

DBL 1027

DUAL PREAMPLIFIER WITH ALC

The DBL 1027 is a monolithic integrated circuit consisting of two independent preamplifier with two built-in ALC, and it has quick stabilization during power supply input.

FEATURES

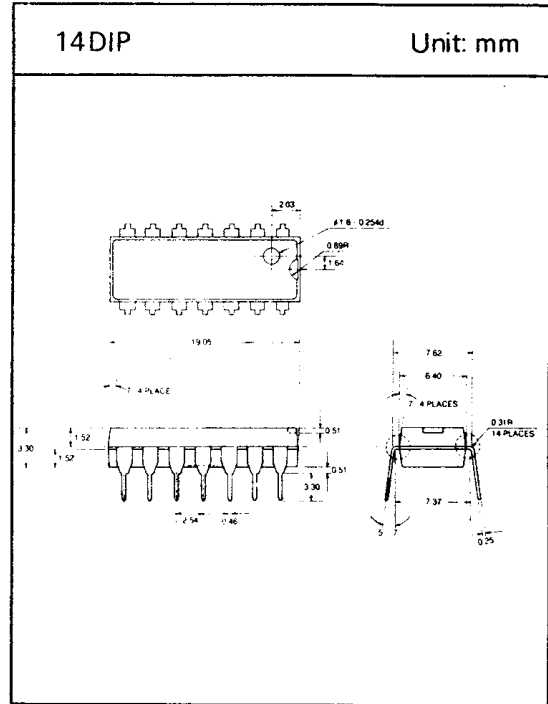
- High voltage gain
- Excellent channel separation
- Low noise
- Direct motor drive obtained through SEPP output stage.
- Good ALC channel balance
- Operating supply voltage range : $V_{CC} = 5V \sim 13V$
- Load resistance : $R_L > 680 \Omega$

APPLICATIONS

- Stereo radio cassettes

MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Supply Voltage	V_{CC}	14	V
Power Dissipation	P_D	600	mW
Operating Temperature	T_{opr}	$-20 \sim +75$	$^\circ C$
Storage Temperature	T_{stg}	$-40 \sim +125$	$^\circ C$



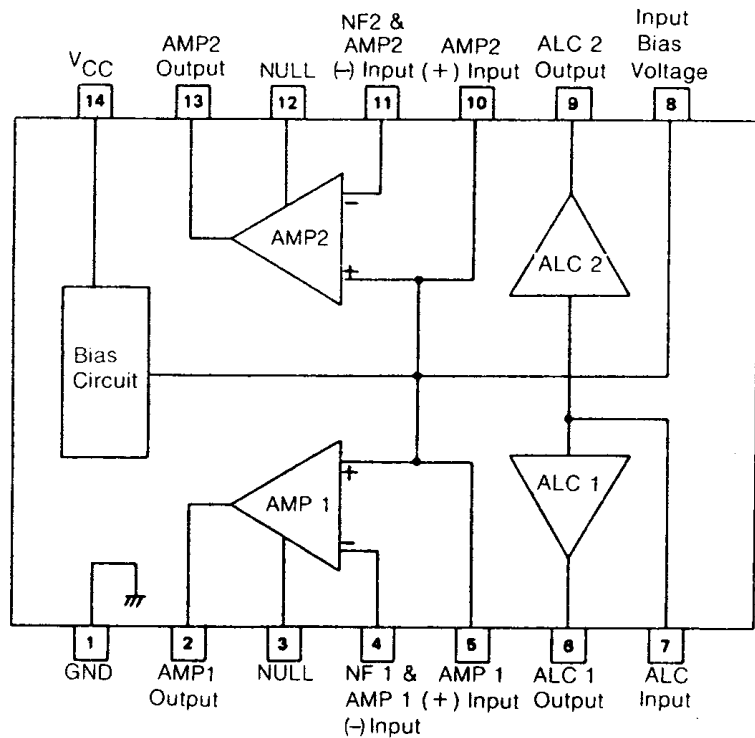
DBL 1027

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, $T_a = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$, $f = 1\text{KHz}$, $R_L = 10\text{K}\Omega$ (PLAY), $R_L = 680\Omega$ (REC))

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Quiescent Supply Current	I_{CCQ}	—	—	4.5	10	.mA
Open-loop Voltage Gain	G_{VO}	—	—	85	—	dB
Closed-loop Voltage Gain	G_V	PLAY	—	40	—	dB
		REC	—	58	—	dB
Maximum Output Voltage	V_{OM}	THD = 1%, PLAY	0.9	1.2	—	V
Total Harmonic Distortion	THD	$V_O = 0.5\text{V}$, PLAY	—	0.1	1	%
Input Resistance	R_{IN}	—	21	30	—	K Ω
Equivalent Input Noise Voltage	V_{NI}	B.P.F. = 20Hz~20KHz $R_g = 2.2\text{K}\Omega$, PLAY	—	1	2	μV
Channel Separation	CH_{SEP}	$R_g = 2.2\text{K}\Omega$ $V_O = 0\text{dBm}$, PLAY	40	50	—	dB
ALC Channel Balance	ACB	$V_{IN} = -20\text{dBm}$, REC.	—	0	2	dB
ALC Width	AW	$V_{IN} = -60\text{dBm}$, REC.	35	45	—	dB
ALC Distortion	AD	$V_{IN} = -20\text{dBm}$, REC.	—	0.5	2	%

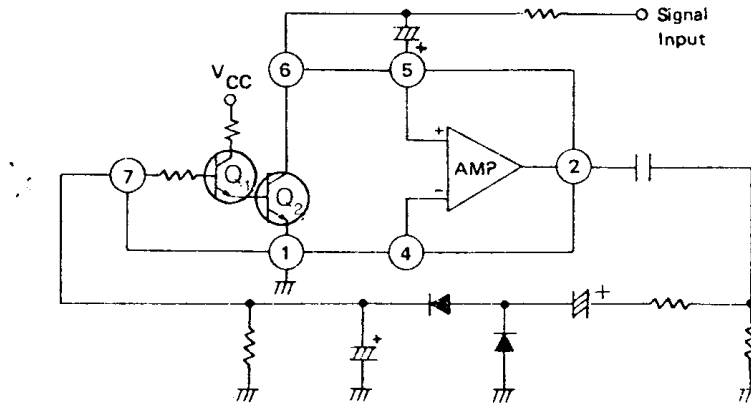
BLOCK DIAGRAM



□ INFORMATION OF OPERATING

1. ALC Circuit

The ALC circuit is consist of Q1, Q2 and some external components. The output level of amplifier is rectified by external circuits and this rectified DC level is applied to the ALC input terminal(Pin 7).



2. Closed-loop Gain (f = 1KHz)

- Closed loop voltage gain

$$G_V = 20\log(Z1/Z3) \text{ (dB)}$$

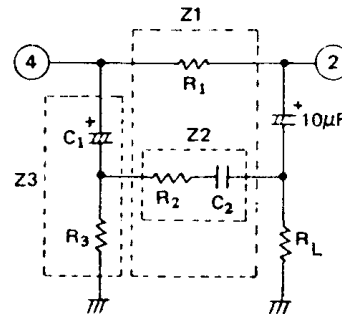
- Playback amplifier gain

$$G_V = 20\log(R1/R3) \text{ (dB) in low frequency}$$

$$G_V = 20\log(Z1/Z3) \text{ (dB) in high frequency}$$

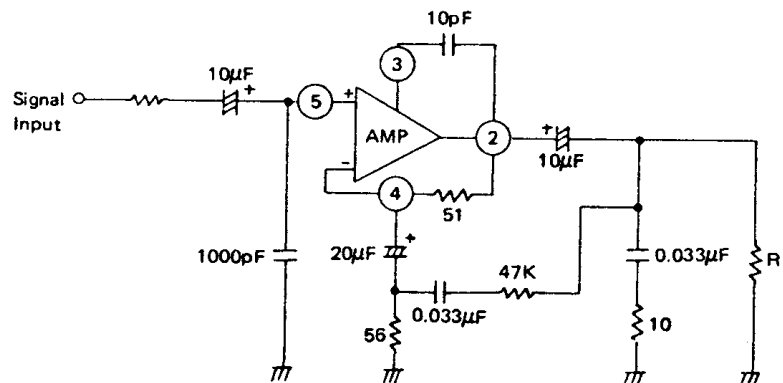
- Recording amplifier gain

$$G_V = 20\log(R1/R3) \text{ (dB)}$$

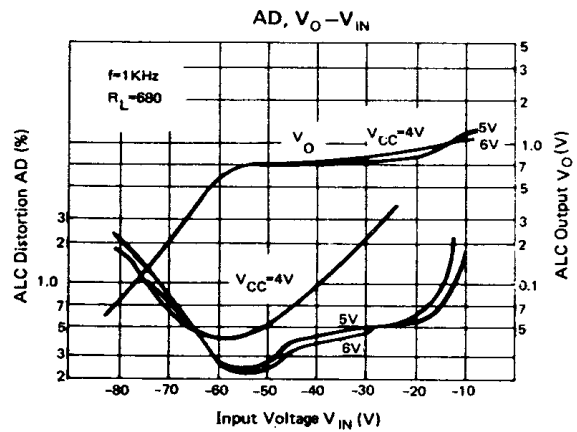
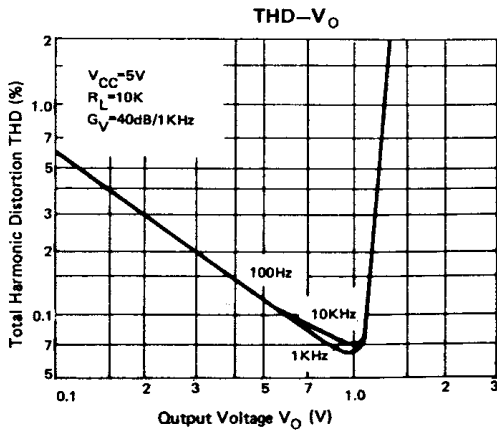
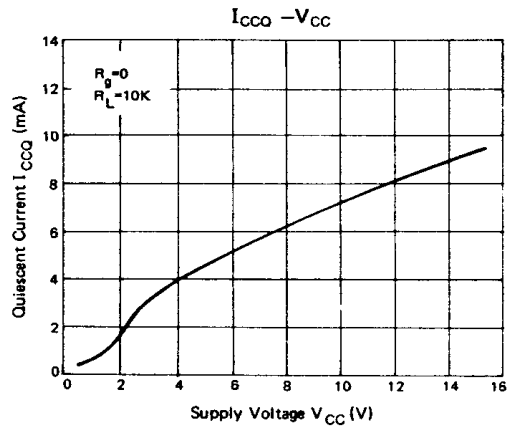
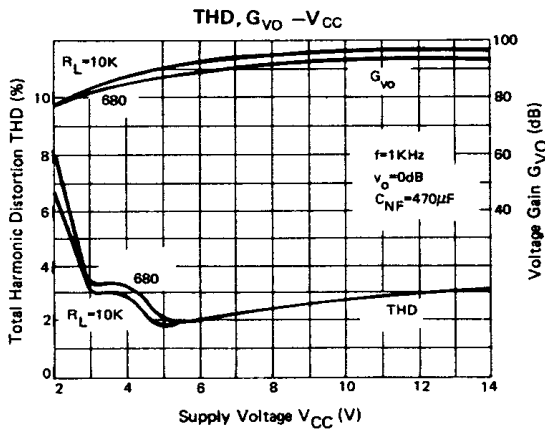
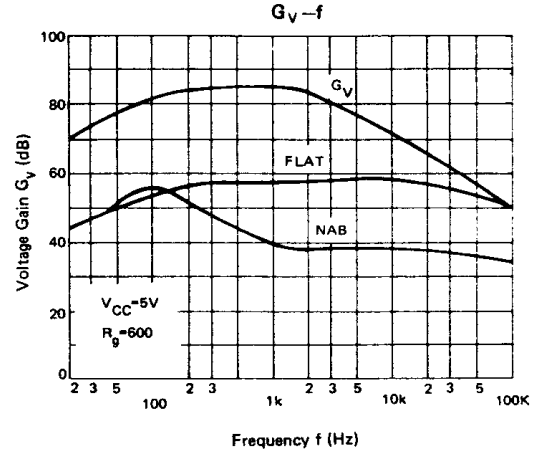
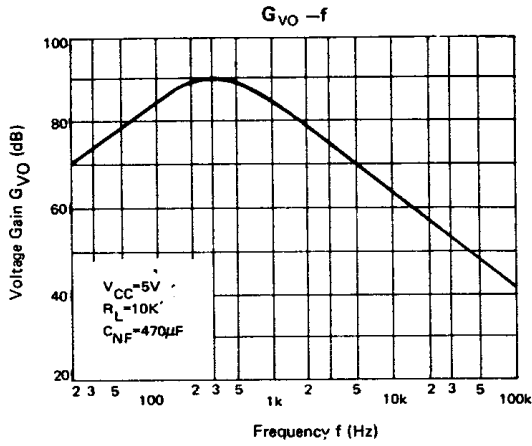


3. Oscillation

When the closed-loop gain of amplifier is lowered, oscillation with occur. So the circuit should be compensated by connecting of 10pF between pin 3 and pin 2, and 0.03µF in series with 10Ω to the load end.



TYPICAL PERFORMANCE CHARACTERISTICS



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□ APPLICATION CIRCUIT

