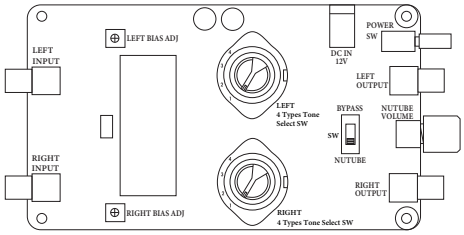
Nutube 6P1 Evaluation Board II NEB-2 User Guide



Nutube Evaluation Board II

A board that can select 4 levels of Nutube harmonics

Nutubeの倍音を4段階切替えができる評価ボード

Features

1. Nutube harmonics can be selected.
   (4 levels of distortion: approximately [1]: 0.015%, [2]: 0.1%, [3]: 0.3%, [4]: 1%)
2. Equipped with a switch that allows bypassing the Nutube.
   (Easy switching between “with” and “without” Nutube.)
3. Equipped with an output volume control Nutube VOLUME so it can be used as a Nutube buffer.

Specifications

Max Input Level	+2 [dBu] Measured at 6V BIAS voltage	*It varies depending on the Nutube BIAS setting.
Max Output Level	+12 [dBu] Measured at 6V BIAS voltage	*It varies depending on the Nutube BIAS setting.
Max GAIN	+10 [dB] Measured at 6V BIAS voltage	*It varies depending on the Nutube BIAS setting.
Frequency response	20 [Hz]~40k [Hz]	
SN ratio	100 [dB]	*It varies depending on the Nutube BIAS setting.
Connections	Input RCA x 2	*Input Impedance 10k [Ω]
	Output RCA x 2	*Output Impedance Less than 50k [Ω]
Controls	Nutube VOLUME x 1	
	4 Types Tone Select SW x 1 (LEFT / RIGHT)	
	[Nutube – BYPASS]SW x 1	
	BIAS ADJ x 2 (LEFT / RIGHT)	
Power Supply	DC12V AC adapter ⊖-◉-⊕ or External power supply (+7V ~ +20V, Recommend:12V)	

CAUTION
ENGINEERING EVALUATION PURPOSES ONLY
This evaluation board is made for the purpose of the Nutube evaluation.
It is strictly prohibited to use this evaluation board for any other purpose.
KORG does not guarantee that all samples will perform in exactly the same way.

特徴

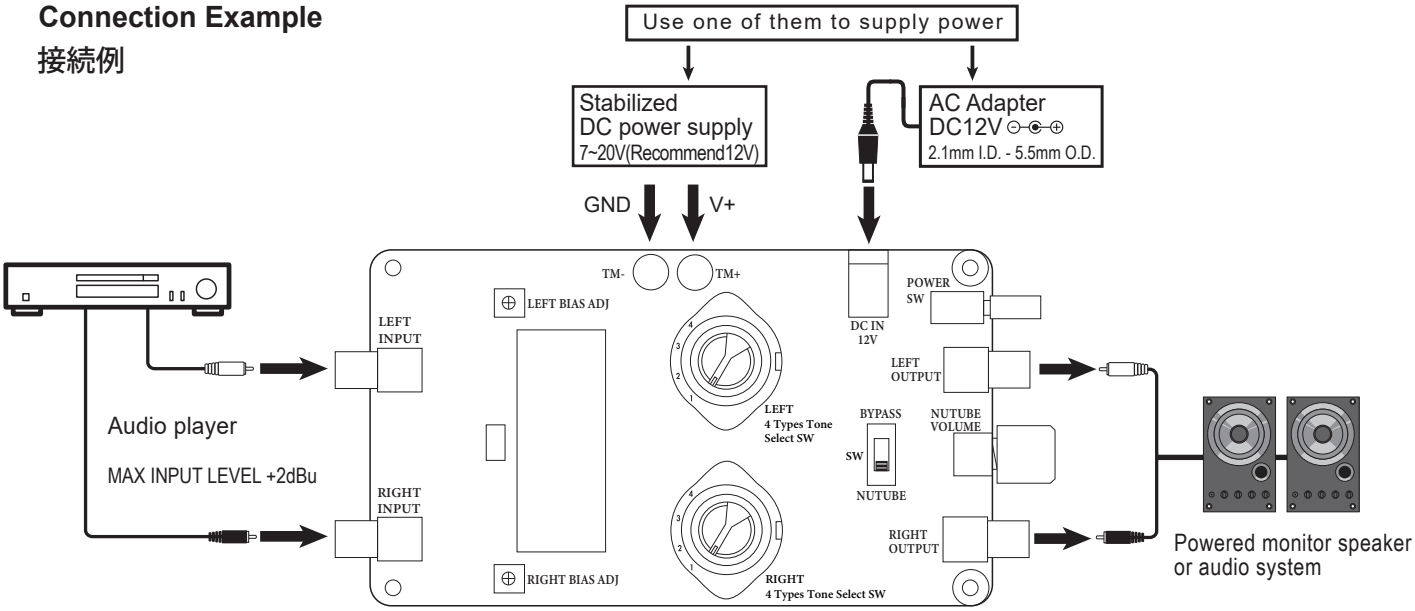
1. Nutubeの倍音の切り替えが可能。（4段階、ひずみ率・約 [1]: 0.015%, [2]: 0.1%, [3]: 0.3%, [4]: 1%）
2. NutubeをBYPASSできるスイッチを搭載。（Nutubeの有り / 無しを簡単に切り替え可能）
3. 出力ボリューム（Nutube VOLUME）搭載。真空管バッファのような使い方も可能。

仕様

最大入力	＋2 [dBu]	*ただしBIAS電圧6V調整時（BIAS調整参照）
最大出力	＋12 [dBu]	*ただしBIAS電圧6V調整時（BIAS調整参照）
最大増幅率	＋10 [dB]	*ただしBIAS電圧6V調整時（BIAS調整参照）
周波数特性	20 [Hz]~40k [Hz]	
SN比	100 [dB]	*Nutube BIASの設定で変動
入力	RCA x 2	*入力インピーダンス 10k [Ω]
出力	RCA x 2	*出力インピーダンス 50k [Ω] 未満
コントロール	Nutube VOLUME x1	
	4 Types Tone Select スイッチx2 (左/右)	
	Nutube - BYPASS 出力切替スイッチ x1	
	BIAS調整用半固定VOLUMEx2 (左/右)	
電源	DC12V AC アダプター ⊖-◉-⊕ （KA251）、または外部電源供給端子 (+7V ~ +20V, 推奨:12V)	

注意事項
本評価ボードは、Nutube6P1を評価するためのボードです。
この評価ボードを他の目的に使用することは固くお断りします。
コルグは、すべてのサンプルが全く同じように動作することを保証するものではありません。

Connection Example
接続例



Introduction

1. Connect the audio signal as shown in the figure above.
2. Connect the 12V AC adapter or a stabilized DC power supply, and turn on the POWER SW. (Nutube glows blue)
3. Set the [Nutube - BYPASS] SW to the “Nutube” side.
4. Set the 4 Types Tone Select switch to 4 (the most harmonics)
5. Adjust the volume of the device connected to the input to an appropriate value.
   (Set it to just below the level that gets distorted).
6. While switching the Nutube-BYPASS switch back and forth, adjust the Nutube VOLUME so that the volume is the same in both positions.
7. Take advantage of the 4 Types Tone Select SW and enjoy the difference in tone due to harmonics.

How to adjust the Nutube Bias

*The bias is pre-adjusted to ＋5V～＋7V at the time of shipment.

Set the 4 type Tone Selector switches to MODE 1.

Connect an oscilloscope or voltmeter to pin 7 of IC2 (left) or IC3 (right). Turn BIAS ADJ LEFT or RIGHT to adjust the voltage to 6V.

はじめに

1. 上記の図のように接続してください。
2. AC（12V）アダプターまたは外部電源を接続し、POWER SWをONしてください。（Nutubeが青く光ります）
3. 出力側の[Nutube - BYPASS]SWをNutube側にしてください。
4. 倍音切り替えスイッチ（4 Types Tone Select SW）を4に設定してください。（倍音が一番多い状態にします）
5. 入力の接続機器の音量を適正な値に調整してください。（歪む直前の値に調整する事をお勧めします）
6. [BYPASS]と[Nutube]の音量が同じレベルになるように、[Nutube - BYPASS]SWの切り替えを繰り返して音量を比較しながらNutube VOLUMEを調整します。
7. 倍音切替えスイッチ[4 Types Tone Select SW]を4段階切り替えて、倍音による音色の違いをお楽しみください。

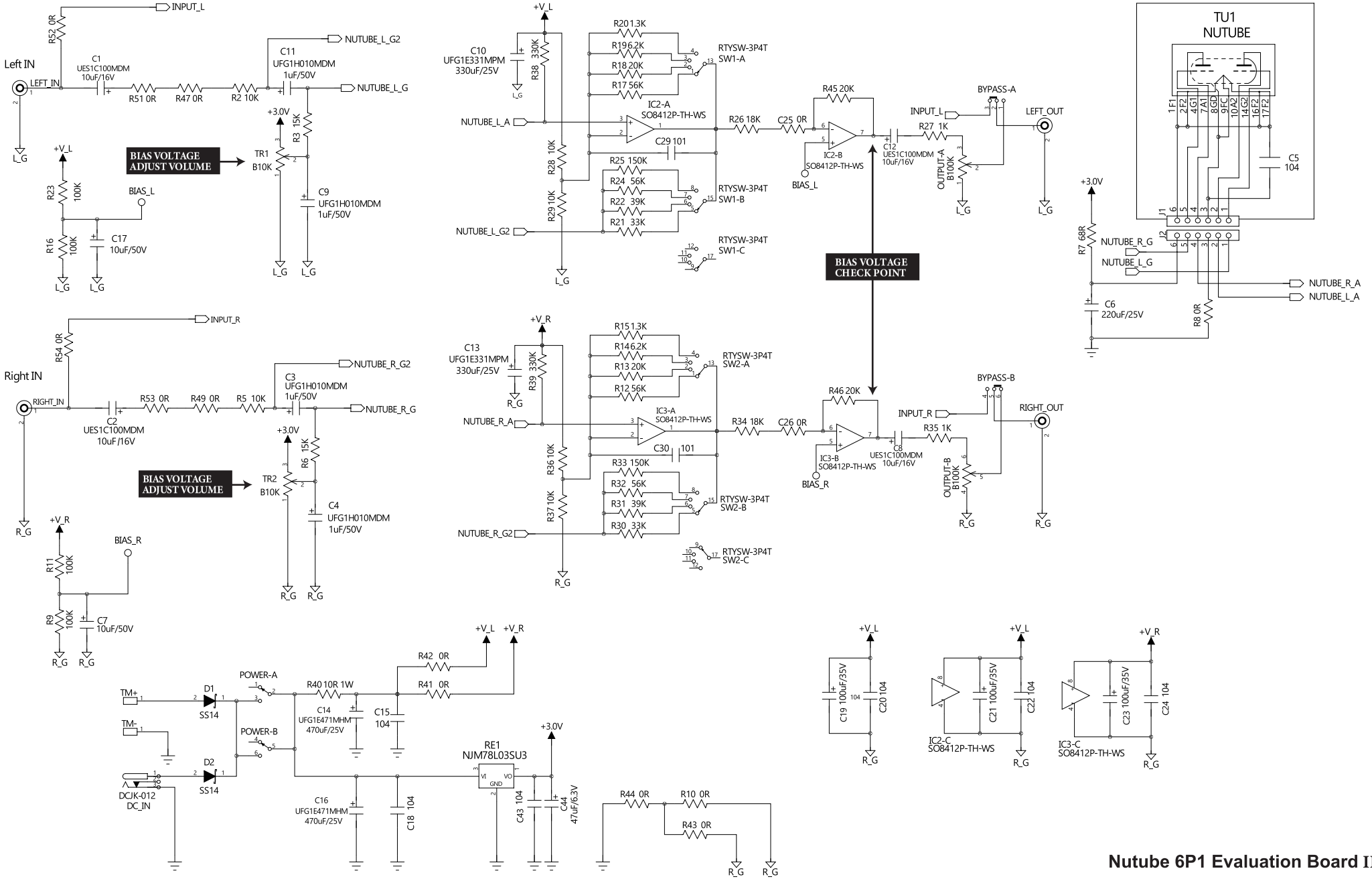
Nutube Bias調整法

*出荷時にBIASは＋5V～＋7Vに調整済みとなっています。

4Types Tone Select SWをMODE1にします。

IC2（または3）の７番ピンにオシロスコープもしくはテスターを接続しBIAS ADJ LEFT(または RIGHT)を回して７番ピンの電圧を6Vに調整します。

CIRCUIT DIAGRAM



Nutube 6P1 Evaluation Board II

PARTS LIST

No.	Designator	Category	Part Name / Specification	Qty
1	TU1	Nutube(vacuum tube)	6P1	1
2	IC2,IC3	Operational amplifier	SO8412P-TH-WS	2
3	RE1	Voltage regulator	NJM78L03SU3	1
4	D1,D2	SBD	SS14	2
5	C5,C15,C18,C20,C22,C24,C43	Chip ceramic capacitor	MLCC 2012 X7R 0.1uF 25V	7
6	C29,C30	Chip ceramic capacitor	MLCC 1608 X7R 100pF 25V	2
7	C3,C4,C9,C11	Electrolytic capacitor	1uF / 50V	4
8	C1,C2,C8,C12	Electrolytic capacitor	10uF/16V	4
9	C14,C16	Electrolytic capacitor	470uF/25V	2
10	C10,C13	Electrolytic capacitor	330uF/25V	2
11	C7,C17	Electrolytic capacitor	E-CAP 10uF 50V	2
12	C19,C21,C23	Electrolytic capacitor	E-CAP 100uF 35V	3
13	C6	Electrolytic capacitor	E-CAP 220uF/25V	1
14	C44	Electrolytic capacitor	E-CAP 47uF/ 6.3V	1
15	R8,R10,R41-R44,R47,R49,R51-R54,C25,C26	Chip resistor	Chip CFR 1603 0 Ohm	14
16	R15,R20	Chip resistor	Chip CFR 1603 1.3 KOhm	1
17	R9,R11,R16,R23	Chip resistor	Chip CFR 1603 100 KOhm	4
18	R25,R33	Chip resistor	Chip CFR 1603 150 KOhm	2
19	R26,R34	Chip resistor	Chip CFR 1603 18 KOhm	2
20	R27,R35	Chip resistor	Chip CFR 1603 1 KOhm	2
21	R38,R39	Chip resistor	Chip CFR 1603 330 KOhm	4
22	R13,R18,R45,R46	Chip resistor	Chip CFR 1603 20 KOhm	4
23	R21,R30	Chip resistor	Chip CFR 1603 33 KOhm	2
24	R22,R31	Chip resistor	Chip CFR 1603 39 KOhm	2
25	R3,R6	Chip resistor	Chip CFR 1603 15 KOhm	2
26	R14,R19	Chip resistor	Chip CFR 1603 6.2 K KOhm	2
27	R12,R17,R24,R32	Chip resistor	Chip CFR 1603 56 KOhm	4
28	R7	Chip resistor	Chip CFR 1603 68 Ohm	1
29	R2,R5,R28,R29,R36,R37	Chip resistor	Chip CFR 2012 10 KOhm	6
30	R40	Chip resistor	Chip CFR 2512 10 Ohm	1
31	INPUT, OUTPUT	Volume	V9MG-2R B100K	2
32	TR1,TR2	Trimmer Potentiometer	CET065P-B10K	2
33	DC_IN	DC JACK	JK102 C-2mm	1
34	RIGHT_IN,RIGHT_OUT	RCA JACK	RCA-105A RED	2
35	LEFT_IN,LEFT_OUT	RCA JACK	RCA-105A WHT	2
36	SW1,SW2	Rotary Switch	3P4T 0.5A 125VAC	2
37	BYPASS-Nutube	SLIDE Switch	DPDT VERTICAL	1
38	POWER	Push Swirch	JRS-2254A	1
39	J1	Connector	1.25p H 6P	1
40	J2	Connector	1.25p V 6P	1
41		Screw	M3×P0.5 L=6	4
42		Spacer	M3×20 hex Ni	4

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