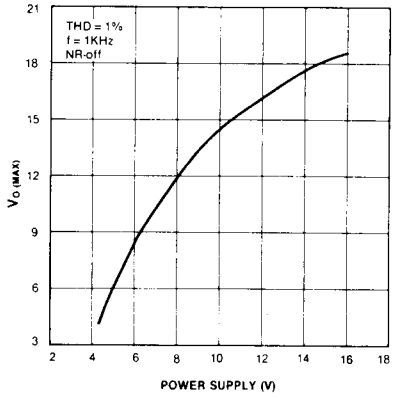
REC (ENCODE) CHARACTERISTIC



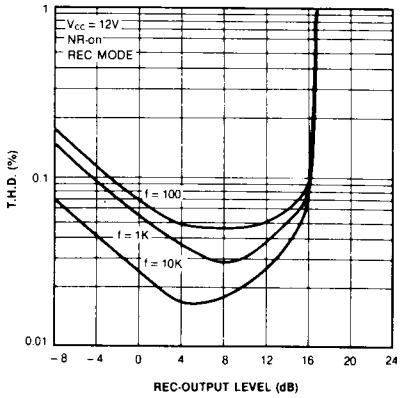
TOTAL HARMONIC DISTORTION (REC)



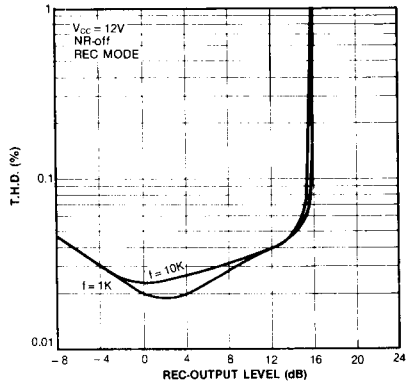
MAX REC-OUTPUT LEVEL



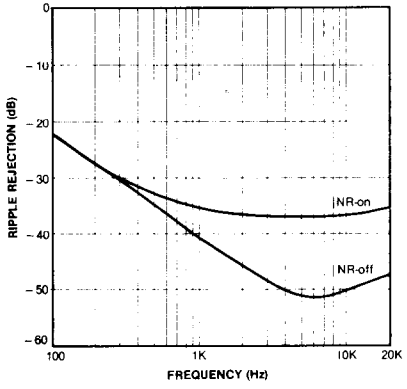
TOTAL HARMONIC DISTORTION (REC)



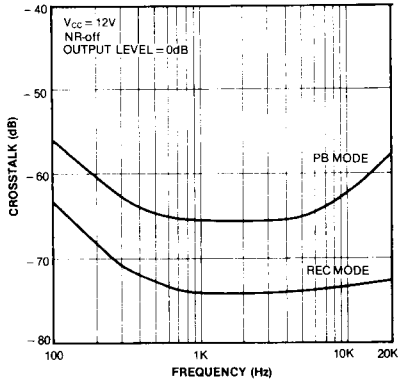
TOTAL HARMONIC DISTORTION (REC)



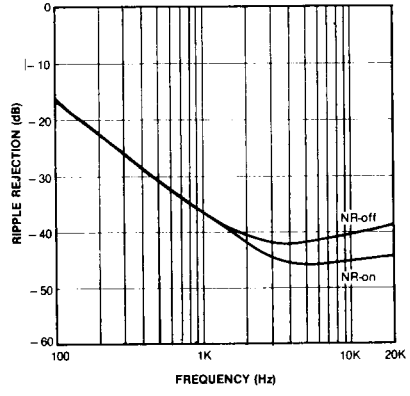
RIPPLE REJECTION (REC)



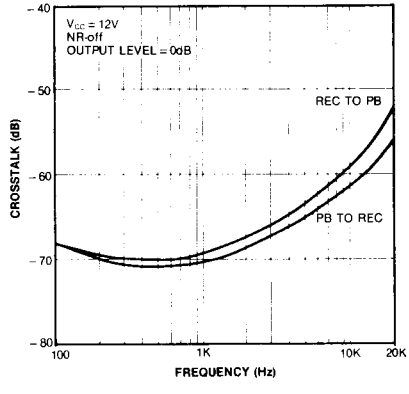
CROSSTALK (CH TO CH)



RIPPLE REJECTION (PB)



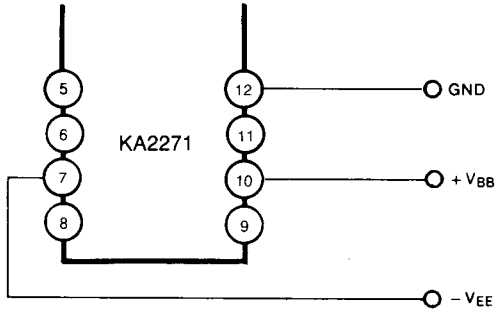
CROSSTALK (BETWEEN REC TO PB)



APPLICATION INFORMATION

1) POWER SUPPLY

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



Dual power connection

Fig. 4

2) SWITCH CONTROL VOLTAGE

All function of KA2271 are controlled by internal electronic switchs. 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
$2.4V \leq V_H$ $0.4V \geq V_L$	$V_H \geq V_{EE} + 2.4V$ $V_{EE} + 0.4V \geq V_L$

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 = 400Hz.