

DC-Heating
Directly-Heated
Connected in Parallel

KORG

6P1
Noritake **itron**
Twin Triode

Filament Voltage	Vf	0.7V
Filament Current	If	~17mA

*Per each channel

Electrical Specifications

Anode Voltage	Va	10V
Grid Voltage	Vg	2V
Anode Current	Ia	13uA
Transconductance	gm	32uS
Amplification Factor	μ	14
Anode Resistance	rp	300k Ω
Grid Current	Ig	2uA

Insulation Resistance

Anode /Others	More than 20M Ω
Grid/Others	More than 20M Ω

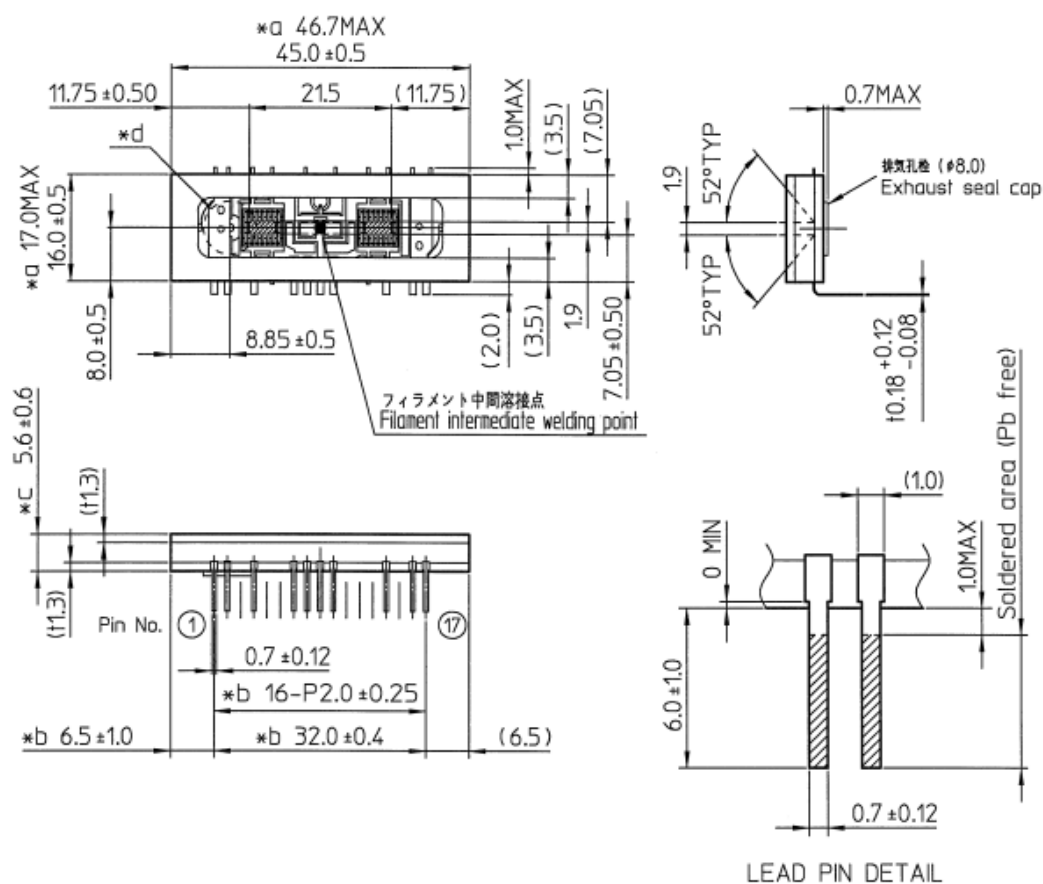
Maximum Ratings

Filament Voltage	Vf	0.8V
Anode Voltage	Va	80V
Anode Dissipation	Na	1.7mW
Operating Temperature	Ta	-40°C ≤ Ta ≤ 80°C no condensation

Capacitances

	F1-G1 2-4	F1-P1 2-7	F1-GND 2-8	G1-A1 4-7	G1-GND 4-8	G1-A2 4-10	G1-G2 4-14	A1-GND 7-8	A1-A2 7-10
Min	8.14	3.88	24.44	2.37	10.34	1.40	4.07	4.21	1.21
Typ.	9.08	4.32	39.24	2.52	10.85	2.27	4.33	4.50	1.39
Max	10.63	4.73	96.10	2.74	11.62	2.56	4.69	4.80	1.53

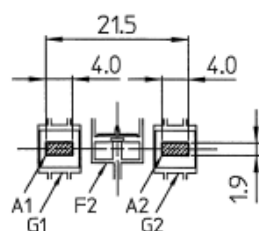
Sheet 2/2
Scale 1:1
Unit: mm
(): Reference only
参考寸法



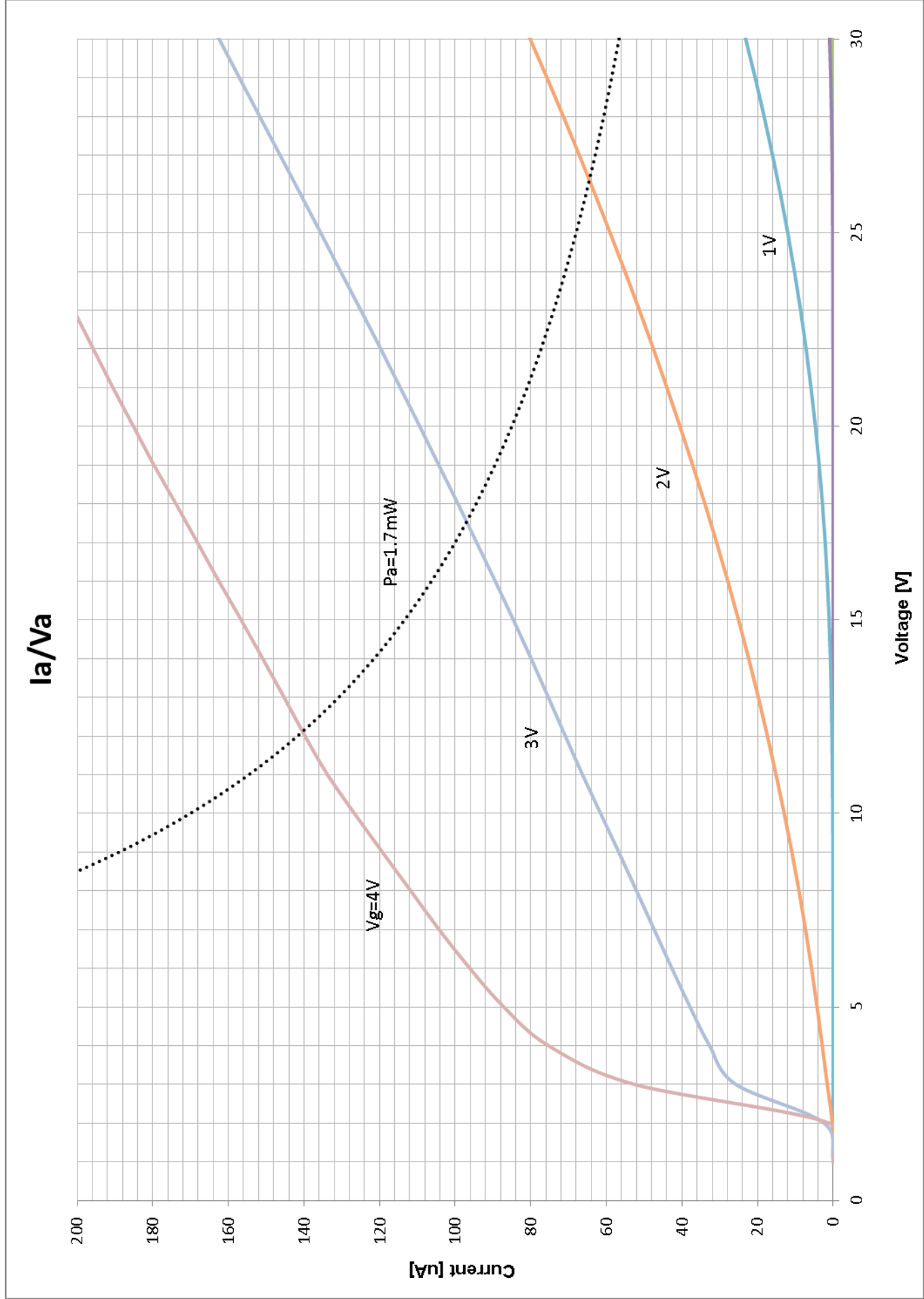
- *a フリットのはみ出しを含む寸法とする。
Including any protruding frit glass.
- *b 基板底面より3mmの位置の寸法とする。
Within 3mm from the bottom of the glass substrate.
- *c 排気孔栓の厚みを含まない。
Does not include the thickness of the exhaust seal cap.
- *d 排気孔栓は排気孔の中心から半径6mmの範囲に収まっていること。
Exhaust seal cap is entirely within a 6mm radius from the center point.

Pin assignment

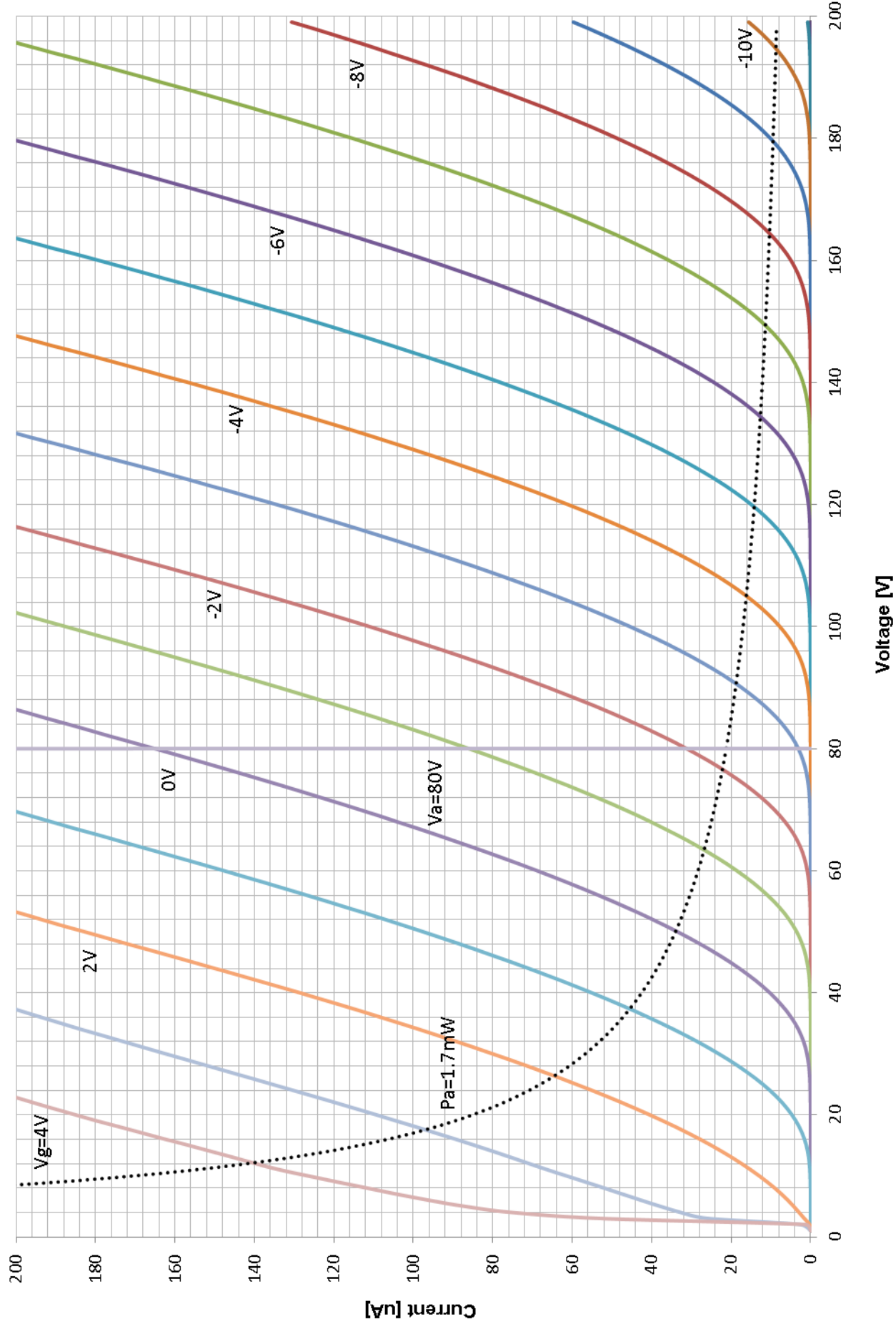
Pin NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Assignment	F1	F1	NP	G1	NP	NP	A1	GND	F2	A2	NP	NP	NP	G2	NP	F3	F3



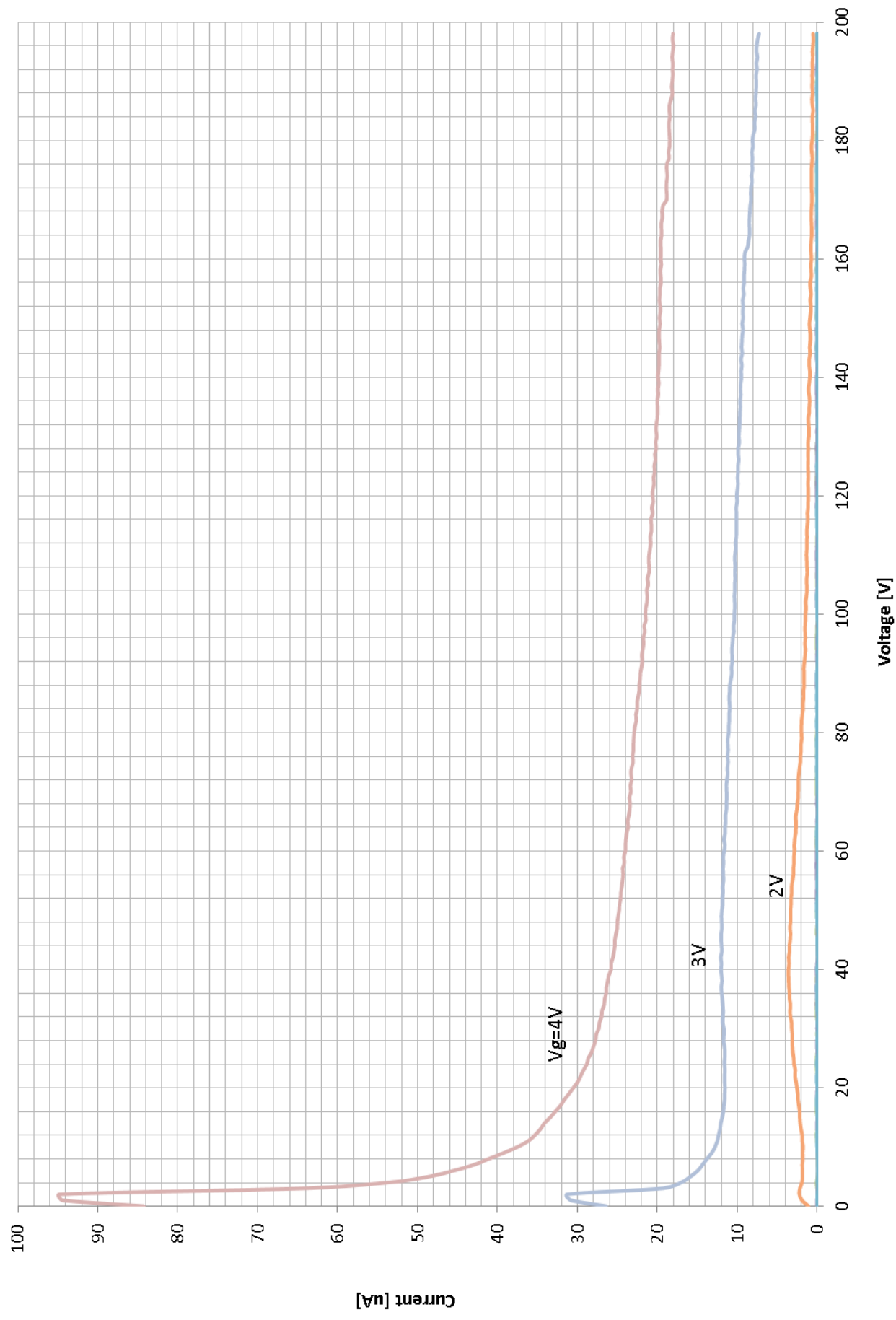
F1: フィラメント 1 (左) / Filament 1 (Left)
 F2: フィラメント 2 (中間) / Filament 2 (Center)
 F3: フィラメント 3 (右) / Filament 3 (Right)
 NP: ノーピン / No Pin
 G1: グリッド 1 / Grid 1
 G2: グリッド 2 / Grid 2
 A1: アノード 1 / Anode 1
 A2: アノード 2 / Anode 2



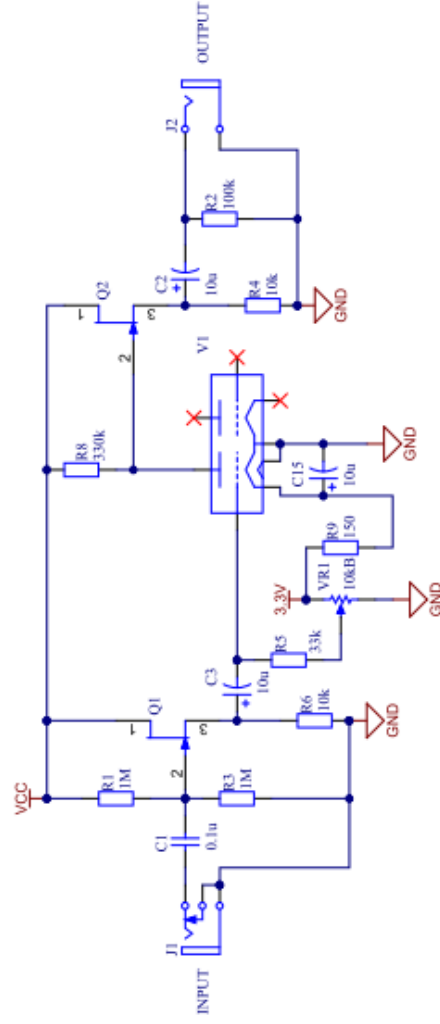
I_a/V_a



I_g/V_a



Nutube Basic Circuit



Application notes

1. C15 reduces residual noise.

When $C15=10\mu\text{F}$, residual noise is 9dB less than when without $C15$.

2. Nutube requires **POSITIVE** grid bias when the VCC

voltage is under 40V approximately.

VR1 adjusts the bias voltage.

3. The approximate circuit gains are:

9dB($V_{CC}=5V$)

14dB(VCC=12V)

17dB(VCC=30V)

When R8 varies($V_{CC}=12V$):

9dB(R8=100k)

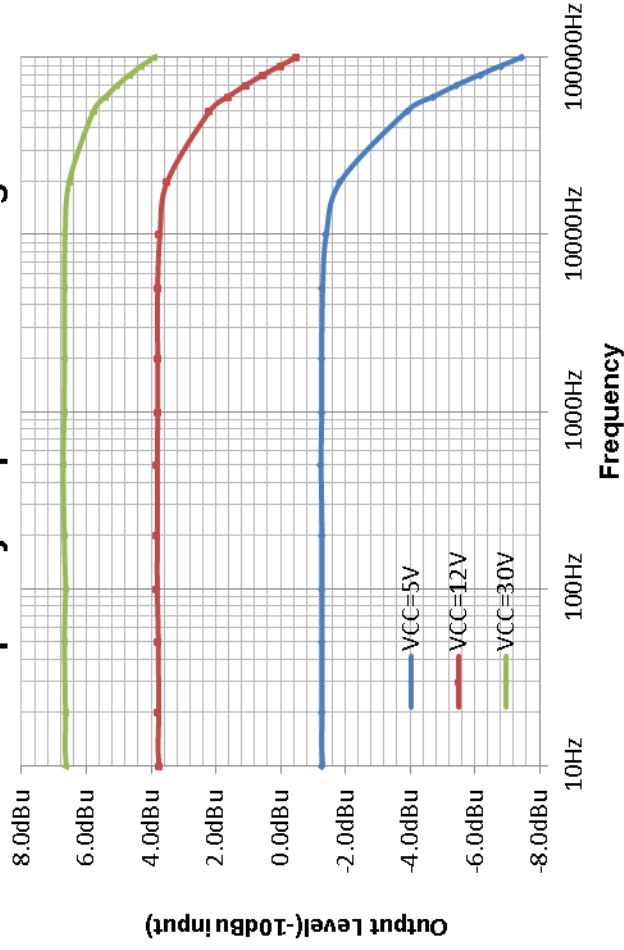
13dB(R8=220k)

14dB(R8=330k)

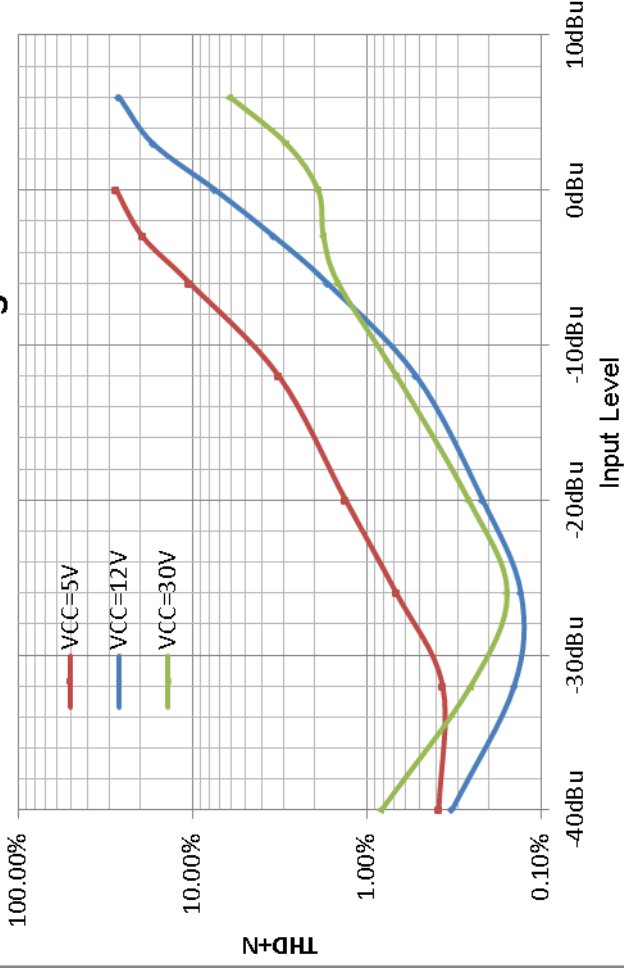
[illegible]

DRAWN	DESIGNED	CHECKED	APPROVED	MODEL:
Y Morikawa				TITLE: Nutube Basic Circuit
DRAWING NO:			DATE: 2016/07/04	

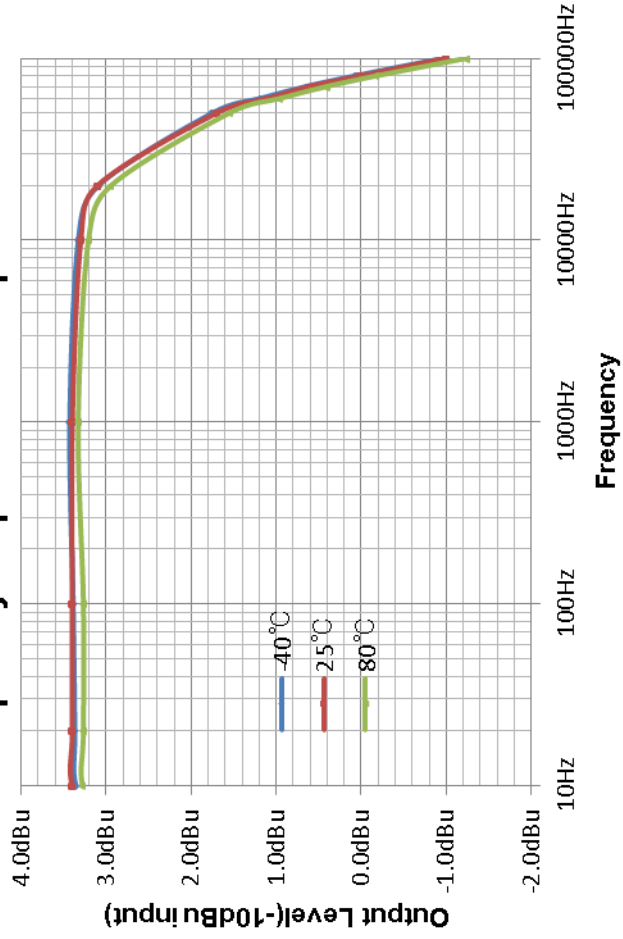
Frequency response vs voltage



THD+N vs voltage



Frequency response vs temperature



THD+N vs temperature

