

Thick Film Hybrid IC

STK4042XI

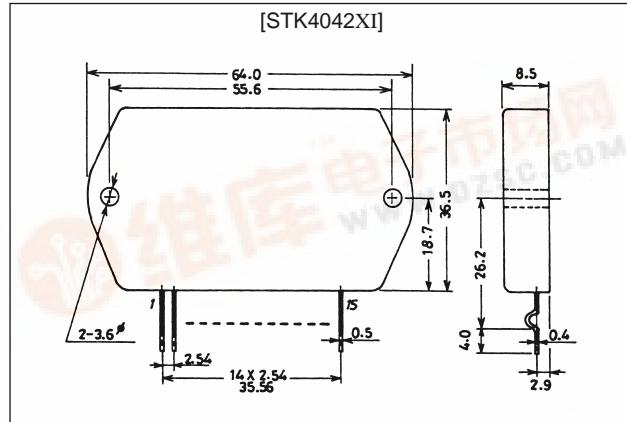
AF Power Amplifier (Split Power Supply) (80W min, THD = 0.008%)

Features

- Small-sized package permitting audio sets to be made slimmer.
- The STK4018XI series are available for output 50W to 80W and are pin-compatible.
- Facilitates thermal design of slim stereo sets.
- The use of a current mirror circuit, cascode circuit, pure complementary circuit provides low distortion (0.008% / 100kHz, LPF ON).
- Possible to design electronic supplementary circuits (pop noise muting at the time of power ON/OFF, load short protector, thermal shutdown)

Package Dimensions

unit: mm

4075

Specifications

Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---------------------------------------|---------------------|---|-------------|------|
| Maximum supply voltage | V _{CC} max | | ±67 | V |
| Thermal resistance | θ _{j-c} | | 1.2 | °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 *1 | V _{CC} = ±46.5V, R _L = 8Ω, f = 50Hz, P _O = 80W | 1 | s |

Recommended Operating Conditions at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|----------------------------|-----------------|------------|---------|------|
| Recommended supply voltage | V _{CC} | | ±46.5 | V |
| Load resistance | R _L | | 8 | Ω |

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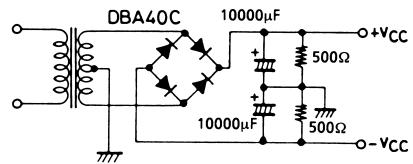
Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = \pm 46.5\text{V}$, $R_L = 8\Omega$ (noninductive load), $VG = 40 \text{ dB}$,
 $R_g = 600\Omega$, 100kHz-LPFon:

| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---------------------------|-------------|--|-----|-----------|-------|------------------|
| Quiescent current | I_{CC0} | $V_{CC} = \pm 56\text{V}$ | 15 | | 120 | mA |
| Output power | P_O | THD = 0.008%, $f = 20$ to 20kHz | 80 | | | W |
| Total harmonic distortion | THD | $P_O = 1\text{W}$, $f = 1\text{kHz}$ | | | 0.008 | % |
| Frequency response | f_L, f_H | $P_O = 1\text{W}$, $f = 3$ dB | | 20 to 50k | | Hz |
| Input impedance | r_i | $P_O = 1\text{W}$, $f = 1\text{kHz}$ | | 55 | | $\text{k}\Omega$ |
| Output noise voltage | V_{NO}^*2 | $V_{CC} = \pm 56\text{V}$, $R_g = 10\text{k}\Omega$ | | | 1.2 | mVrms |
| Neutral voltage | V_N | $V_{CC} = \pm 56\text{V}$ | -70 | 0 | +70 | mV |

Notes. For power supply at the time of test, use a constant-voltage power supply unless otherwise specified.

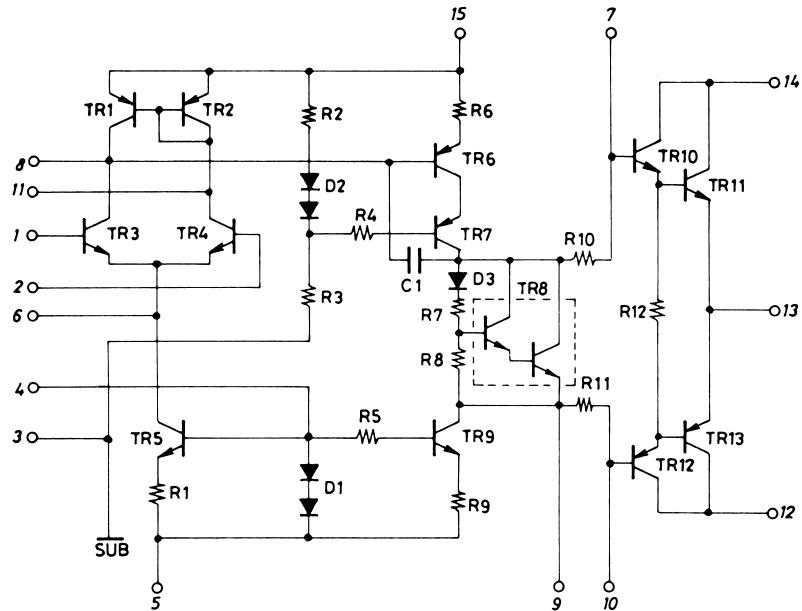
*1 For measurement of the available time for load short-circuit and output noise voltage, use the specified transformer power supply shown below.

*2 The output noise voltage is represented by the peak value on the rms scale (VTVM) of average value indicating type. The noise voltage waveform includes no flicker noise.



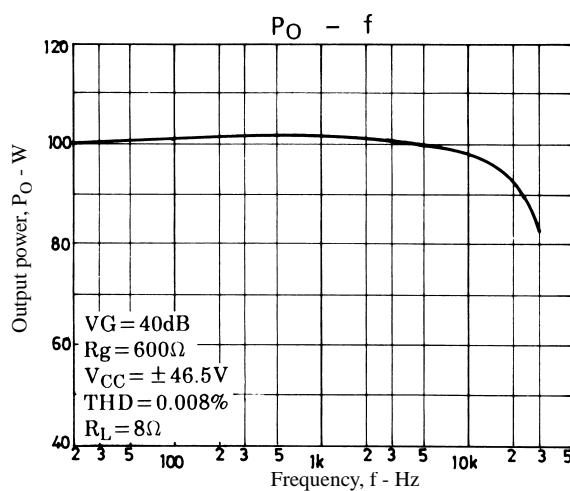
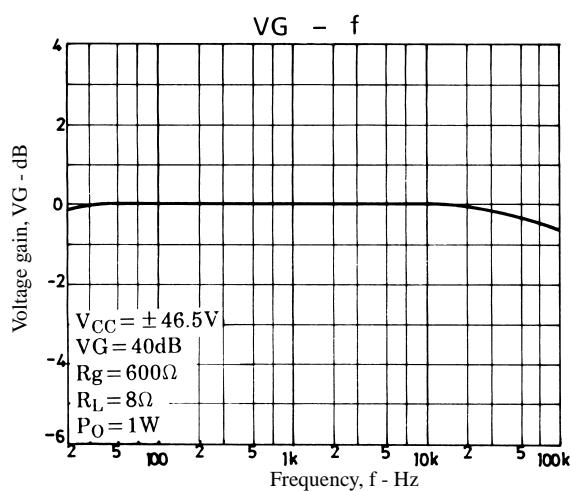
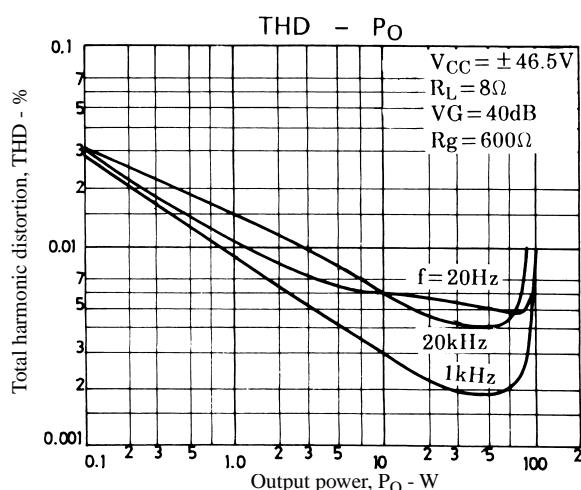
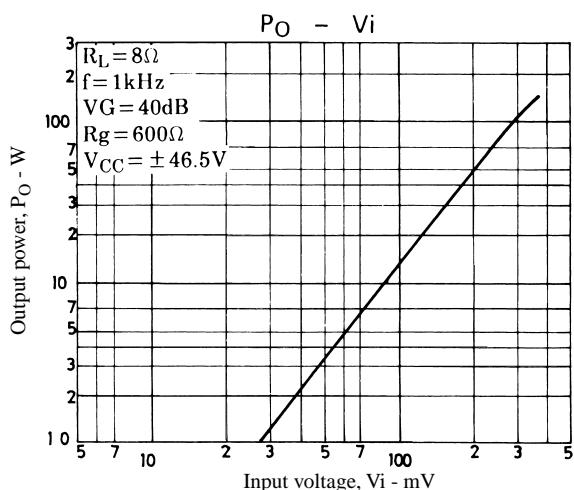
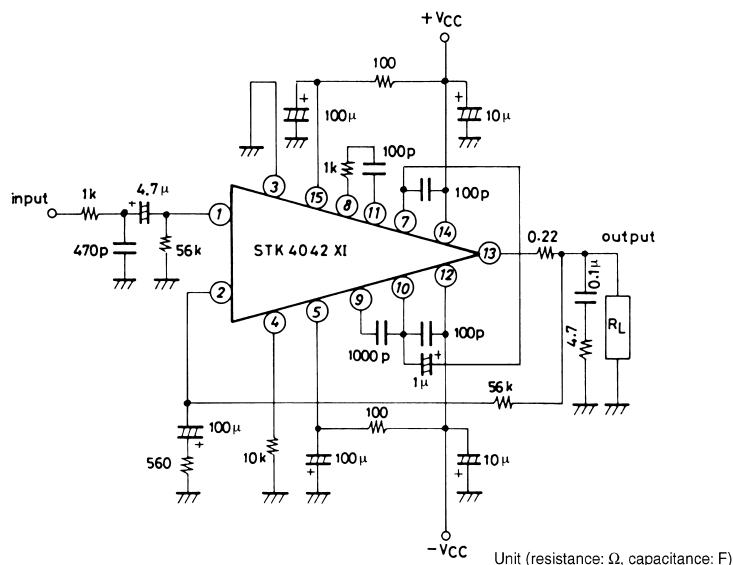
Specified transformer power supply
 (Equivalent to MG-200)

Equivalent Circuit

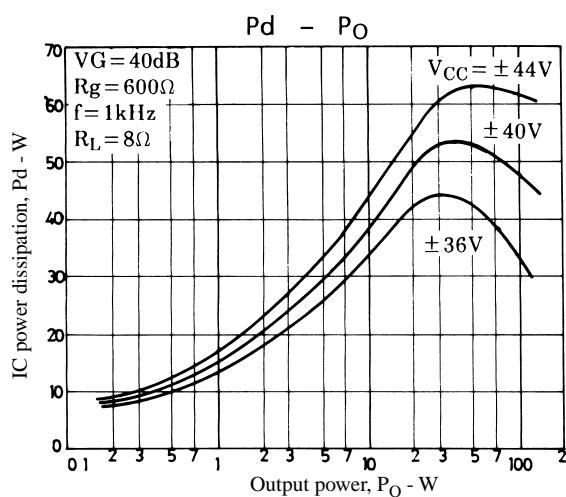
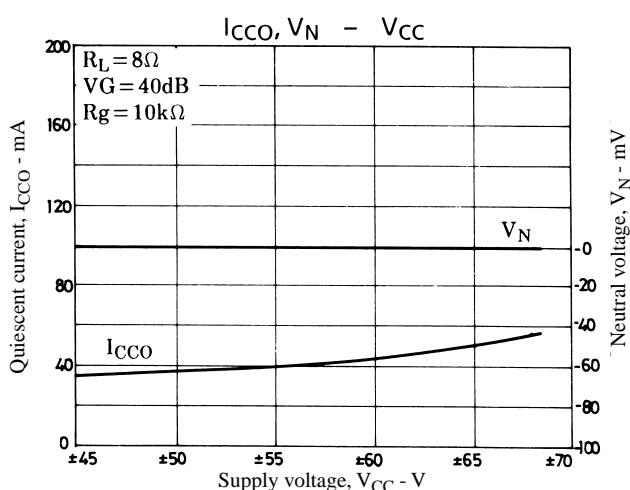
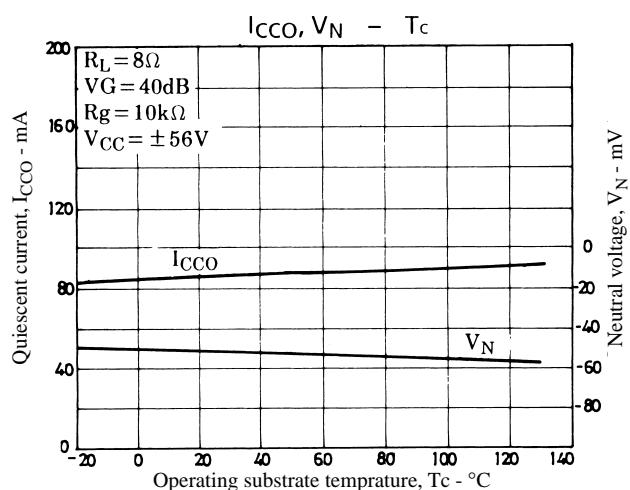
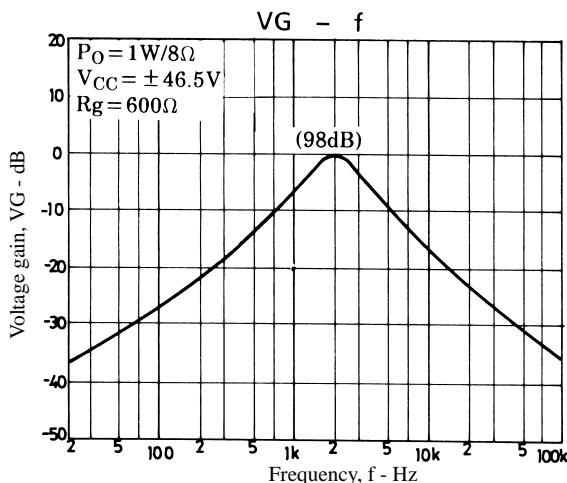
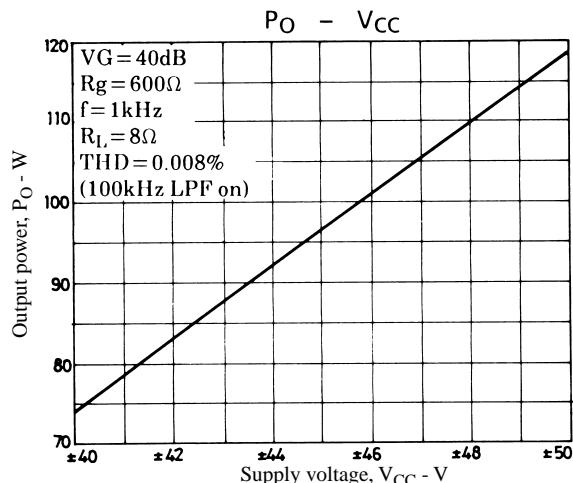


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Sample Application Circuit : 80W min AF Power Amplifier



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