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| SANYO | No. 4610A | STK4211II |
| | 2ch AF Power Amplifier (Split Power Supply) (70W + 70W min, THD = 0.4%) | |

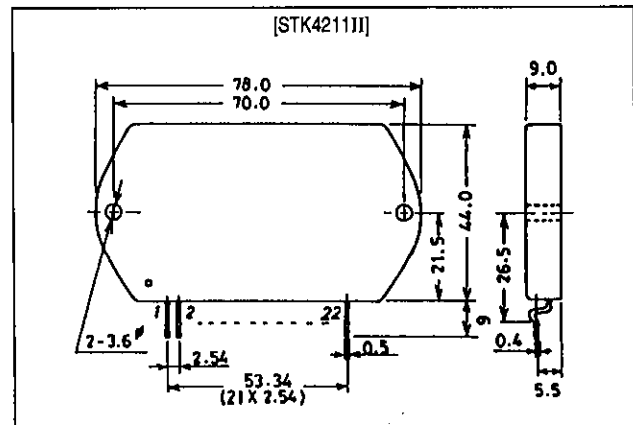
Features

- Muting circuit built-in to isolate all types of shock noise
- Current mirror circuit for low 0.4% total harmonic distortion
- Pin compatible with the STK4201V series (THD = 0.08%) and the STK4141X series (THD = 0.02%)

Package Dimensions

unit: mm

4086A



Specifications

Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---------------------------------------|---------------------|--|-------------|------|
| Maximum supply voltage | V _{CC} max | | ±60 | V |
| Thermal resistance | θ _{j-c} | | 1.5 | °C/W |
| Junction temperature | T _J | | 150 | °C |
| Operating substrate temperature | T _c | | 125 | °C |
| Storage temperature | T _{stg} | | -30 to +125 | °C |
| Available time for load short-circuit | t _s | V _{CC} = ±42V, R _L = 8Ω, f = 50Hz, P _O = 70W | 1 | s |

Recommended Operating Conditions at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|----------------------------|-----------------|------------|---------|------|
| Recommended supply voltage | V _{CC} | | ±42 | V |
| Load resistance | R _L | | 8 | Ω |

Operating Characteristics at Ta = 25°C, V_{CC} = ±42V, R_L = 8Ω (noninductive load), R_g = 600Ω, V_G = 40dB

| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---------------------------|---------------------------------|---|-----|-----------|-----|-------|
| Quiescent current | I _{CCO} | V _{CC} = ±50.5V | 20 | 40 | 100 | mA |
| Output power | P _O | THD = 0.4%, f = 20Hz to 20kHz | 70 | - | - | W |
| Total harmonic distortion | THD | P _O = 1.0W, f = 1kHz | - | - | 0.3 | % |
| Frequency response | f _L , f _H | P _O = 1.0W, ⁺⁹ / ₋₃ dB | - | 20 to 50k | - | Hz |
| Input impedance | r _i | P _O = 1.0W, f = 1kHz | - | 55 | - | kΩ |
| Output noise voltage | V _{NO} | V _{CC} = ±50.5V, R _g = 10kΩ | - | - | 1.2 | mVrms |
| Neutral voltage | V _N | V _{CC} = ±50.5V | -70 | 0 | +70 | mV |
| Muting voltage | V _M | | -2 | -5 | -10 | V |

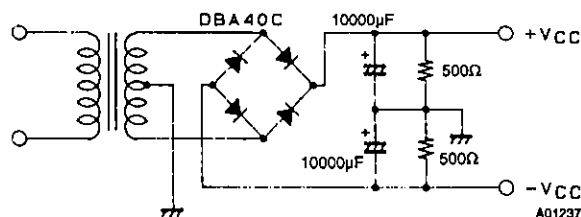
Notes.

All tests are measured using a regulated voltage supply unless otherwise specified.

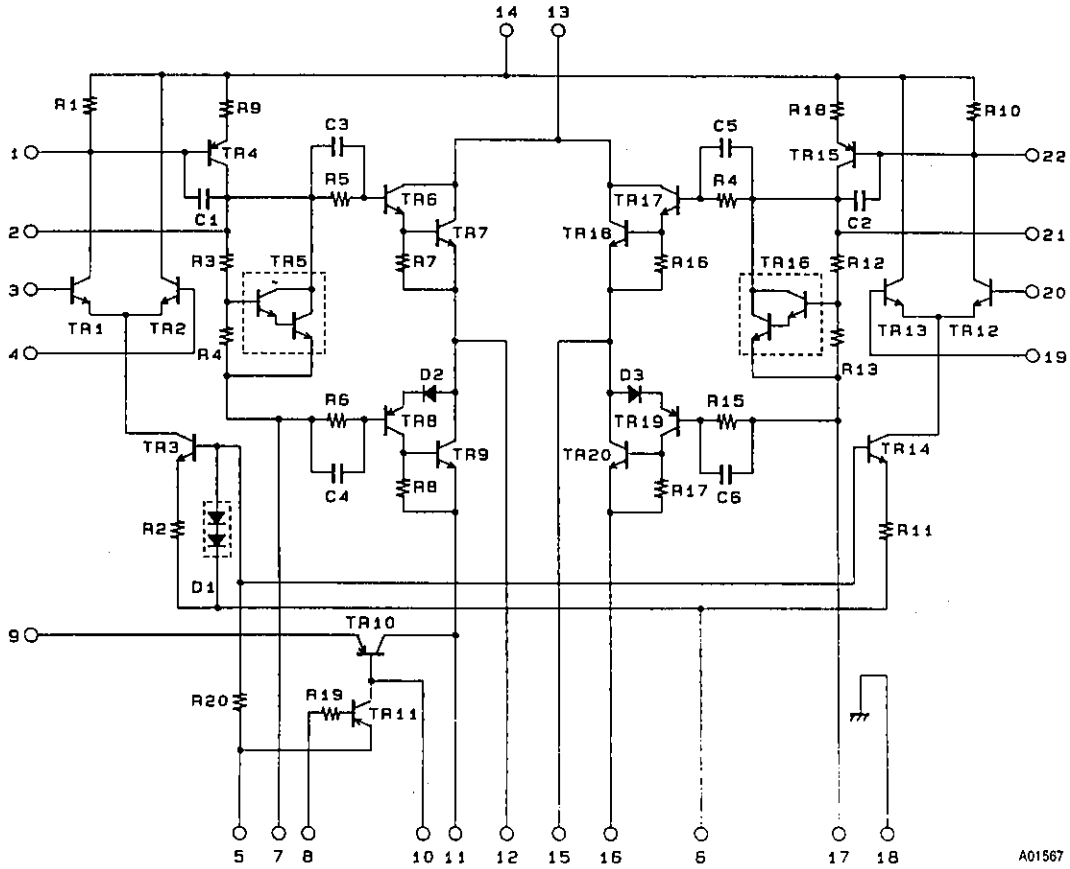
Available time for load short-circuit and output noise voltage are measured using the transformer supply specified below.

The output noise voltage is the peak value of an average-reading meter with an rms value scale (VTVM). A regulated AC supply (50Hz) should be used to eliminate the effects of AC primary line flicker noise.

Specified Transformer Supply (MG-200 or Equivalent)

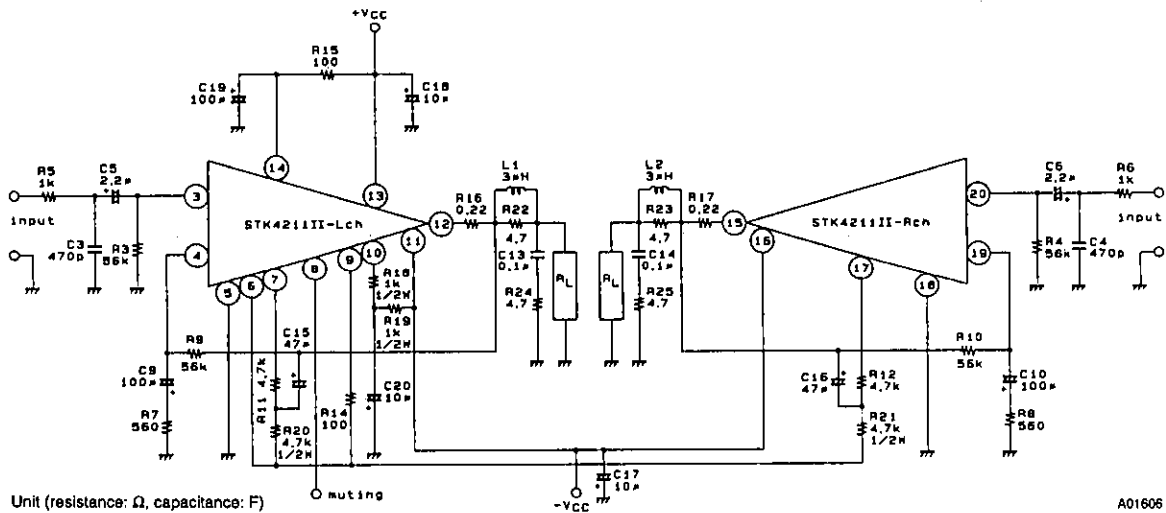


Equivalent Circuit



A01567

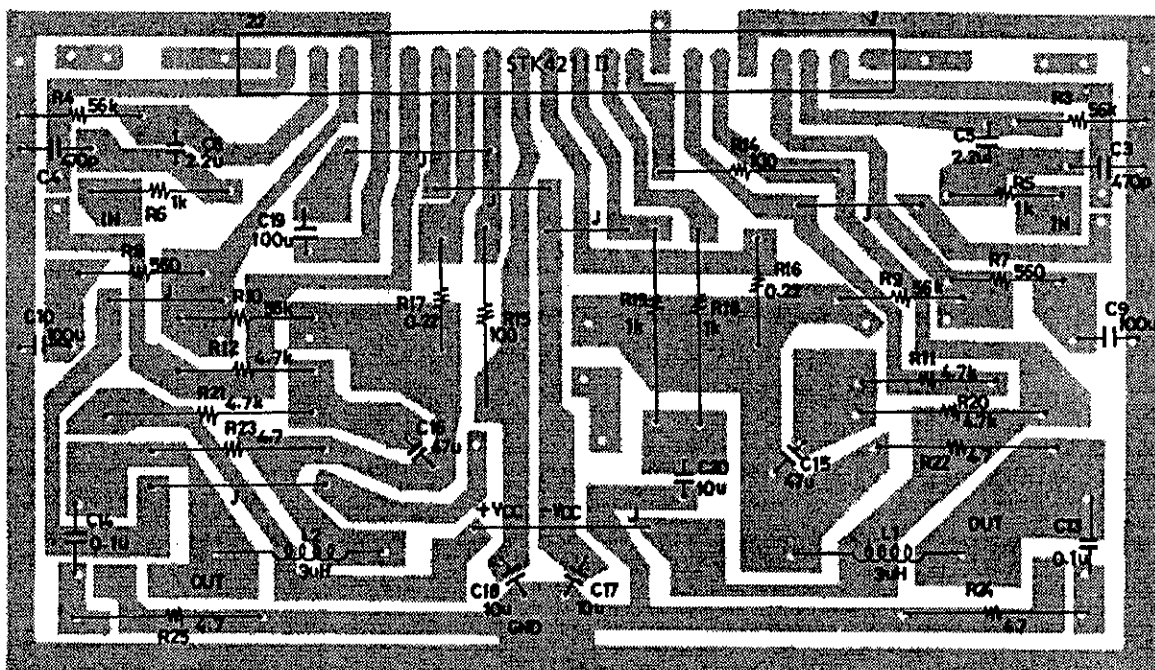
Sample Application Circuit (70W min 2-Channel AF Power Amplifier)



Unit (resistance: Ω, capacitance: F)

A01606

Sample Application Circuit PCB Layout (Copper Foil Surface)



Unit (resistance: Ω; capacitance: F)

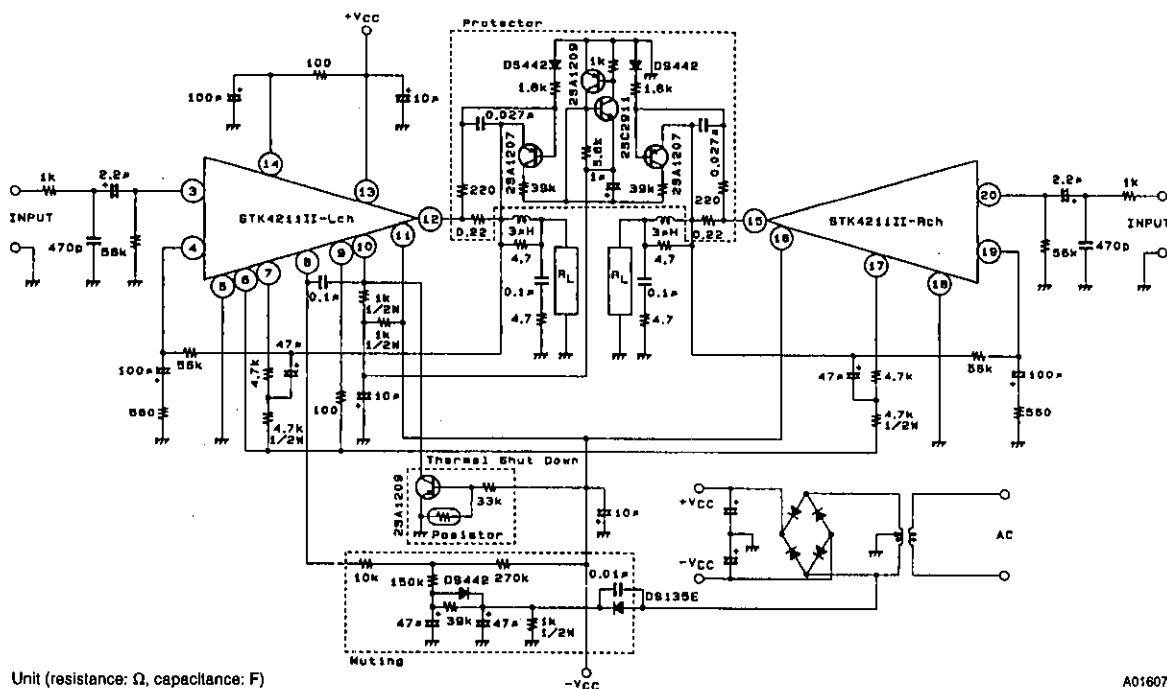
External Component Description

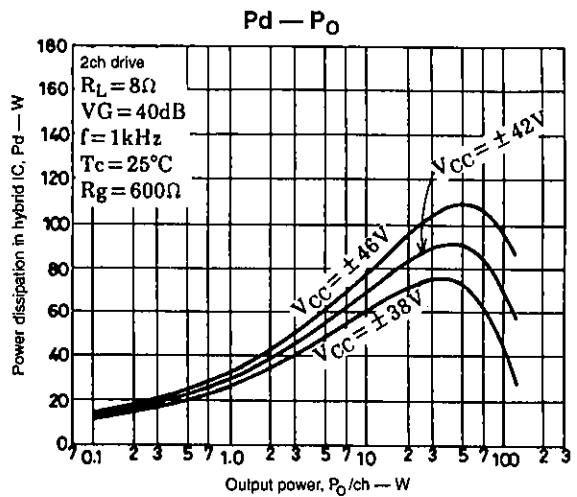
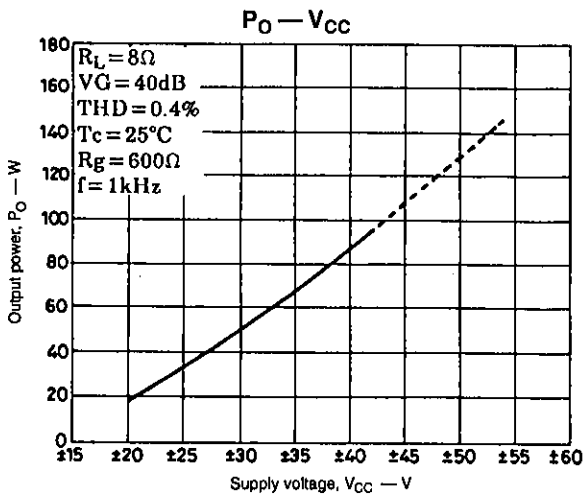
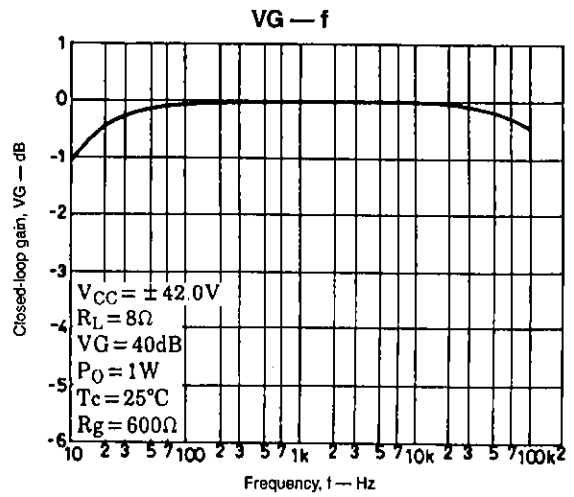
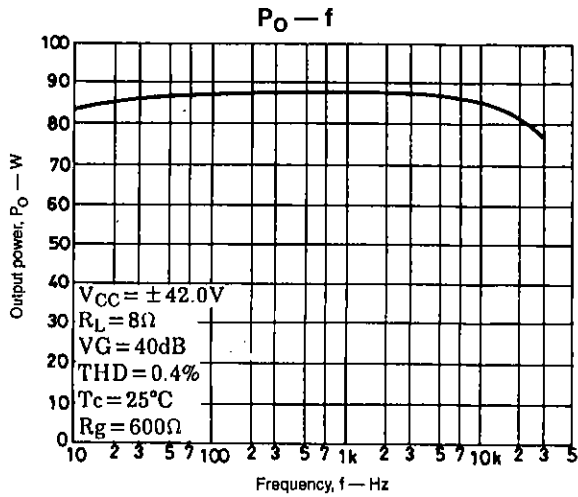
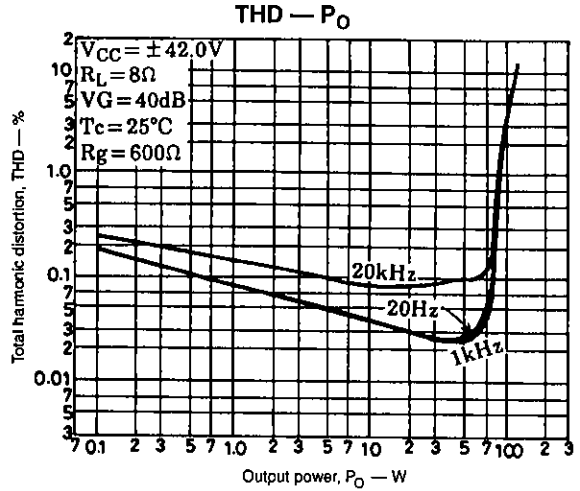
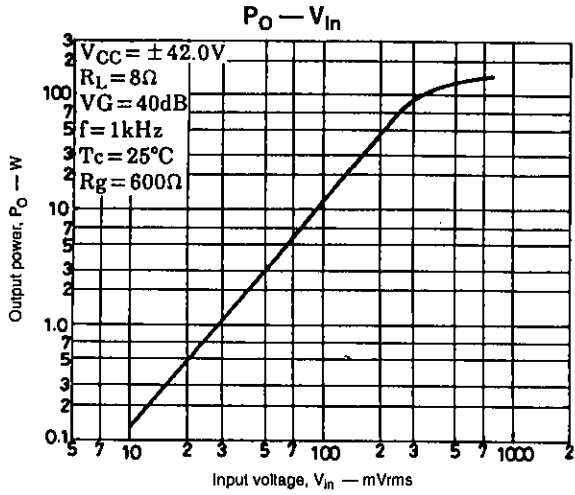
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| C3, C4 | Input filter capacitors. These, together with R5 and R6, form filters to reduce high-band noise. |
| C5, C6 | Input coupling capacitors. For DC blocking. Since capacitor reactance becomes larger at lower frequencies, the output noise can be adversely affected by signal source resistance-dependent 1/f noise. In this case, a lower reactance value should be chosen. In order to remove pop noise at power-on, larger values of capacitance should be chosen for C5 and C6, which determine the input time constant, and smaller values for C9 and C10 in the NF circuit. |
| C9, C10 | NF capacitors. These determine the low-side cut-off frequency. $f_L = \frac{1}{2\pi \times C9 \times R7} \text{ [Hz]}$ A Large value should be chosen for C9 to maintain voltage gain at low frequencies. However, because this would tend to increase the shock noise at power-on, a value larger than absolutely necessary should be avoided. |
| C19 | Decoupling capacitors. This removes shock noise and ripple voltage from the supply. |
| C15, C16 | Bootstrap capacitors. If these capacitors are made small, then the total harmonic distortion at low frequencies increases significantly. |
| C17, C18 | Oscillation prevention capacitors. These should be inserted as close as possible to the IC supply pins to reduce supply impedance and hence provide stable IC operation. Electrolytic capacitors are recommended. |
| C20 | Ripple filter capacitor. This forms a ripple filter in combination with internal transistor TR10. |
| C13, C14 | Oscillation prevention capacitors. Mylar capacitors are recommended for their excellent thermal and frequency characteristics. |
| R5, R6 | Input filter resistors. |
| R3, R4 | Input bias resistors. These are used to bias the input pins at zero potential. The input impedance is largely determined by this resistance. |
| R7, R9 (R8, R10) | Voltage-gain VG setting resistors. VG = 40dB is recommended using R7, R8 = 560Ω, and R9, R10 = 56kΩ. Gain adjustments are best made using R7 or R8. If gain adjustments are made using R7 or R8, then set R3, R4 = R9, R10 to maintain V _N balance stability. |
| R11, R20 (R12, R21) | Bootstrap resistors. These resistors determine the quiescent current. Values of 4.7kΩ and 4.7kΩ are recommended. |

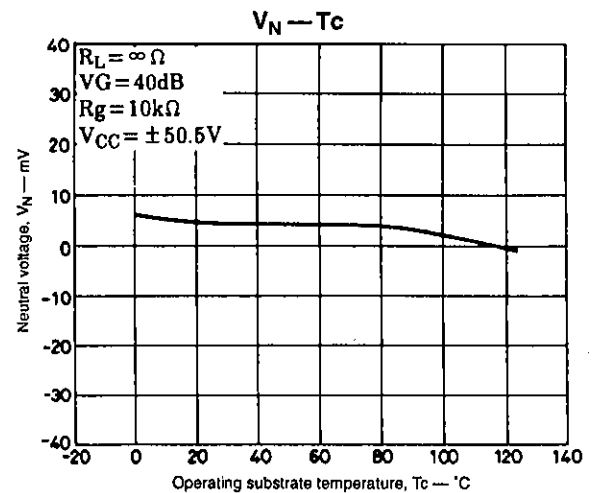
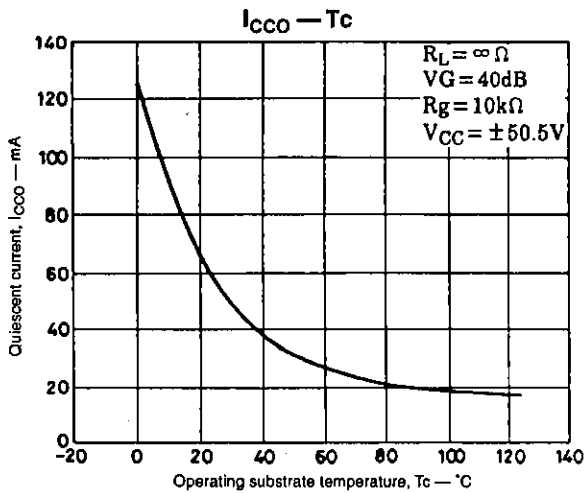
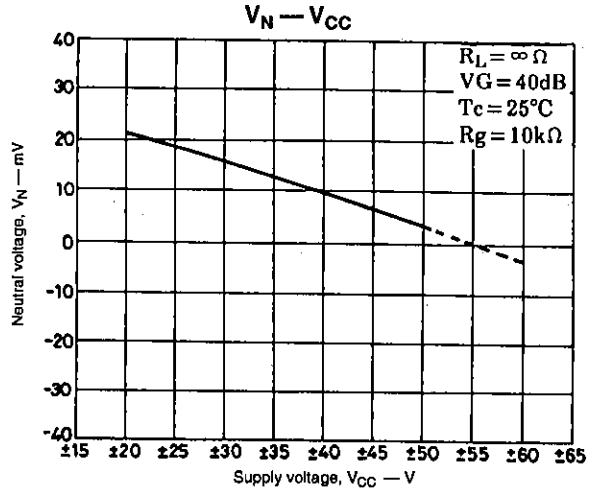
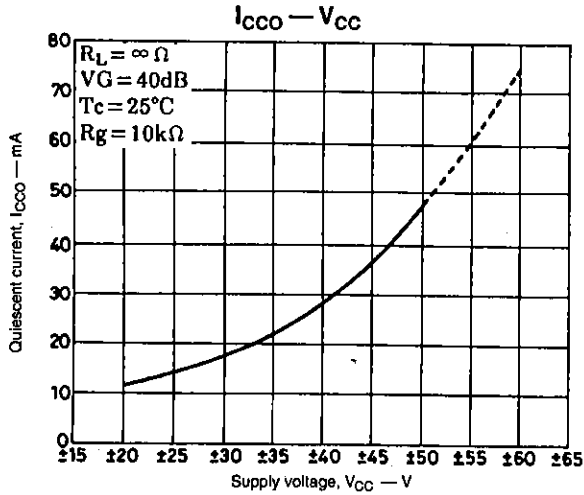
STK4211II

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| R15 | Ripple filter resistor. This resistor performs as predriver transistor limiting resistor during load short circuits. |
| R14 | Clipping plus/minus balance resistor. |
| R18, R19 | Ripple filter resistors. When muting transistor TR11 is on, current flows from ground through TR11 to $-V_{CC}$. Values of $1k\Omega$ (1W) and $1k\Omega$ (1W) are recommended. |
| R24, R25 | Oscillation prevention resistors. |
| R16, R17 | Output limiting resistors. |
| R22, R23 | High-frequency oscillation prevention resistors. |
| L1, L2 | High-frequency oscillation prevention inductors. |

Sample Application Circuit (With Protection and Muting Circuits)







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