AN7316

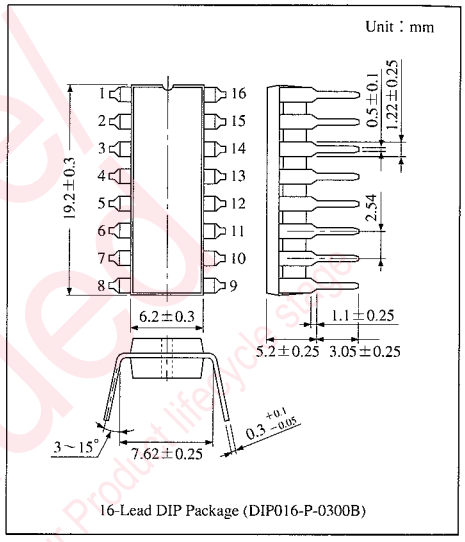
Dual Recording/Playback Pre-Amplifier IC for Cassette

■ Overview

The AN7316 is an integrated circuit for radio cassette recorder and built-in only fundamental function of rec./playback pre-amp. with ALC function in 2-channel 16-pin · DIL plastic package.

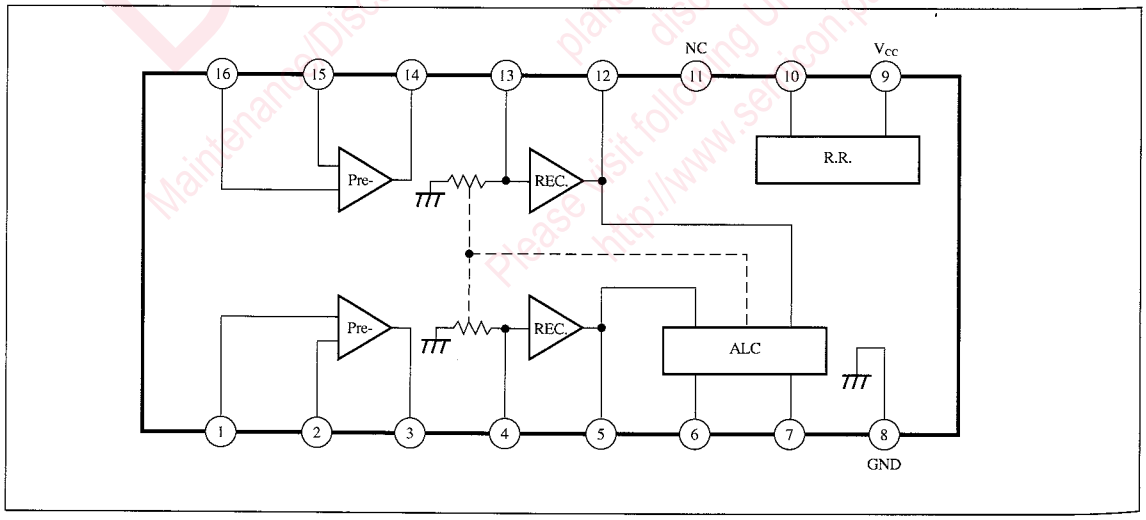
■ Features

- Built-in ALC LOW CUT function
- Rec. amp gain fixed and external parts reduced
- Wide operating supply voltage range (4V～12V)



16-Lead DIP Package (DIP016-P-0300B)

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	14	V
Supply Current	I_{CC}	30	mA
Power Dissipation	P_D	1,000	mW
Operating Ambient Temperature	T_{opr}	−20～+75	℃
Storage Temperature	T_{stg}	−55～+150	℃

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	3.5V～12V

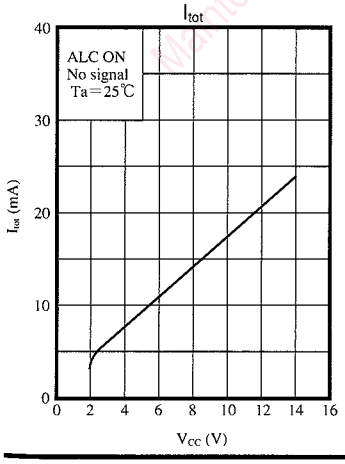
■ Electrical Characteristics (V_{CC}=6V, f=1kHz, Ta=25℃)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
No Signal Current Consumption	I_{tot}		8.8	11.4	15.3	mA
〈Playback Amp.〉						
Open Circuit Gain	G_{VO-p}	R_{NF}	75	84	—	dB
Closed Circuit Gain	G_{VC-p}	NAB	40	43	46	dB
Max. Output Voltage	V_{om-p}	THD=3%	1.4	1.7	—	V
Total Harmonic Distortion	THD_{-p}	400Hz～80kHz	—	0.038	0.1	%
Noise Voltage Referred to Input	V_{ni-p}	R_{in}=2.2kΩ, DIN/AUDIO	—	1.1	2	μV
Crosstalk between Channels	CT_{-p}	R_{in}=2.2kΩ, DIN/AUDIO	64	71.5	—	dB
Channel Balance	CB_{-p}		−1.5	0	1.5	dB
〈Rec. Amp〉						
Closed Circuit Gain	G_{v-r}		37	39	42.5	dB
Max. Output Voltage	V_{om-r}	THD=3%	1	1.9	—	V
Total Harmonic Distortion	THD_{-r}	400Hz～80kHz	—	0.1	0.17	%
Output Noise Voltage	V_{no-r}	R_{in}=3kΩ, DIN/AUDIO	—	260	550	μV
Crosstalk between Channels	CT_{-r}	R_{in}=3kΩ, DIN/AUDIO	50	51	—	dB
Channel Balance	CB_{-r}		−1.5	0	1.5	dB
〈ALC〉						
ALC Start Voltage	V_S	R_{in}=5.6kΩ, Dual Ch. input	0.75	0.9	1.37	V
ALC Effective Width	W_{ALC}	R_{in}=5.6kΩ, Dual Ch. input	35	46	—	dB
ALC Channel Balance	CB_{-a}	R_{in}=5.6kΩ, Dual Ch. input	−2	0.1	2	dB

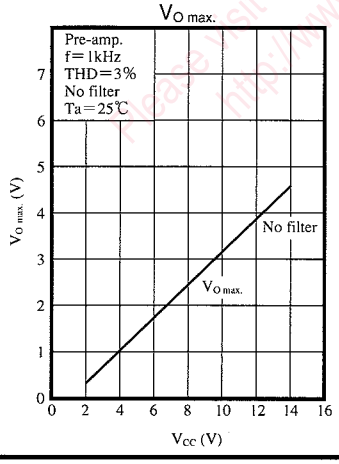
ICs for Cassette Deck

■ Characteristics Curve

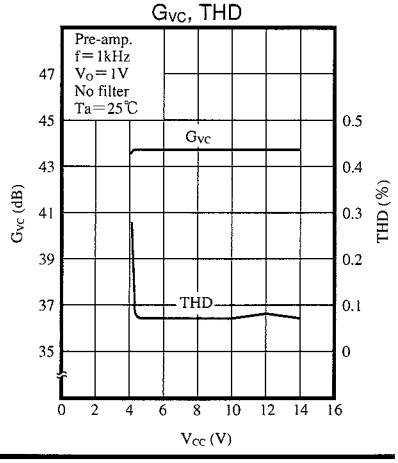
Supply Voltage Characteristics— I_{tot}



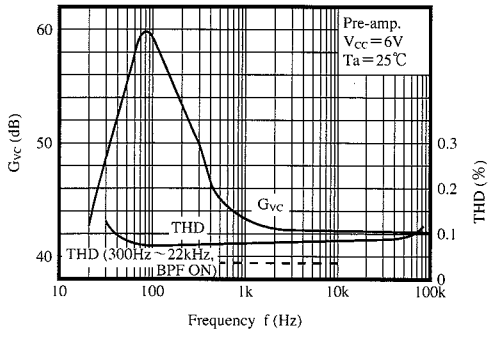
Supply Voltage Characteristics— $V_{O\,max.}$



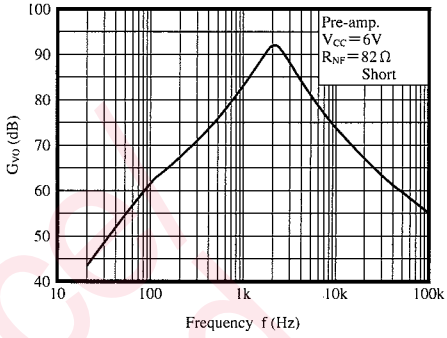
Supply Voltage Characteristics— G_{VC}, THD



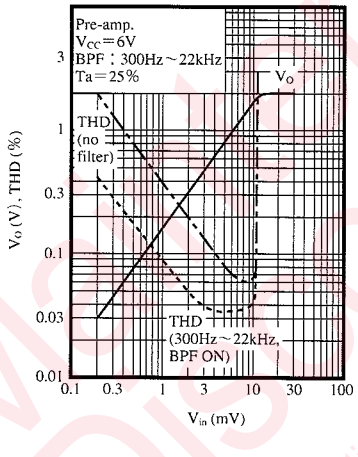
Frequency Characteristics—G_{VC}, THD (NAB)



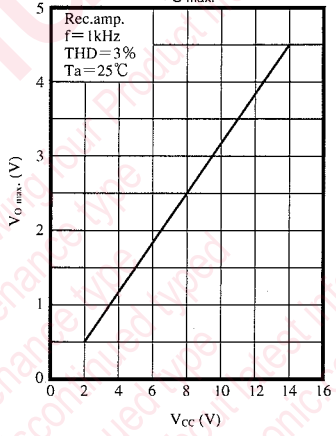
Frequency Characteristics—G_{VO}



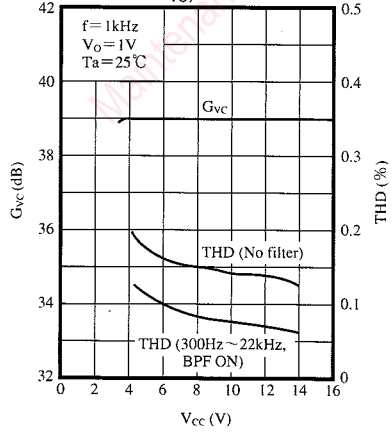
Input/Output, Distortion Characteristics



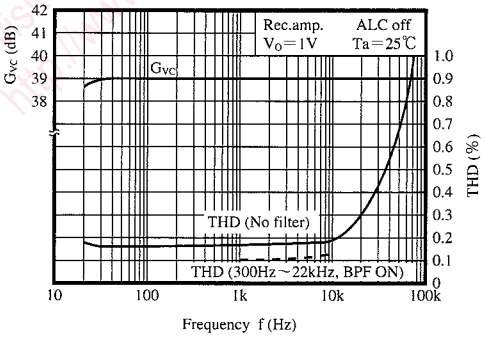
Supply Voltage Characteristics—$V_{O\,max.}$



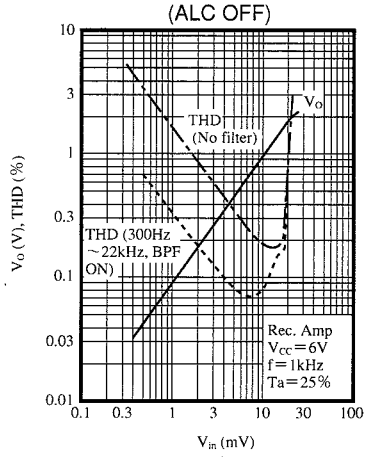
Supply Voltage Characteristics—G_{VC}, THD



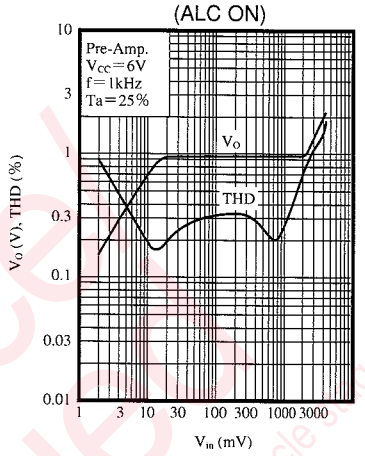
Frequency Characteristics—G_{VC}, THD



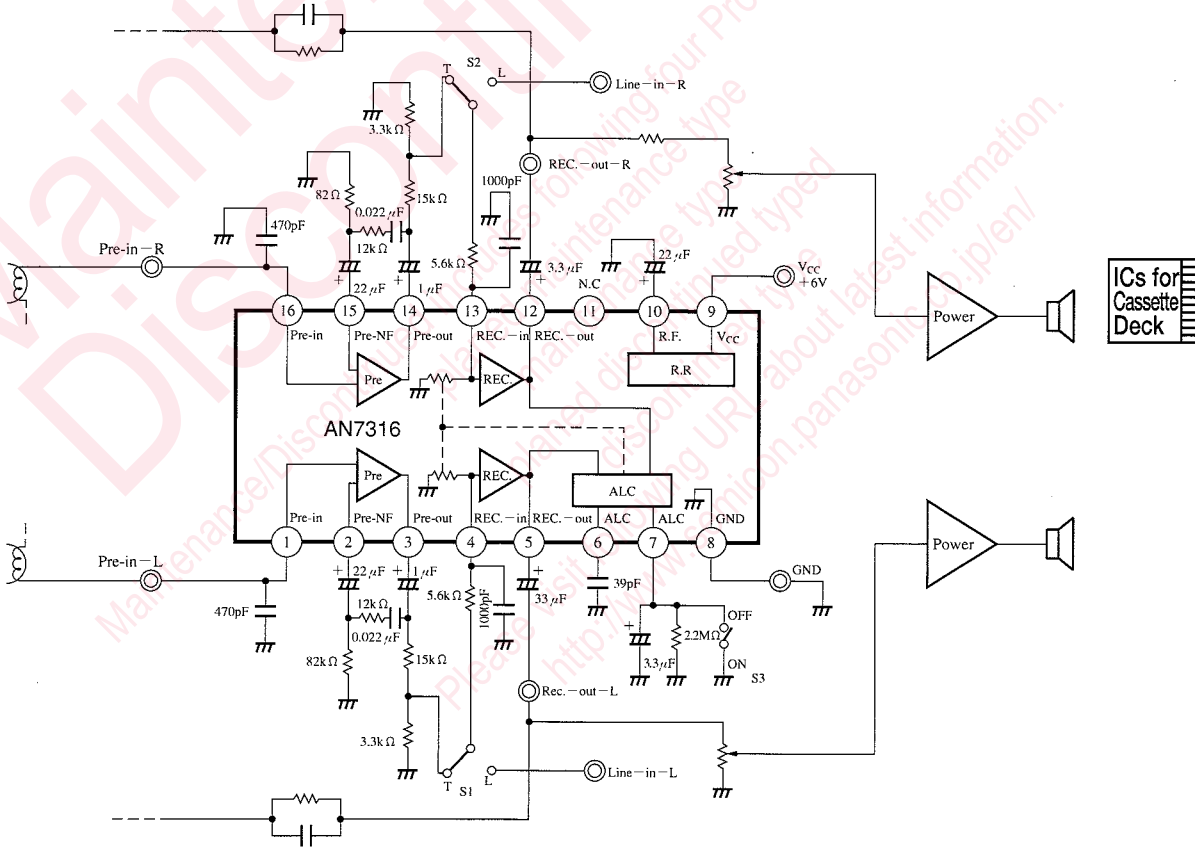
Input/Output, Distortion Characteristics (ALC OFF)



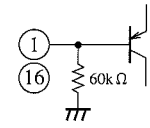
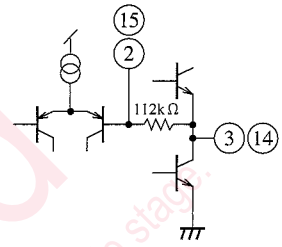
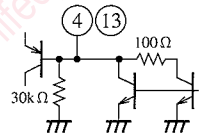
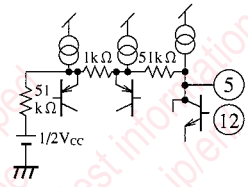
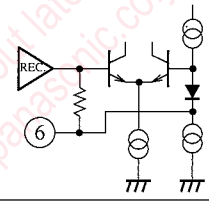
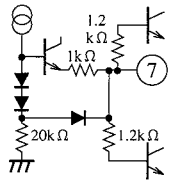
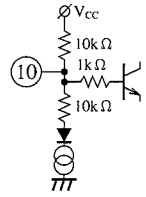
Input/Output, Distortion Characteristics (ALC ON)



■ Application Circuit



■ Pin Descriptions

Pin No.	Pin Name	Typ. Waveform	Description	Equivalent Circuit
1 16	Ch.1 Playback Amp. Input Ch.2 Playback Amp. Input	−43.6dBV	Playback amp. input	
2 15	Ch.1 Playback Amp. Negative Feedback Ch.2 Playback Amp. Negative Feedback	DC 0.7V	Playback amp. feedback	
3 14	Ch.1 Playback Amp. Output Ch.2 Playback Amp. Output	0dBV	Playback amp. output	
4 13	Ch.1 Rec. Amp. Input Ch.2 Rec. Amp. Input	−39dBV	Rec. amp. input	
5 12	Ch.1 Rec. Amp. Output Ch.2 Rec. Amp. Output	0dBV	Rec. amp. output	
6	Low CUT	DC about 2.5V	AGC comparator circuit reference voltage	
7	ALC Time Constant	Follow input signal	Low-pass filter pin	
8	GND	—	Main circuit GND	———
9	V_{CC}	DC 6V	Main circuit $+V_{CC}$	———
10	V_{ref}	DC 3.7V		
11	NC	—	———	———

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