



INTEGRATED CIRCUIT

TECHNICAL DATA

TA7136AP

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT

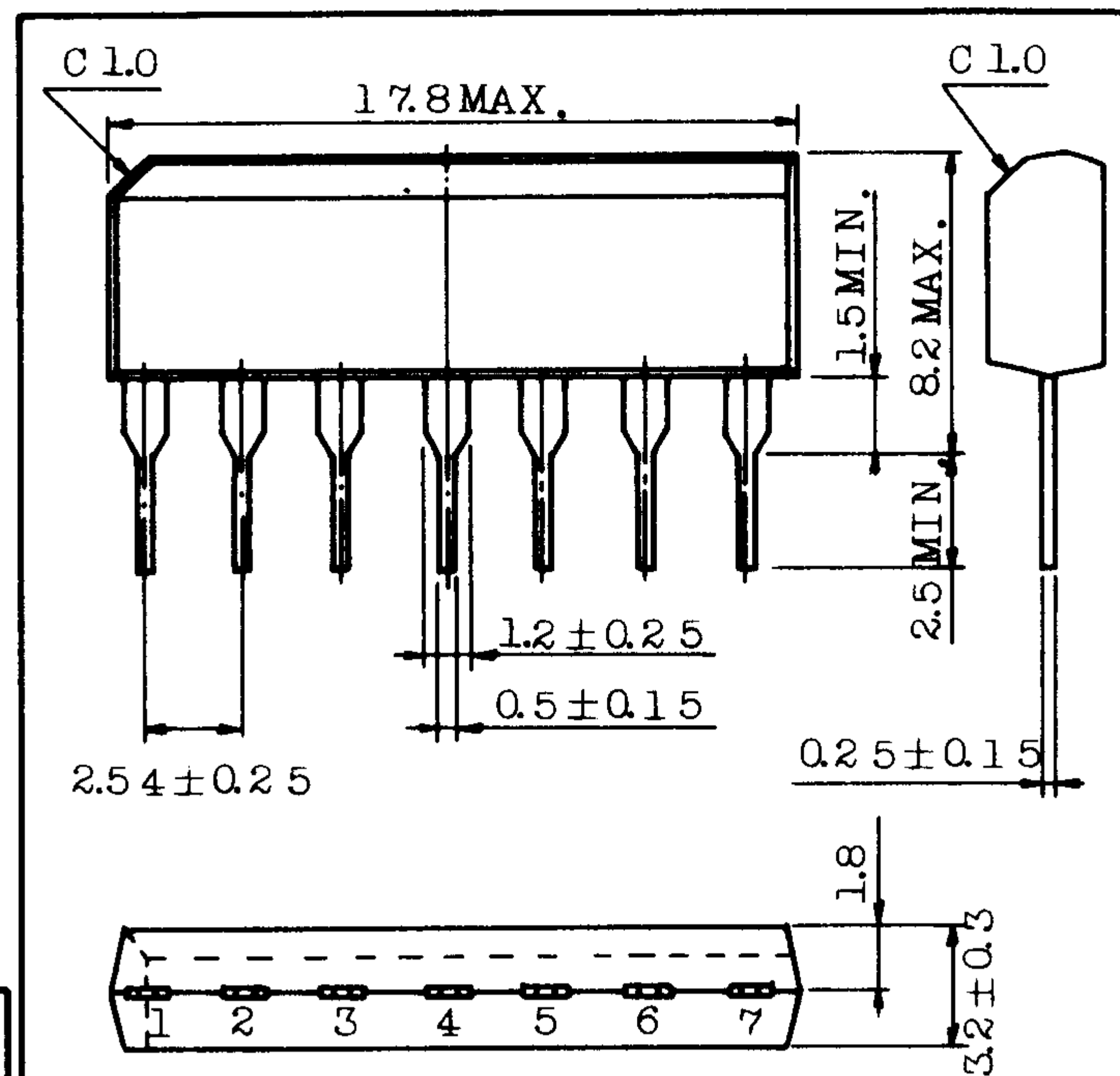
SILICON MONOLITHIC

PRE-AMPLIFIER FOR DUAL POWER SUPPLY

VARIOUS HIGH QUALITY PRE-AMPLIFIER

- Low Noise : $V_{NI}=0.8\mu V_{rms}(Typ.)$
- High Open Loop Voltage Gain : $G_{VO}=92dB(Typ.)$
- Low Distortion : $THD=0.1\%(Max.)$
(RIAA. EQ. 40dB(1kHz), $V_{OUT}=7V_{rms}$)
- Wide Operating Supply Voltage Range : $V_{CC}=\pm 3\sim\pm 20V$

Unit in mm



Lead pitch is 2.54 and tolerance is ± 0.25 against theoretical center of each lead that is obtained on the basis of No.1 lead.

| | |
|---------|-------|
| JEDEC | — |
| TOSHIBA | 5-18A |

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

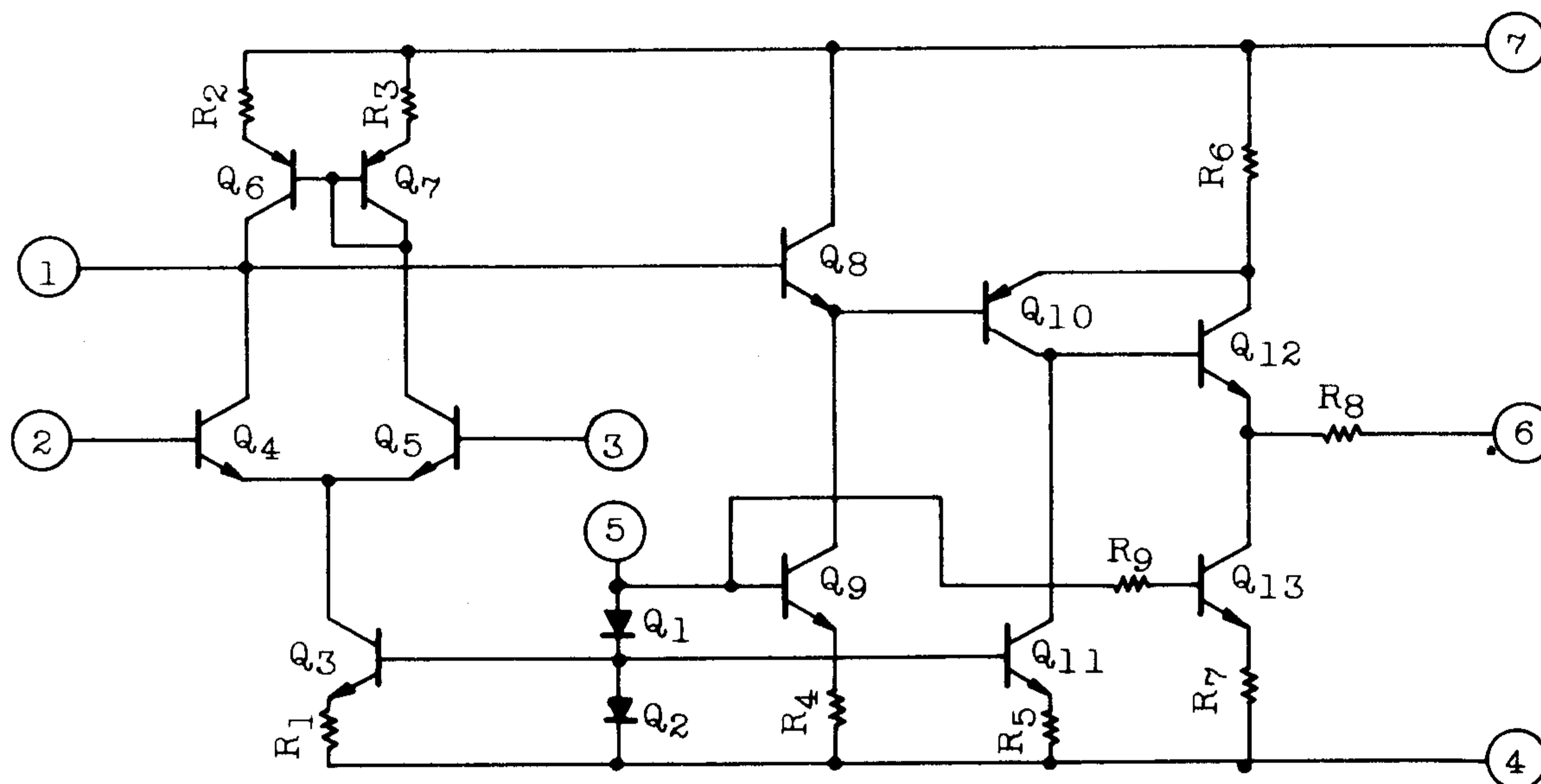
| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|--------------------------|-----------|----------------|-------------|
| Supply Voltage | V_7-V_4 | 40 | V |
| Power Dissipation (Note) | P_D | 400 | mW |
| Operating Temperature | T_{opr} | $-25 \sim 75$ | $^{\circ}C$ |
| Storage Temperature | T_{stg} | $-55 \sim 125$ | $^{\circ}C$ |

Note : Derated above $T_a=25^{\circ}C$ in the proportion of 4 mW/ $^{\circ}C$.

ELECTRICAL CHARACTERISTICS ($V_{CC}=15V$, $V_{EE}=-15V$, $T_a=25^{\circ}C$)

| CHARACTERISTIC | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------|----------|--------------|---|------|------|------|---------------|
| Supply Current | I_{CC} | 1 | $V_{IN}=0$ | — | 3.1 | 4.2 | mA |
| Voltage Gain (Open Loop) | G_{VO} | 1 | $f=1kHz$, $V_{IN}=-85dBm$ | 87 | 92 | — | dB |
| Maximum Output Voltage | V_{OM} | 2 | RIAA EQ, $f=1kHz$, $THD=0.1\%$ | 7.0 | — | — | V_{rms} |
| Equivalent Input Noise Voltage | V_{NI} | 3 | RIAA equalizer $R_g=2.2k\Omega$, $f=1kHz$ | — | 0.8 | 1.5 | μV_{rms} |

EQUIVALENT CIRCUIT

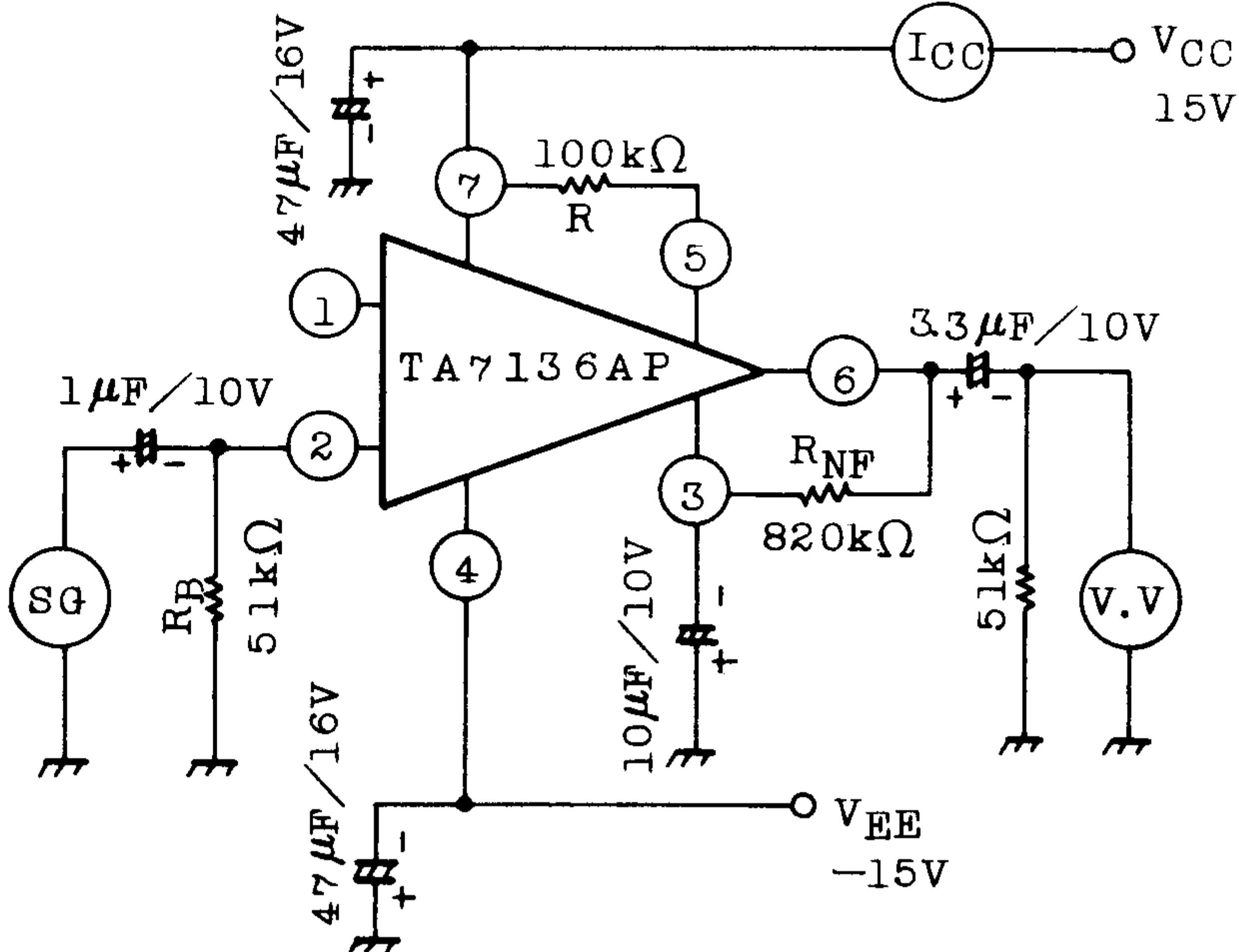




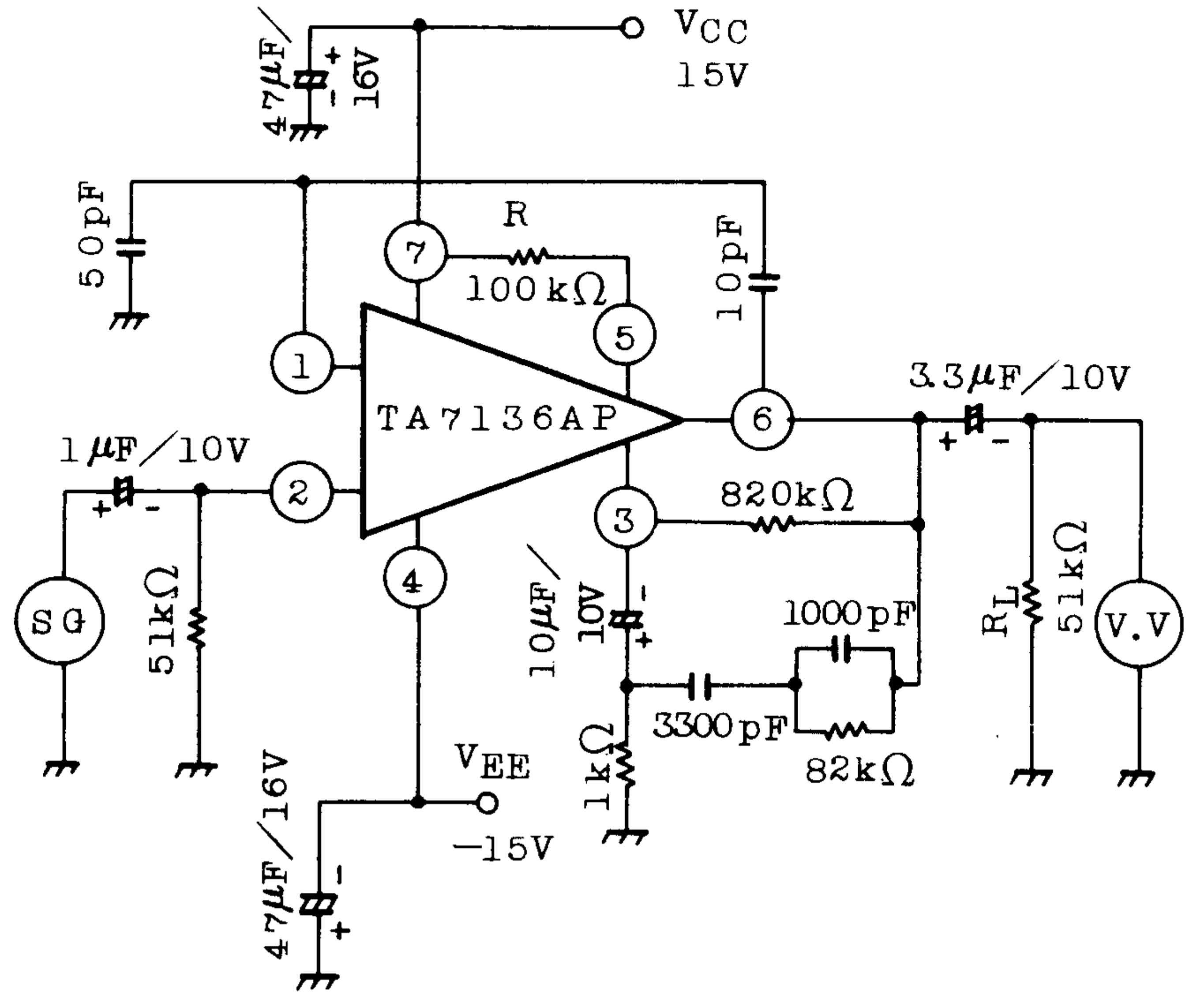
TECHNICAL DATA

TEST CIRCUIT

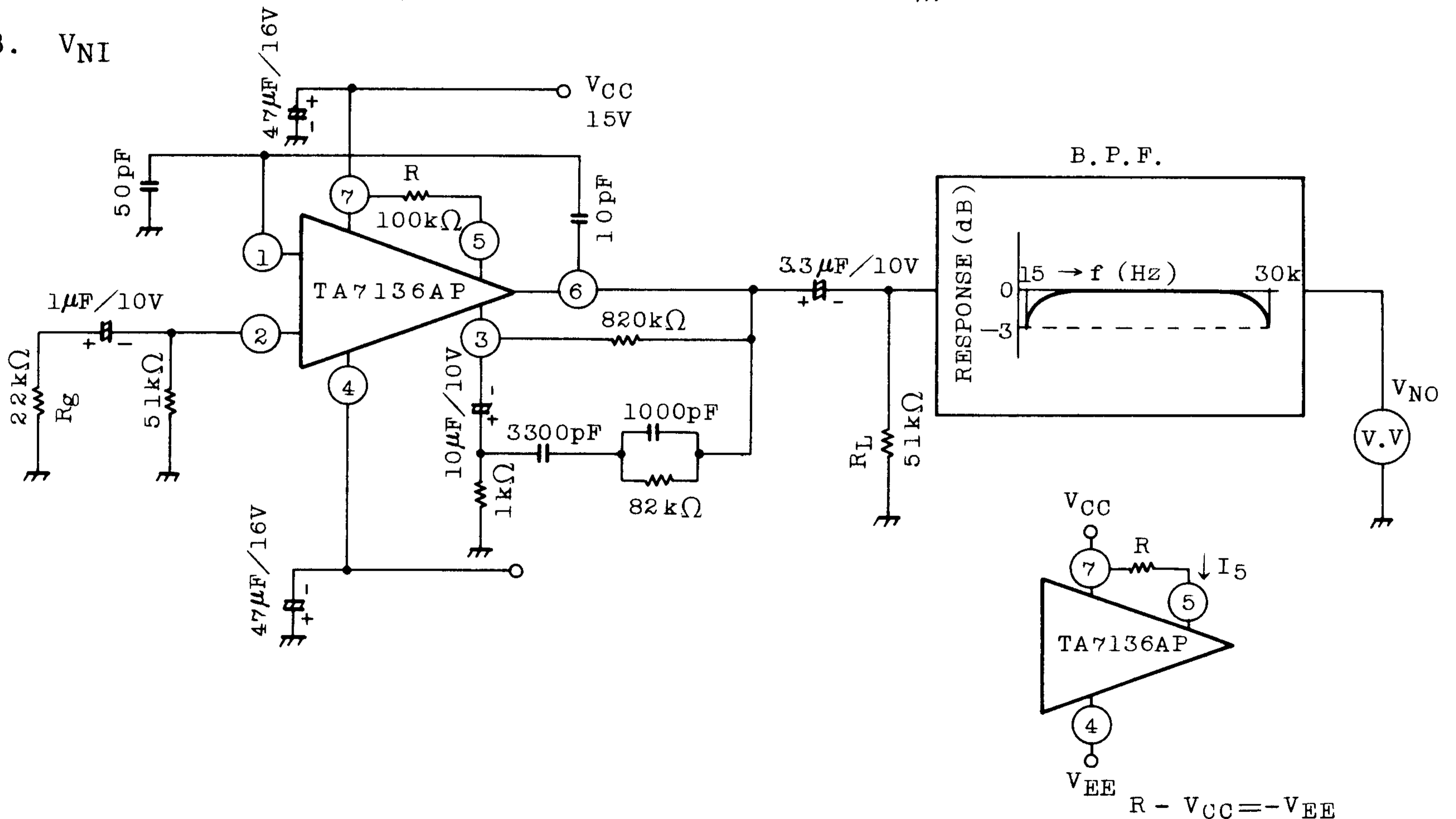
1. I_{CC} , GVO



2. VOM



3. V_{NI}



DECISION OF BIAS RESISTANCE R

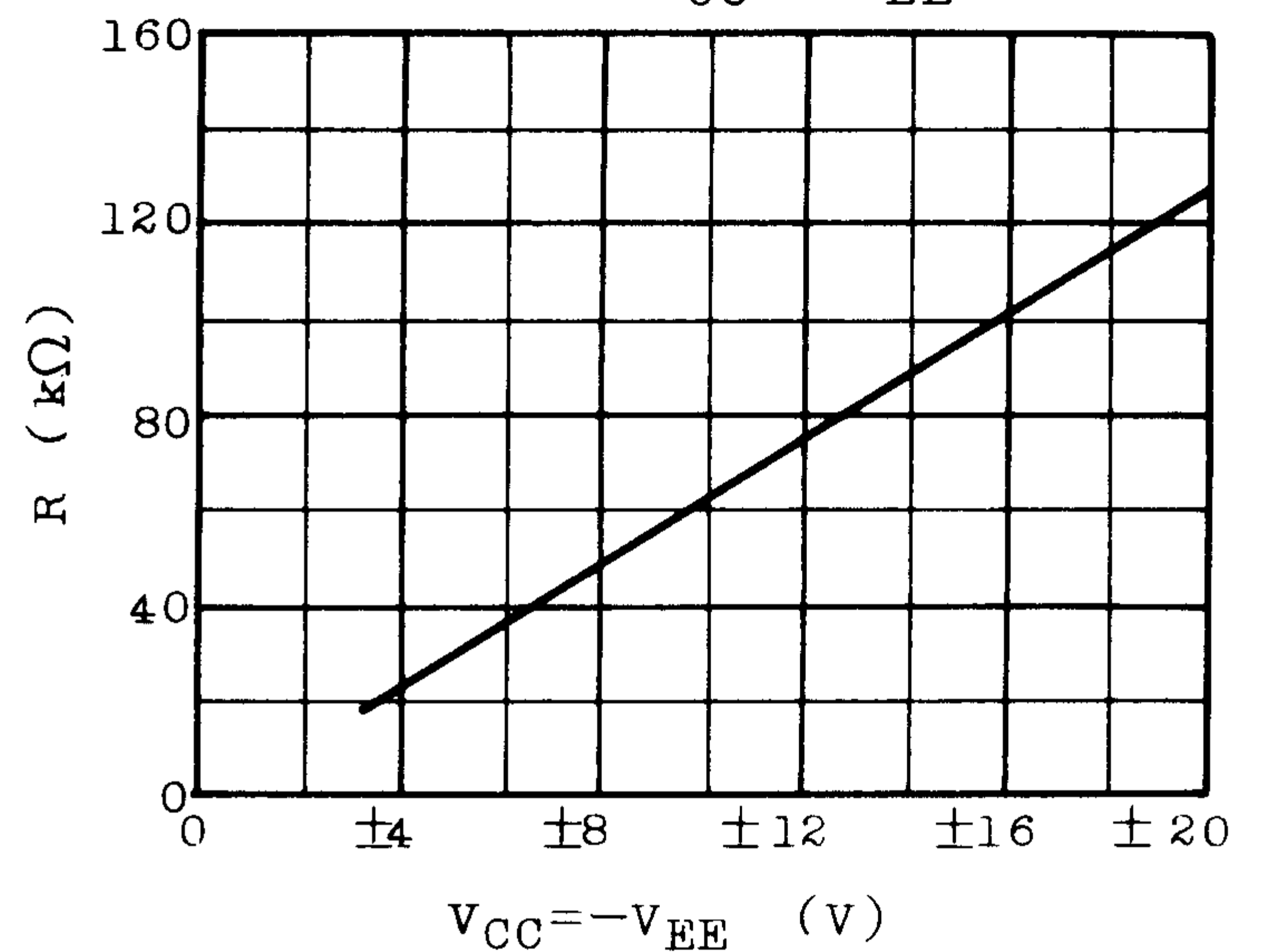
The TA7136AP is designed to operate under the bias condition $I_5 = 300 \mu A \pm 20\%$.

Please decide the R by the following equation.

$$I_5 = (V_{CC} - V_{EE} - 2V_F) / R$$

$$R = (V_{CC} - V_{EE} - 1.4) / 0.3 \text{ (k}\Omega\text{)}$$

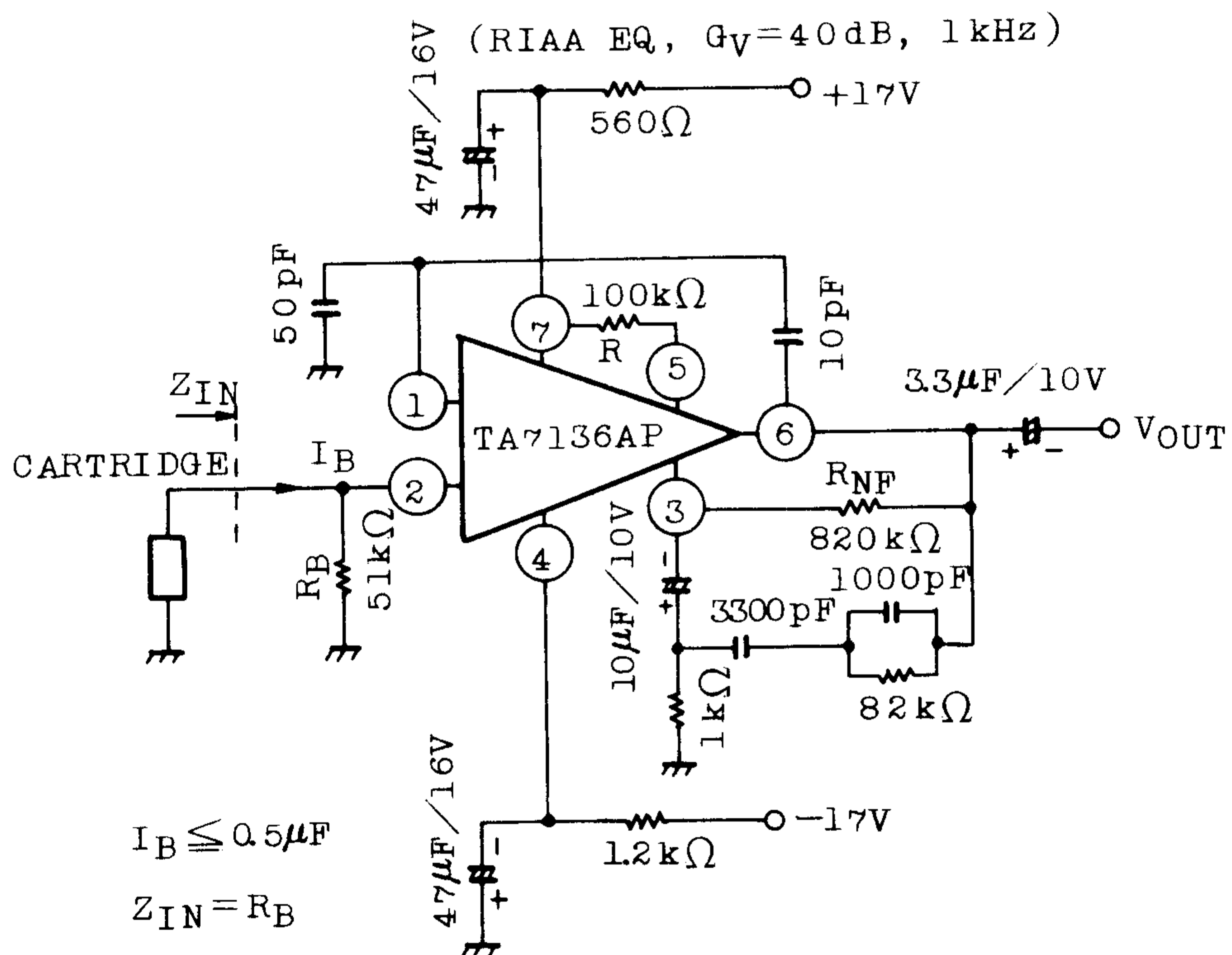
The following figure shows the calculated value of R.



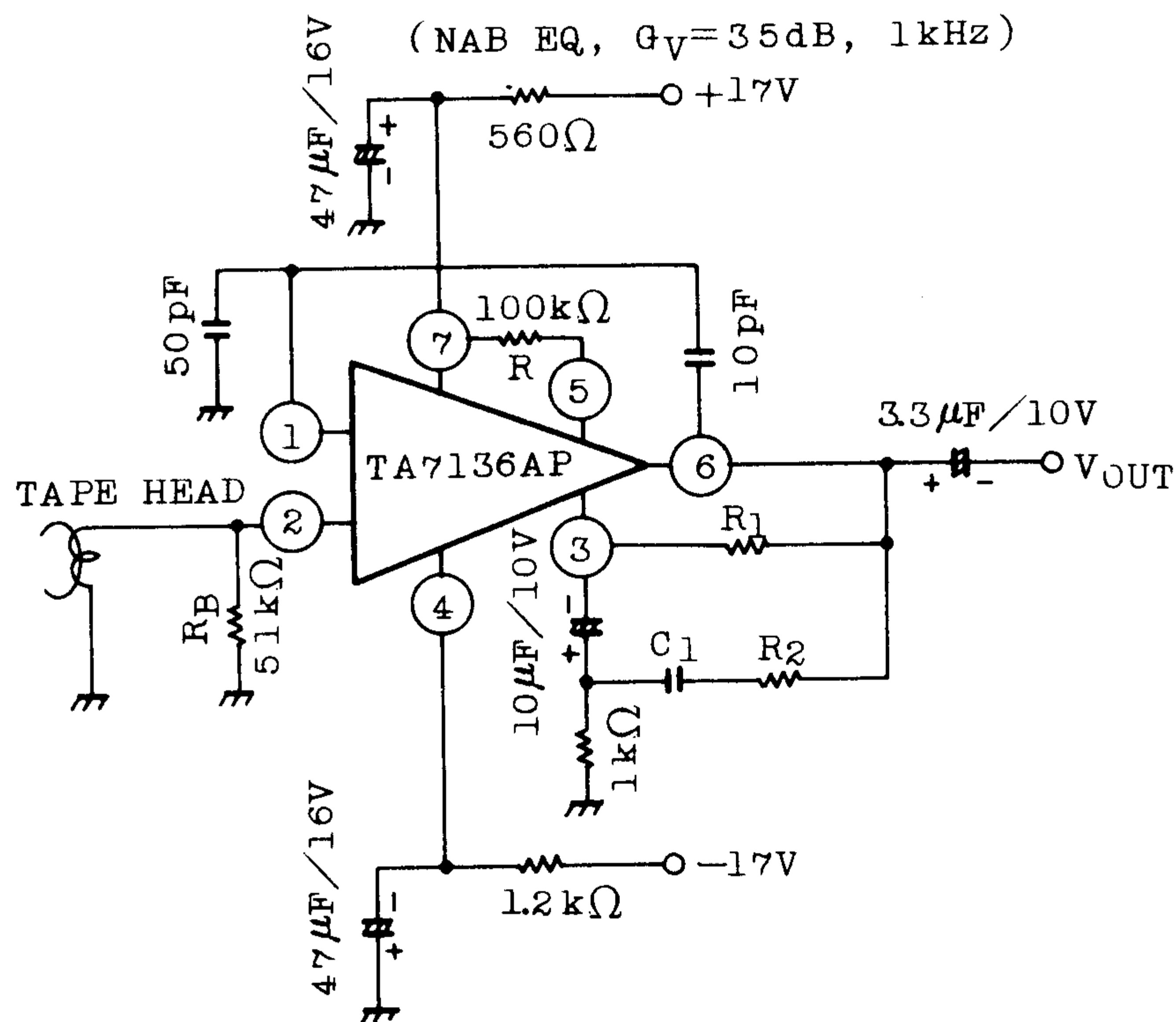


APPLICATION CIRCUIT

1. MAGNETIC PHONO PRE-AMPLIFIER

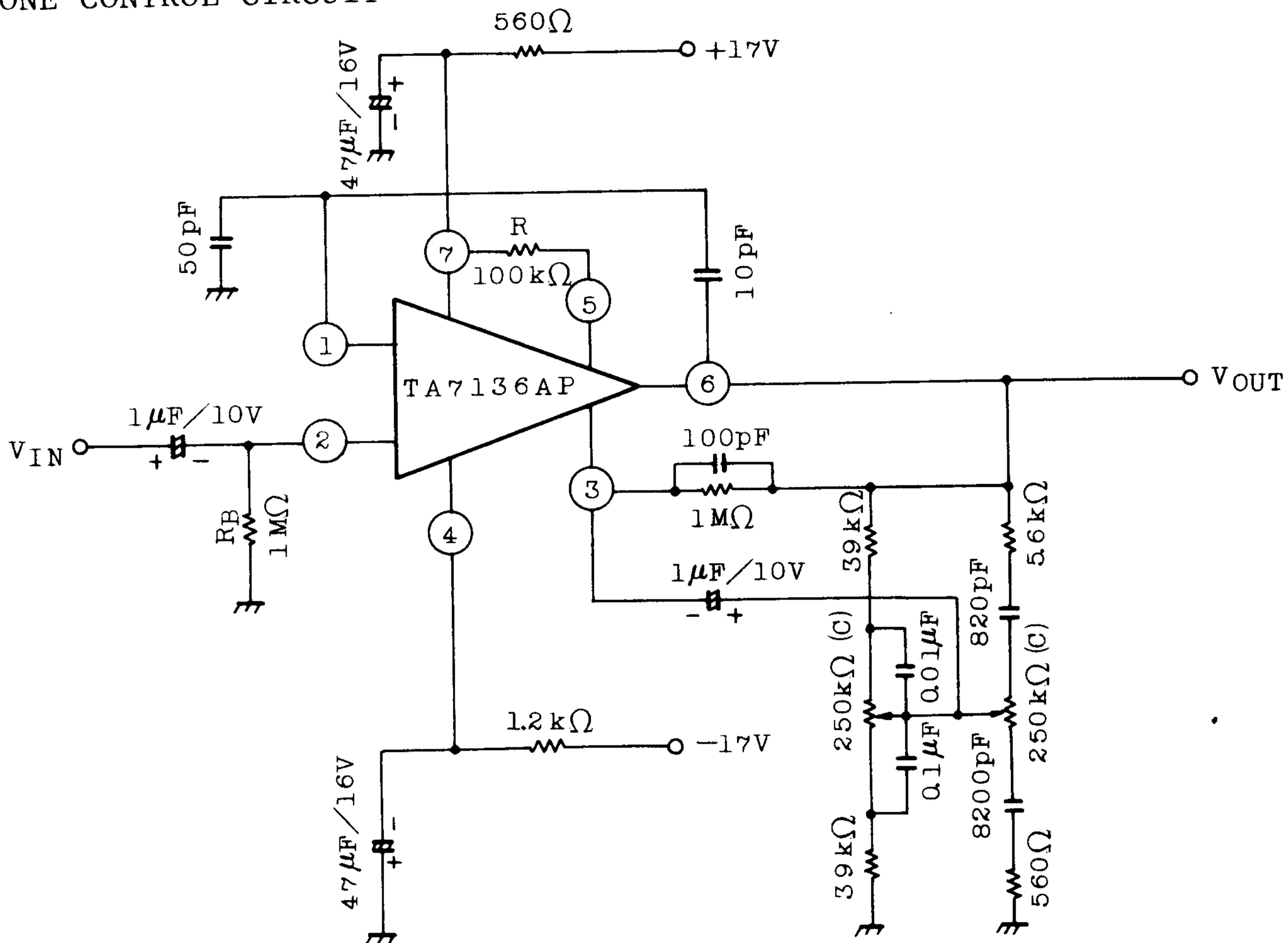


2. TAPERECORDER PRI-AMPLIFIER



| | 9.5cm/sec | 19cm/sec | CASSETTE |
|----|-----------|----------|----------|
| R1 | 910kΩ | 1MΩ | 510kΩ |
| R2 | 27kΩ | 18kΩ | 47kΩ |
| C1 | 3300pF | 2800pF | 3300pF |

3. TONE CONTROL CIRCUIT

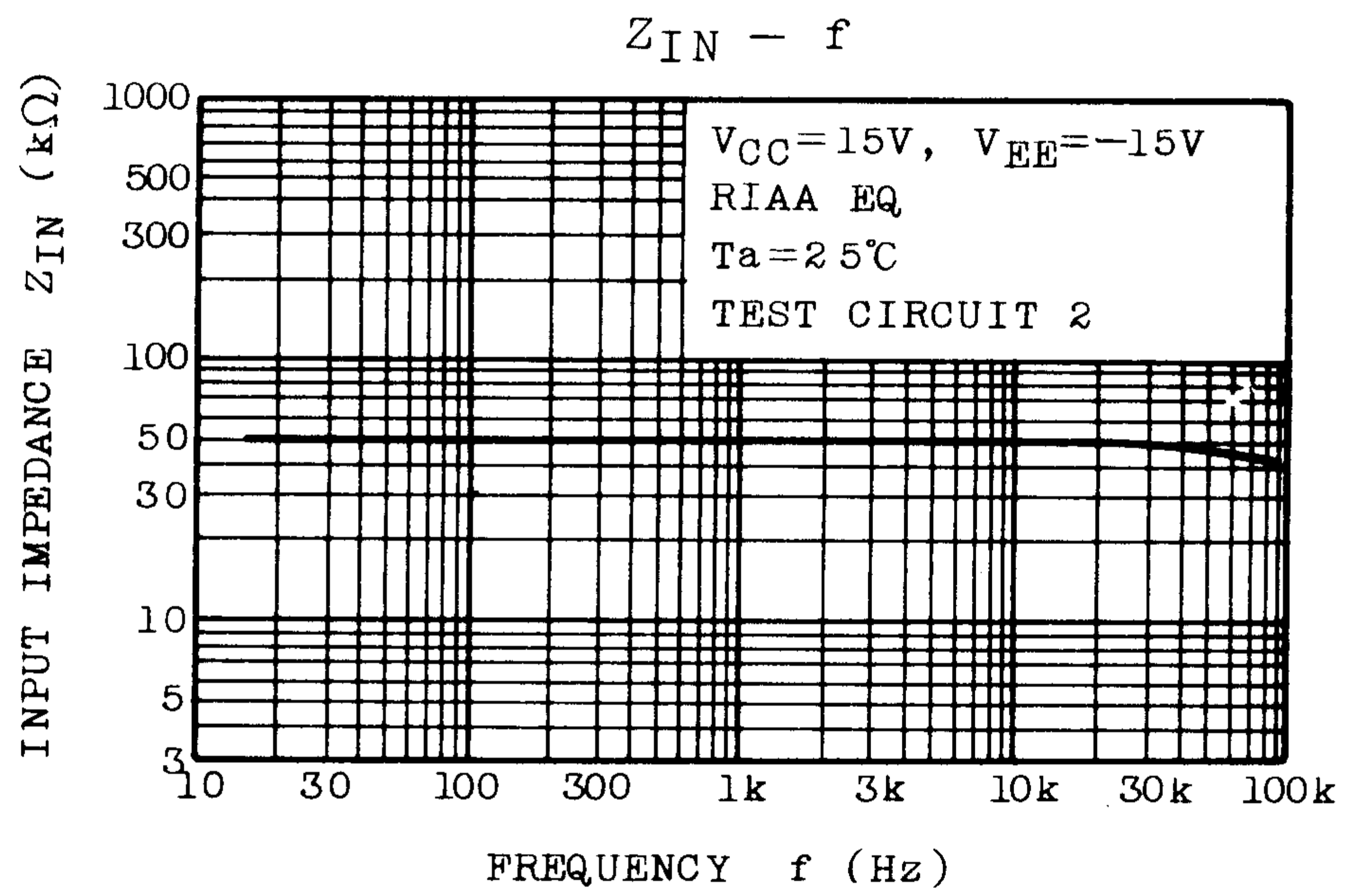
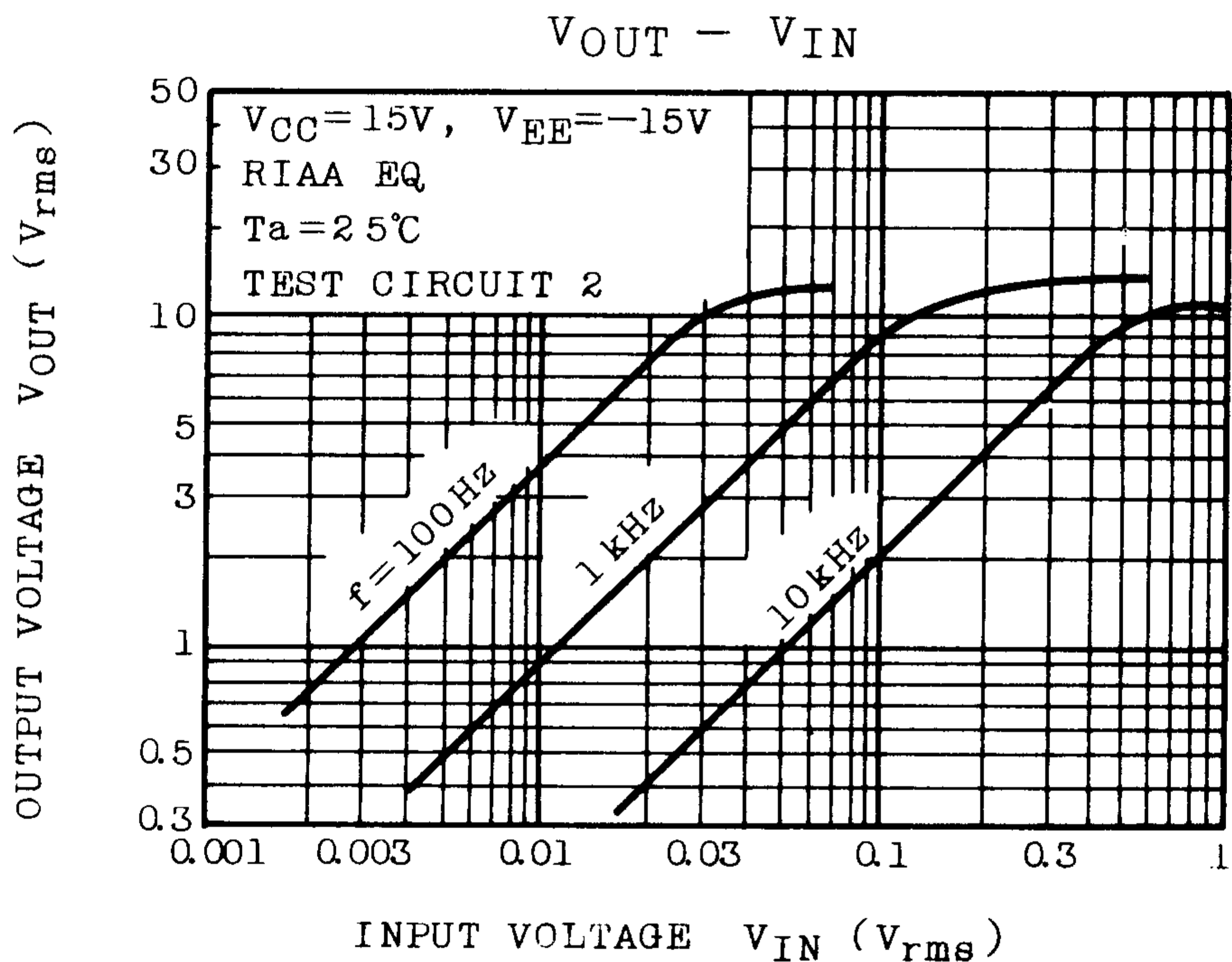
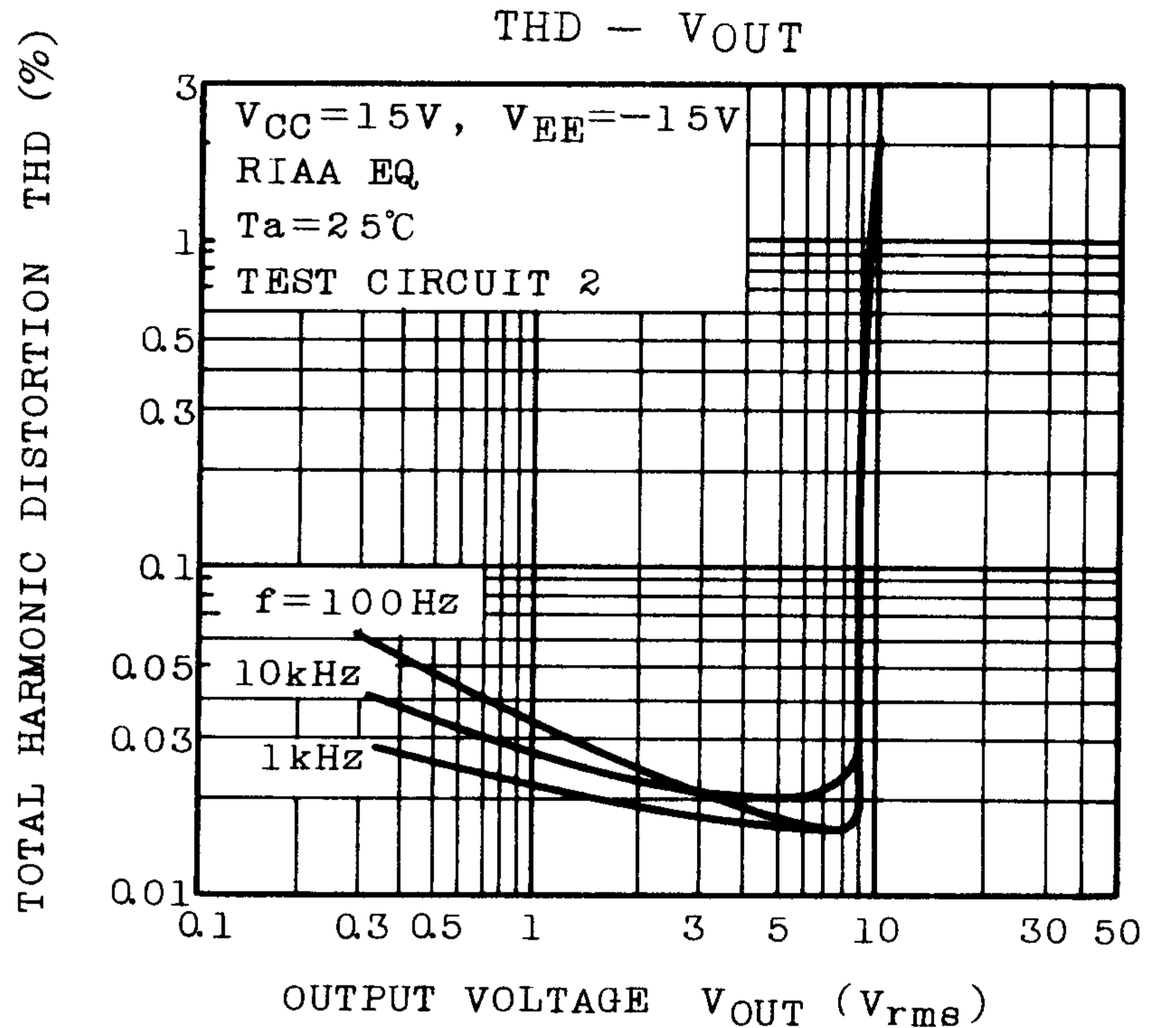
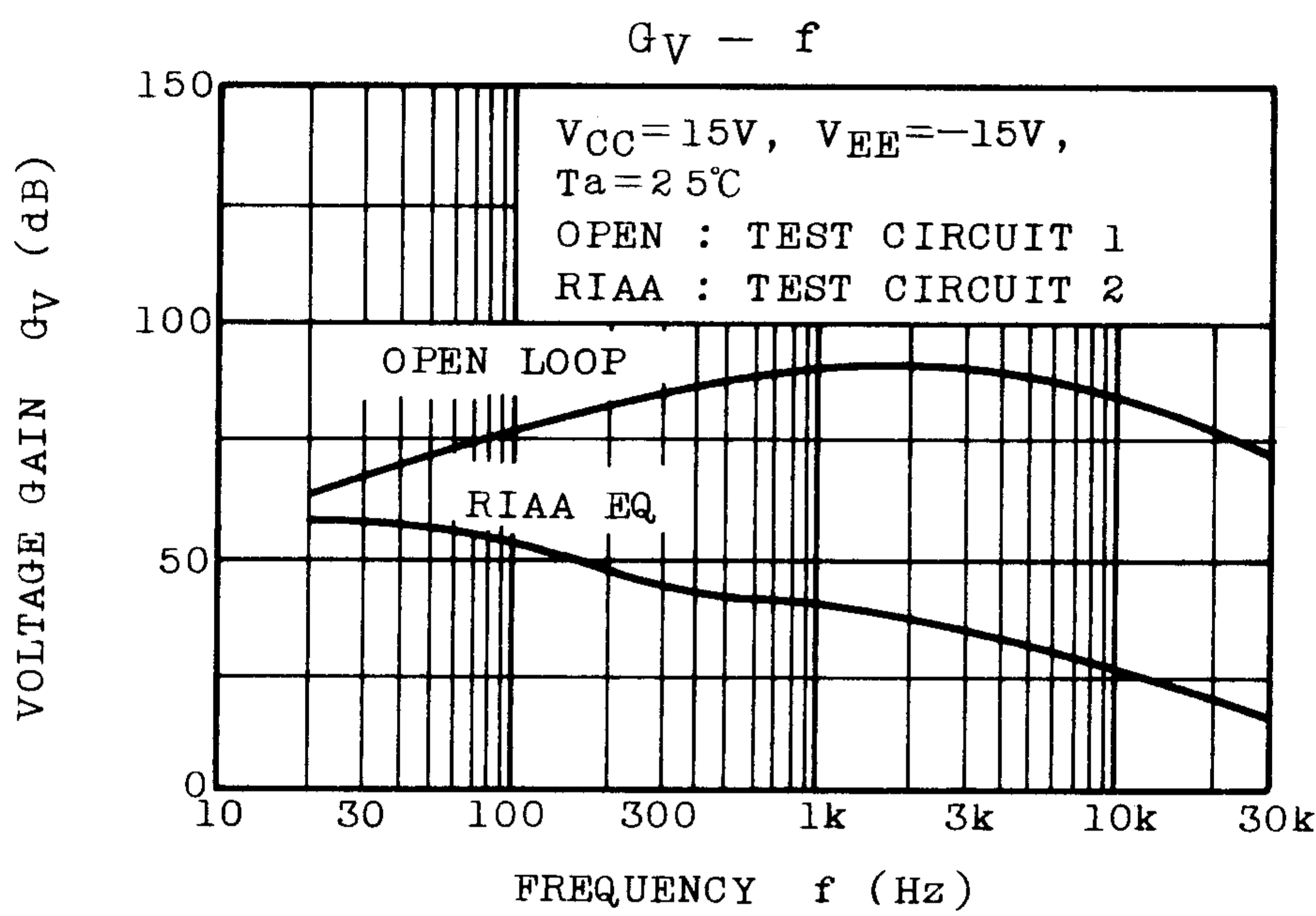
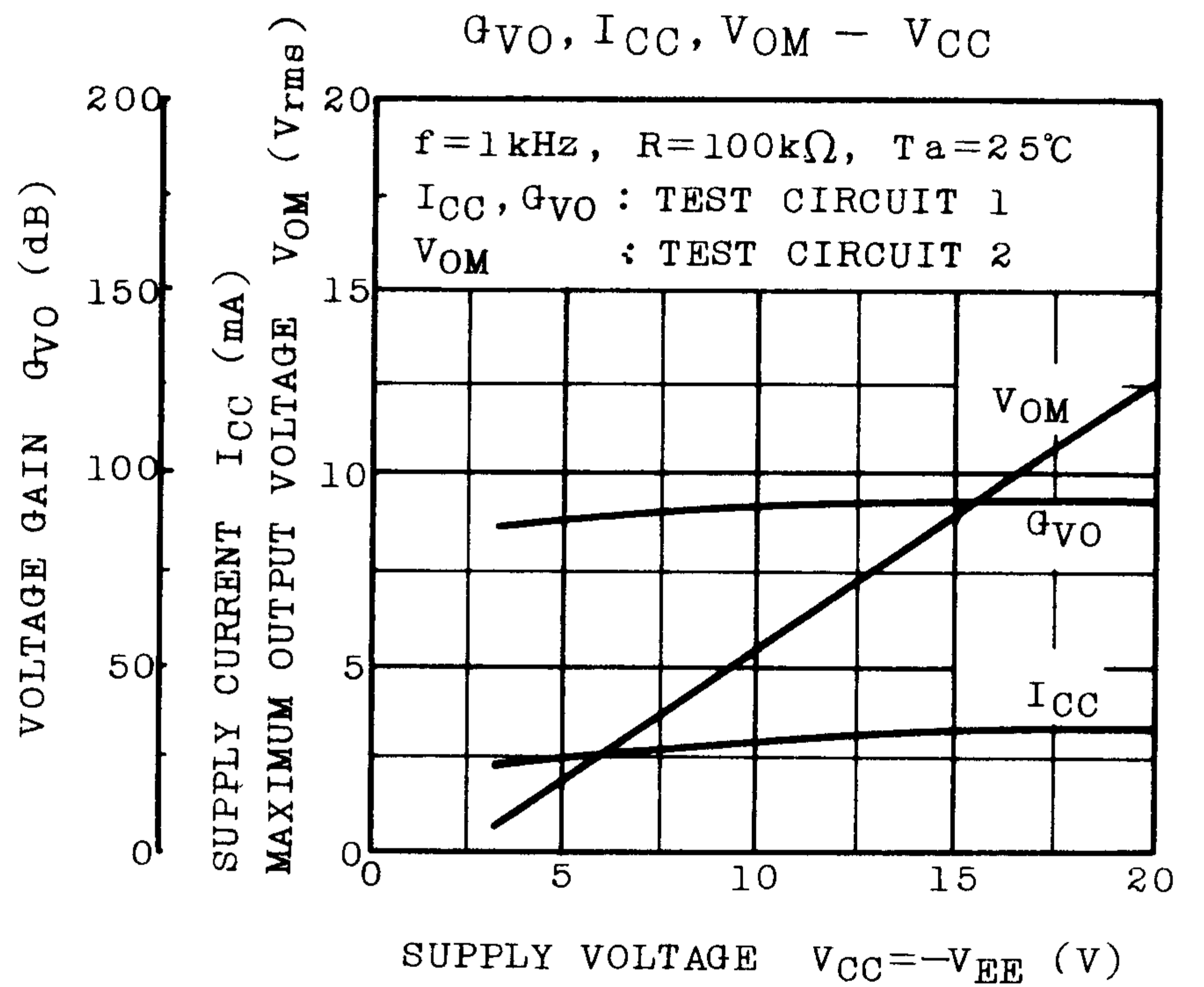
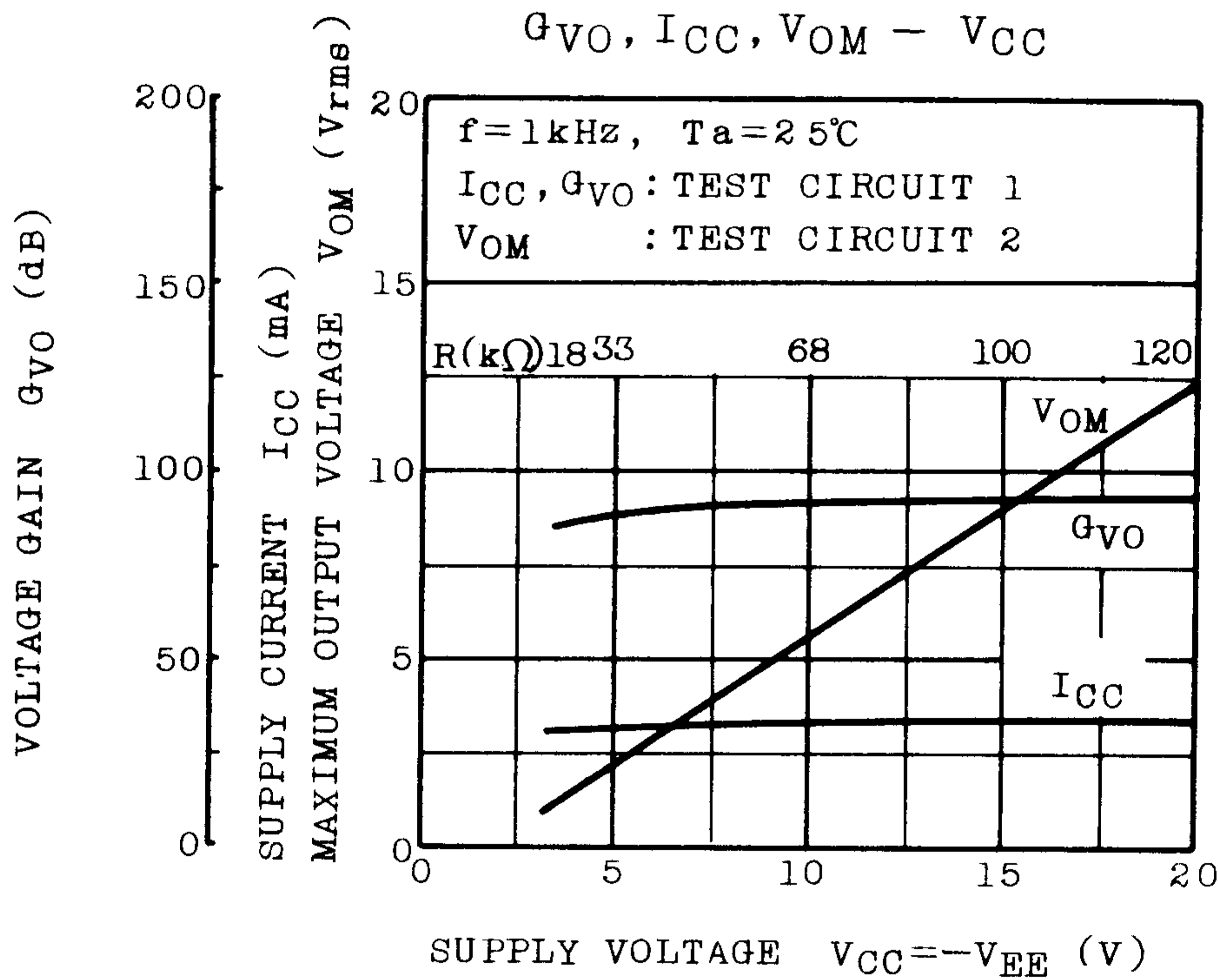




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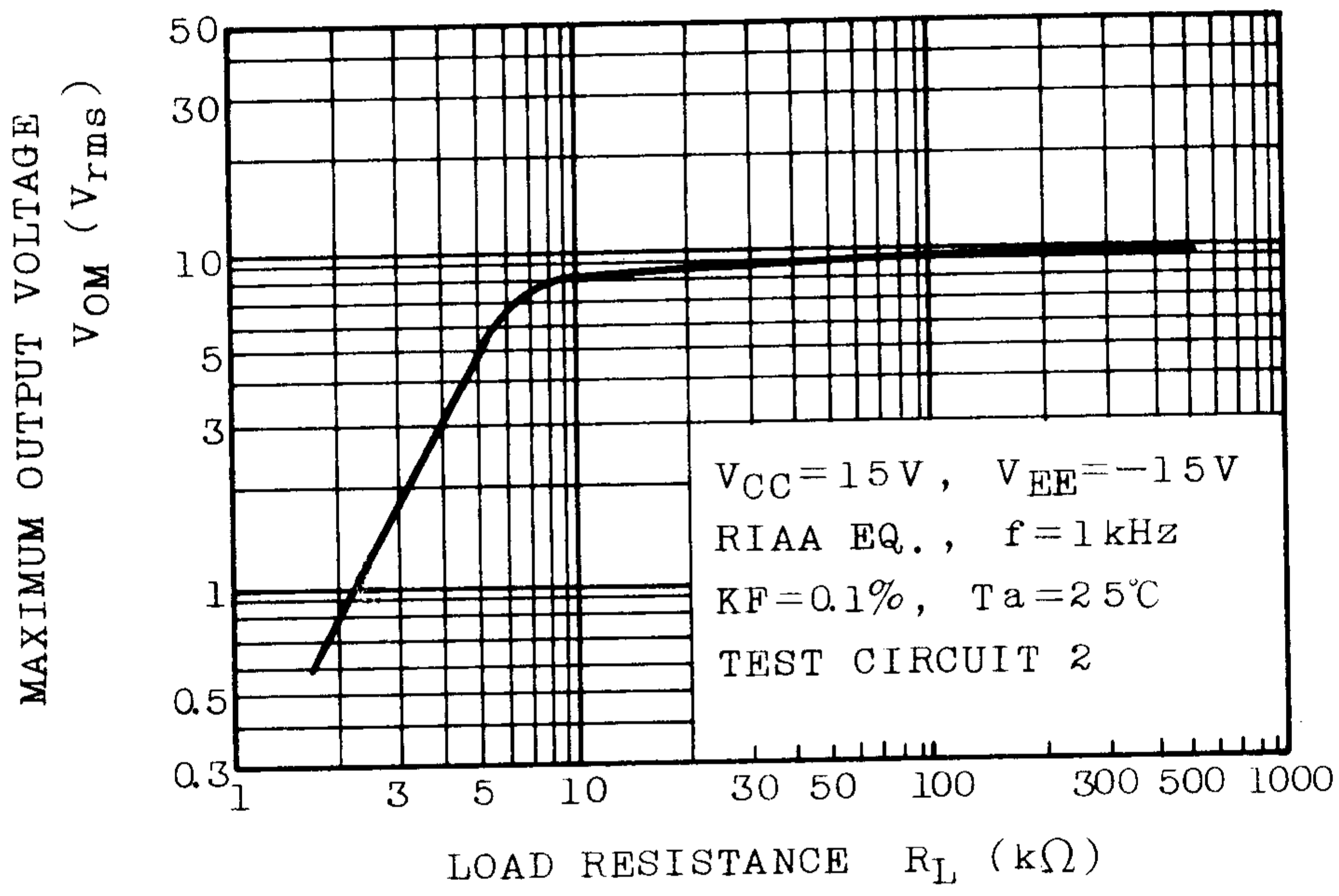


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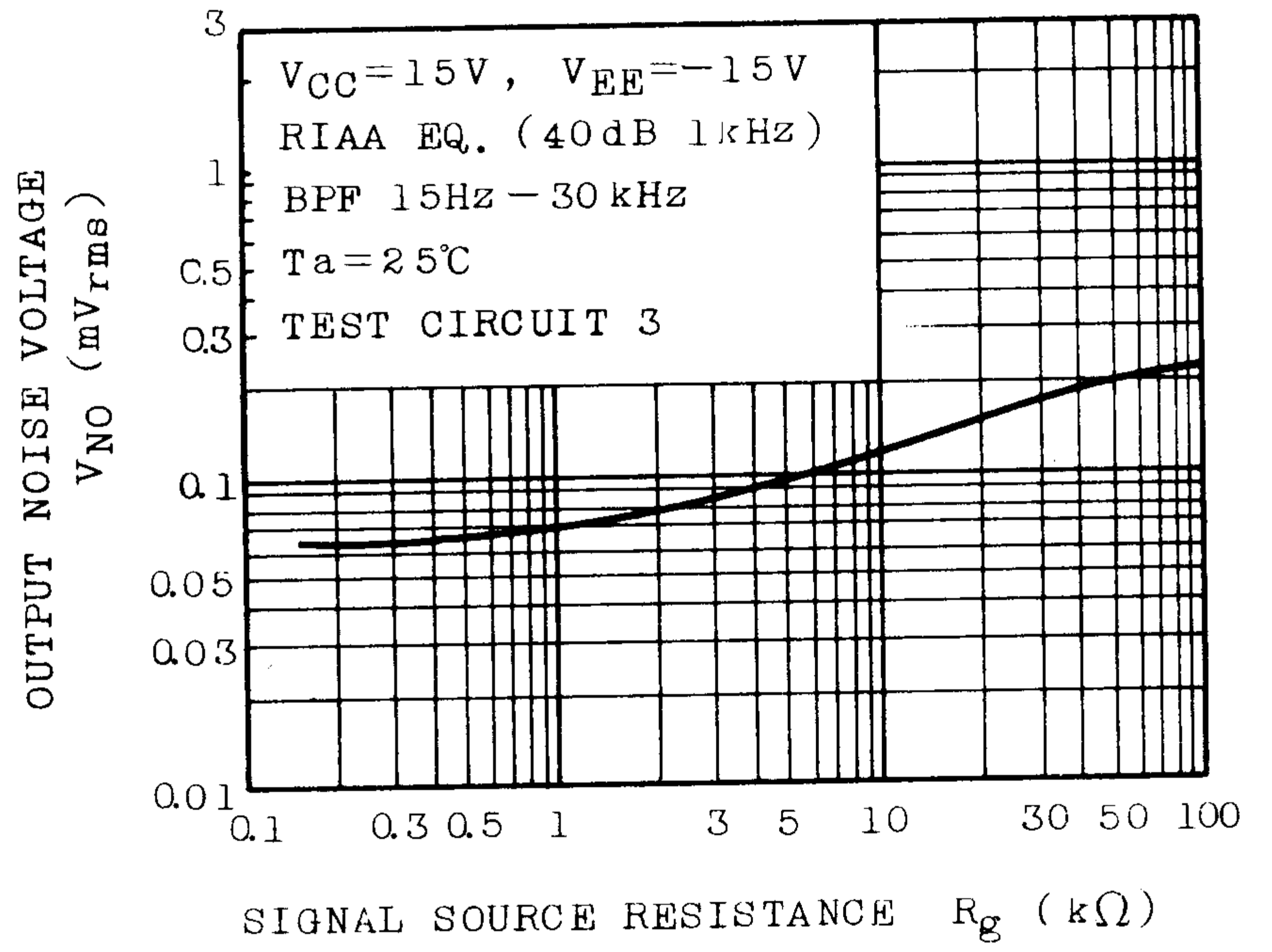
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TECHNICAL DATA

$V_{OM} - R_L$



$V_{NO} - R_g$



$G_{VO}, I_{CC}, V_{OM} - T_a$

