AN7345K

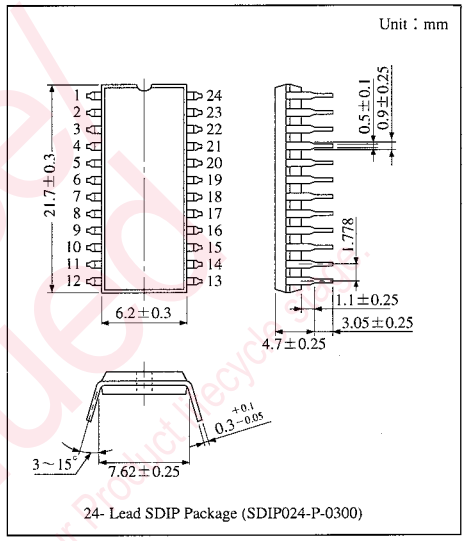
Dual Recording/Playback Pre-Amplifier IC for Double Cassette

■ Overview

The AN7345K is an integrated circuit developed for double cassette and built-in 2 channel rec./playback pre-amp. with ALC function in shrunk DIP-24 pin package.

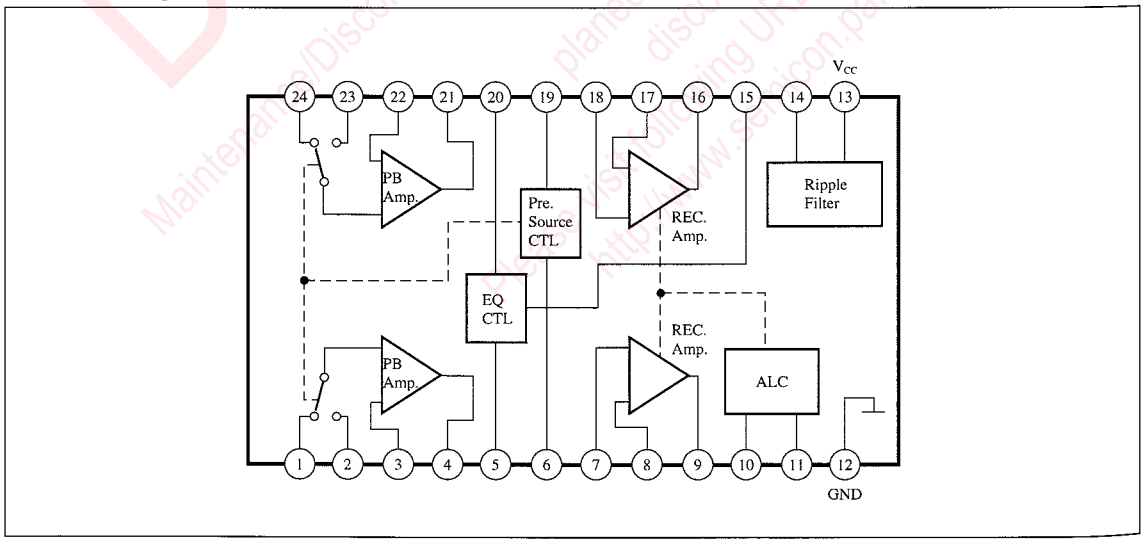
■ Features

- Built-in equalizer SW circuit for playback amp.
- Built-in playback amp. input switching circuit for double cassette
- Wide operating supply voltage range : $V_{CC\ (opr.)}$=3.5V ~12V



24- Lead SDIP Package (SDIP024-P-0300)

■ Block Diagram



■ Absolute Maximum Ratings ($Ta=25°C$)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	14	V
Supply Current	I_{CC}	37	mA
Power Dissipation	P_D	1,000	mW
Operating Ambient Temperature	T_{opr}	−20～+75	℃
Storage Temperature	T_{stg}	−55～+150	℃

■ Recommended Operating Range ($Ta=25°C$)

Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	4V～12V

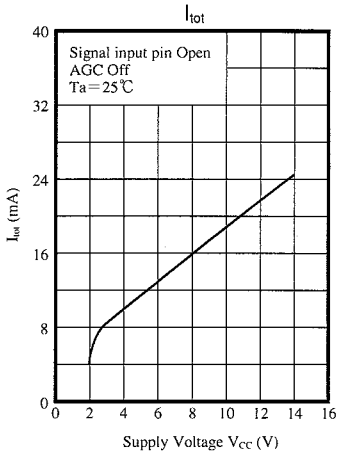
■ Electrical Characteristics ($V_{CC}=5V$, $f=1kHz$, $Ta=25°C$)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
No Signal Current Consumption	I_{tot}	$V_i=0V$	5.5	11	17.5	mA
〈Playback Amp.〉						
Noise Voltage Referred to Input	$V_{ni\,(P)}$	$R_g=2.2k\Omega$, DIN/AUDIO	—	1.3	2	μVrms
Open Circuit Gain	$G_{VO\,(P)}$	$V_i=30\mu Vrms$	75	84	—	dB
Total Harmonic Distortion	$THD_{(P)}$	$V_i=3.7mVrms$	—	0.05	0.4	%
Max. Output Voltage	$V_{O\,(P)}$	THD=3%	0.9	1.4	—	Vrms
Channel Balance	$CB_{(P)}$	$V_i=3.7mVrms$	−1.5	0	1.5	dB
Crosstalk between Channels	$CT_{C\,(P)}$	$V_i=3.7mVrms$, $R_g=2.2k\Omega$	55	65	—	dB
Crosstalk between Sources	$CT_{S\,(P)}$	$V_i=3.7mVrms$, $R_g=2.2k\Omega$	55	65	—	dB
Input Impedance	R_{in}		—	60	—	kΩ
〈Rec. Amp〉						
Output Noise Voltage	$V_{no\,(R)}$	$R_g=0\Omega$, DIN/AUDIO	—	350	900	μVrms
Open Circuit Gain	$G_{VO\,(R)}$	$V_i=54\mu Vrms$	70	80	—	dB
Total Harmonic Distortion	$THD_{(R)}$	$V_i=1.9mVrms$	—	0.16	0.5	%
Max. Output Voltage	$V_{O\,(R)}$	THD=3%	1.4	1.80	—	Vrms
Crosstalk between Channels	$CT_{(R)}$	$R_g=0\Omega$, $V_i=1.9mVrms$	50	63	—	dB
〈ALC〉						
ALC Start Voltage	V_{ALC}	$R_g=5.6k\Omega$, $V_i=10mVrms$	0.78	1.03	1.28	Vrms
ALC Effective Width	W_{ALC}	Width of V_{ALC} −1 to +3dB $R_g=5.6k\Omega$	35	—	—	dB
ALC Channel Balance	$CB_{(A)}$	$R_g=5.6k\Omega$, $V_i=10mVrms$	−2	0	2	dB

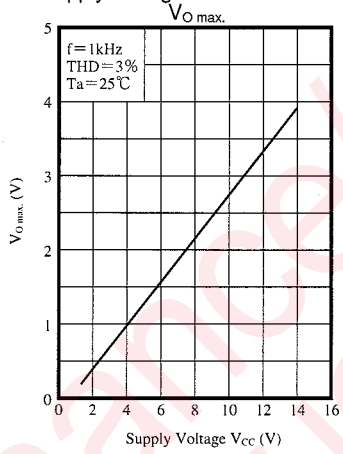
ICs for Cassette Deck

■ Characteristics Curve

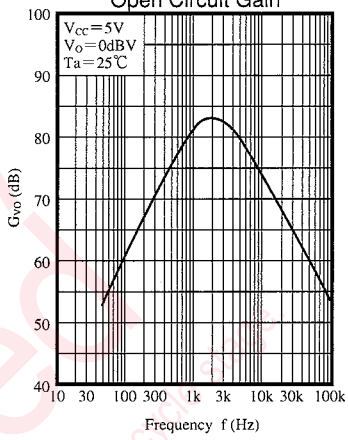
Supply Voltage Characteristics— I_{tot}



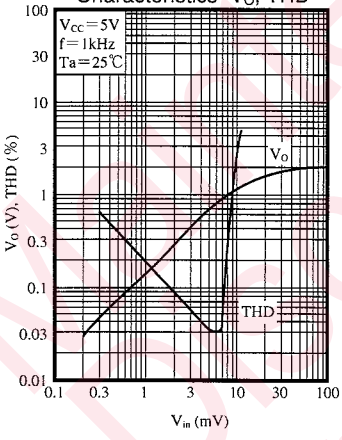
Pre. Amp.
Supply Voltage Characteristics— $V_{O\,max.}$



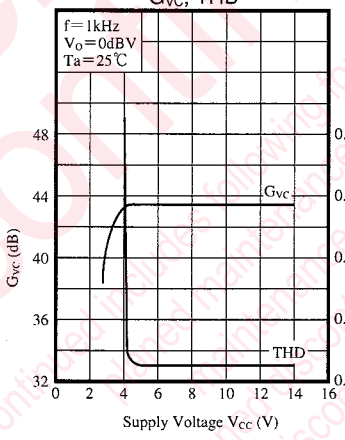
Pre. Amp.
Frequency Characteristics— Open Circuit Gain



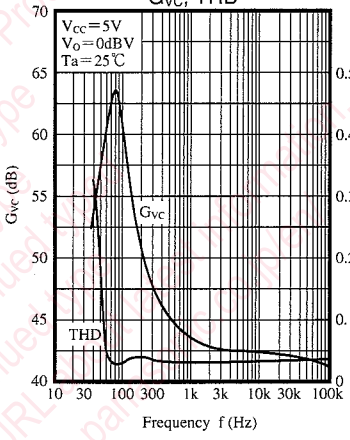
Pre. Amp.
Input/Output Characteristics V_O, THD



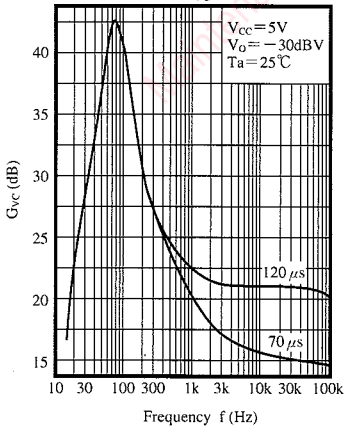
Pre. Amp.
Supply Voltage Characteristics— G_{VC}, THD



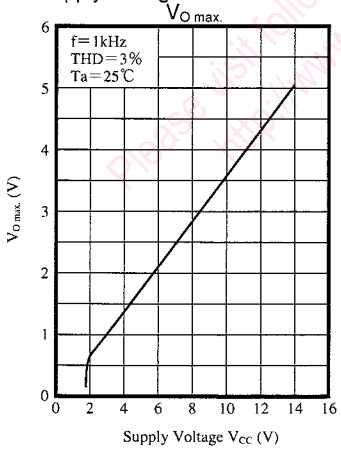
Pre. Amp.
Frequency Characteristics— G_{VC}, THD



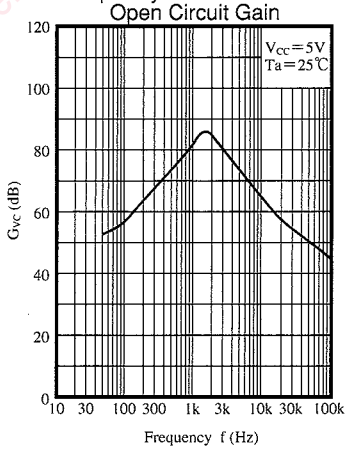
Pre. Amp.
Equalizer Characteristics— G_{VC}



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

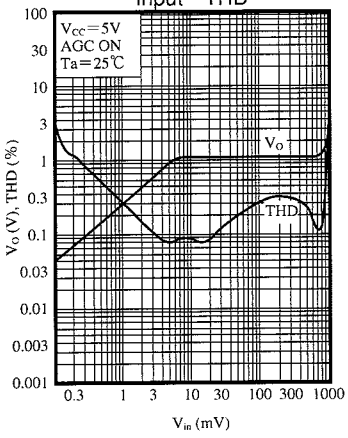


Rec. Amp.
Frequency Characteristics— Open Circuit Gain



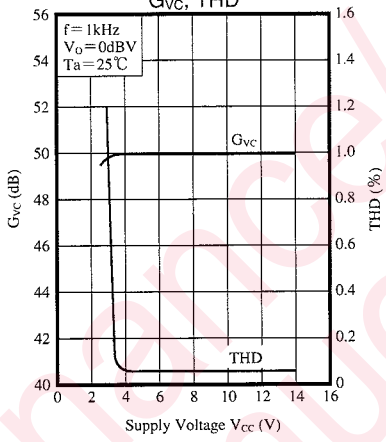
Rec. Amp.

Input/Output Characteristics, Input—THD



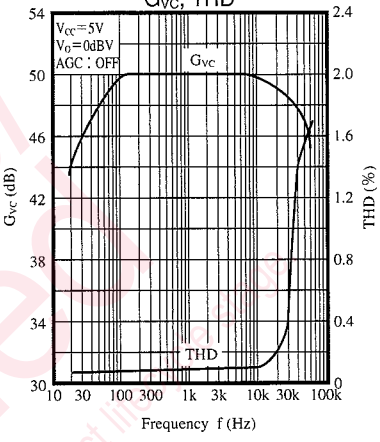
Rec. Amp.

Supply Voltage Characteristics—G_{VC}, THD

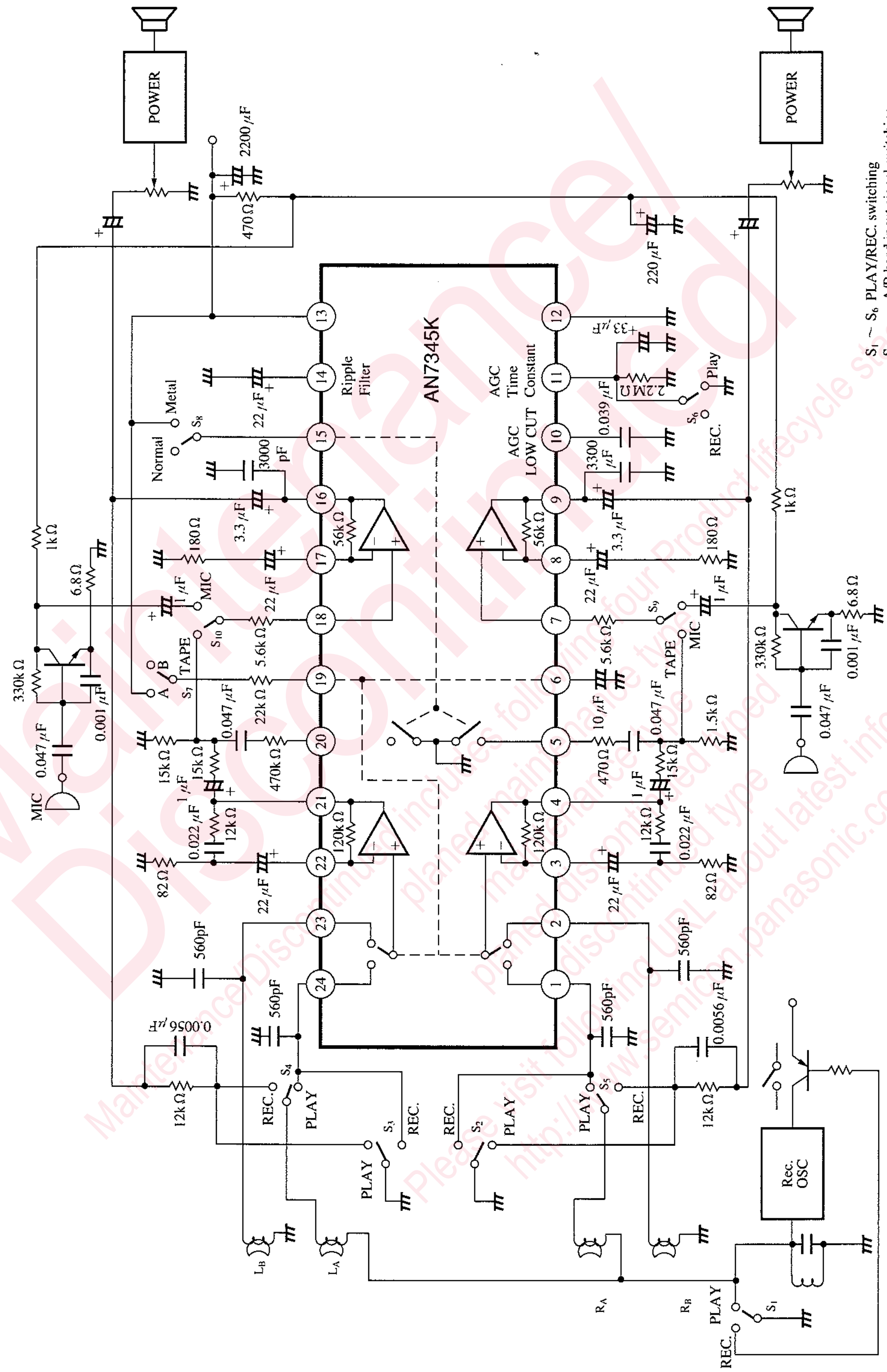


Rec. Amp.

Frequency Characteristics—G_{VC}, THD



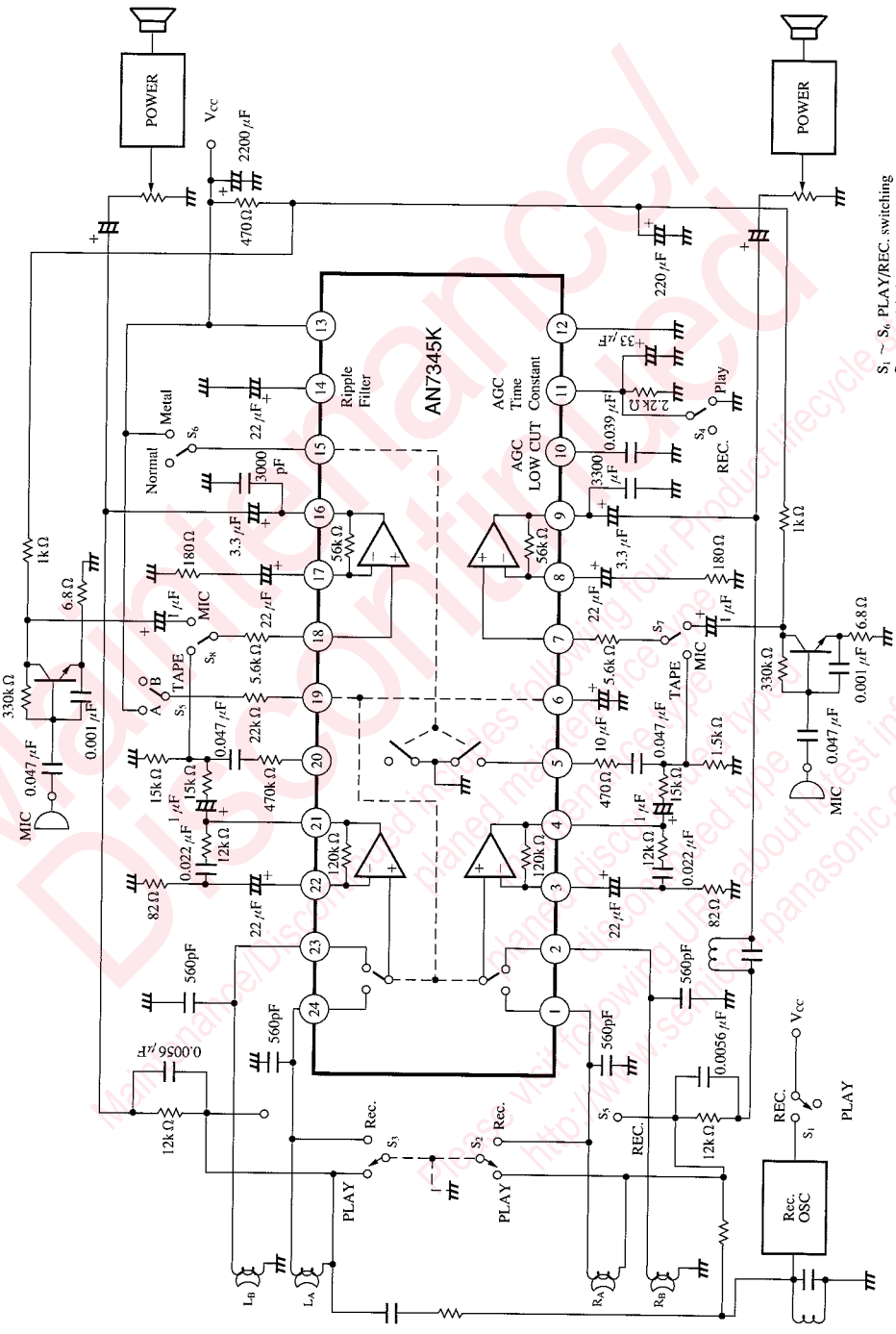
■ Application Circuit—1



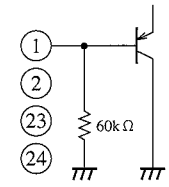
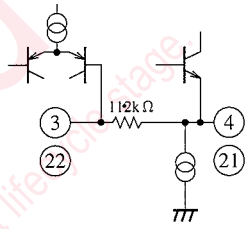
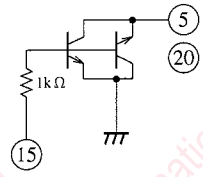
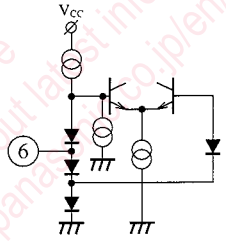
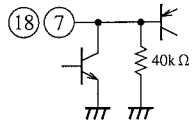
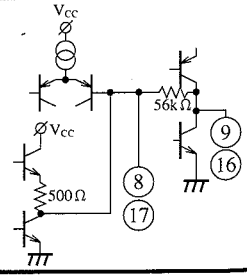
S_1 ~ S_6 PLAY/REC. switching
S_7 A/B head input signal switching
S_8 Normal/Metal, Equalizer switching
S_9, S_{10} TAPE rec./MIC rec. switching

(Note) More than 5.6kΩ is necessary for input of ⑦, ⑱

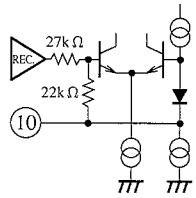
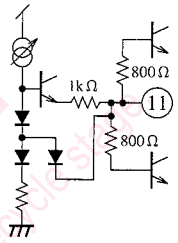
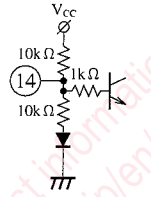
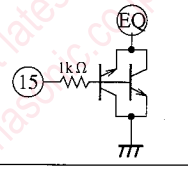
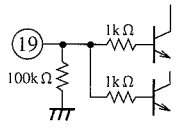
■ Application Circuit—2



■ Pin Descriptions

Pin No.	Pin Name	Typ. Waveform	Description	Equivalent Circuit
1	Ch.1 Playback Amp. Input (1)	AC 3.7mVrms	Playback amp. input	
24	Ch.2 Playback Amp. Input (1)			
2	Ch.1 Playback Amp. Input (2)			
23	Ch.2 Playback Amp. Input (2)			
3	Ch.1 Playback Amp. Negative Feedback	DC 0.7V	Playback amp. feedback	
22	Ch.2 Playback Amp. Negative Feedback			
4	Ch.1 Playback Amp. Output	AC 1Vrms	Playback amp. output	
21	Ch.2 Playback Amp. Output			
5	Ch.1 Equalizer	———	Playback amp. Equalizer switching	
20	Ch.2 Equalizer			
6	Pre-amp. Input Switching Time Constant	DC 1.4V (Pin⑲ H) DC 0.2V (Pin⑲ open)	Connect capacitor which determines PB input switching time constant.	
7	Ch.1 Rec. Amp. Input	AC 1.9mVrms	Rec. amp. input	
18	Ch.2 Rec. Amp. Input			
8	Ch.1 Rec. Amp. Negative Feedback	DC 0.7V	Rec. amp. feedback	
17	Ch.2 Rec. Amp. Negative Feedback			
9	Ch.1 Rec. Amp. Output	AC 0.5Vrms	Rec. amp. output	
16	Ch.2 Rec. Amp. Output			

■ Pin Descriptions (Cont.)

Pin No.	Pin Name	Typ. Waveform	Description	Equivalent Circuit
10	Low CUT	DC about 2.5V	ALC comparator circuit reference voltage	
11	AGC OUT	Follow input signal	Low-pass filter pin	
12	GND	———	Main Circuit GND	———
13	Positive Supply Pin	DC 5V	Main Circuit $+V_{CC}$	———
14	V_{REF}	DC 3.2V	———	
15	Equalizer Control	———	(more than) 0.7V— Equalizer pin, GND short	
19	Pre-amp. Input Switching Control	———	Pre-amp. (T1/T2) input switching control (more than) 0.7V —T1 Open —T2	

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