Ordering number : EN 1706D

Thick Film Hybrid IC

STK4030II

AF Power Amplifier (Split Power Supply) (35W min, THD = 0.4%)

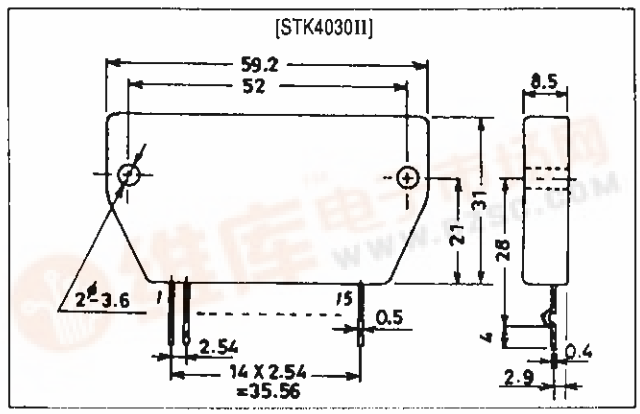
Features

- Small-sized package permitting audio sets to be made slimmer
- The STK4024II series are available for output 20W to 70W and are pin-compatible.
- Facilitates thermal design of slim stereo sets.
- The use of a constant-current circuit minimizes pop noise at the time of power ON/OFF.
- 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

4033



Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		±45	V
Thermal resistance	θj-c		2.1	°C/W
Junction temperature	Tj		150	°C
Operating substrate temperature	Tc		125	°C
Storage temperature	Tstg		−30 to +125	°C
Available time for load short-circuit	t_s*	V_{CC} = ±30V, R_L = 8Ω, f = 50Hz, P_O = 35W	2	s

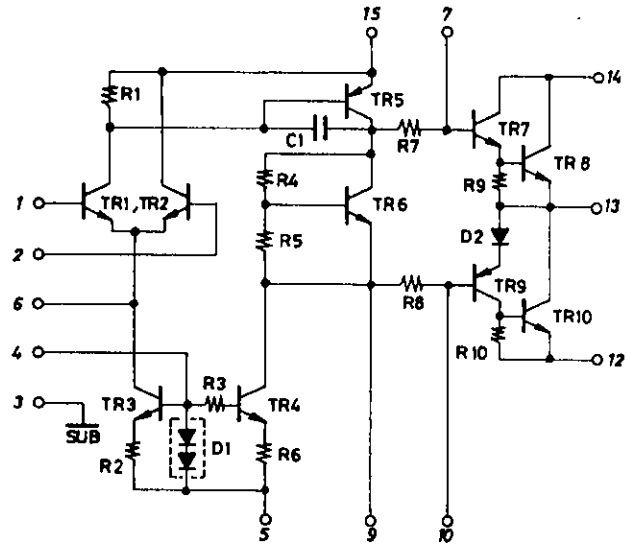
Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		±30	V
Load resistance	R_L		8	Ω

Operating Characteristics at Ta = 25°C, V_{CC} = ±30V, R_L = 8Ω, Rg = 600Ω, VG = 40dB, R_L: noninductive load

Parameter	Symbol	Conditions	min	typ	max	Unit
Quiescent current	I_{CCO}	V_{CC} = ±36V	10	20	50	mA
Output power	P_O(1)	THD = 0.4%, f = 20Hz to 20kHz	35	–	–	W
	P_O(2)	V_{CC} = ±27V, THD = 1.0%, R_L = 4Ω, f = 1kHz	40	–	–	W
Total harmonic distortion	THD	P_O = 1.0W, f = 1kHz	–	–	0.3	%
Frequency response	f_L, f_H	P_O = 1.0W, $^{+0}_{-3}$dB	–	20 to 50k	–	Hz
Input impedance	r_i	P_O = 1.0W, f = 1kHz	–	55	–	kΩ
Output noise voltage	V_{NO}**	V_{CC} = ±36V, Rg = 10kΩ	–	–	1.2	mVrms
Neutral voltage	V_N	V_{CC} = ±36V	–70	0	+70	mV

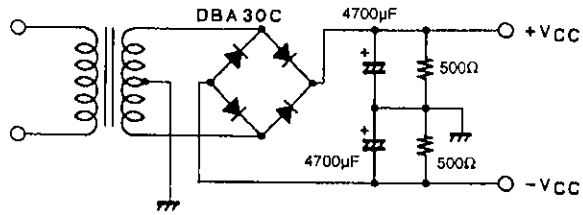
Equivalent Circuit



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

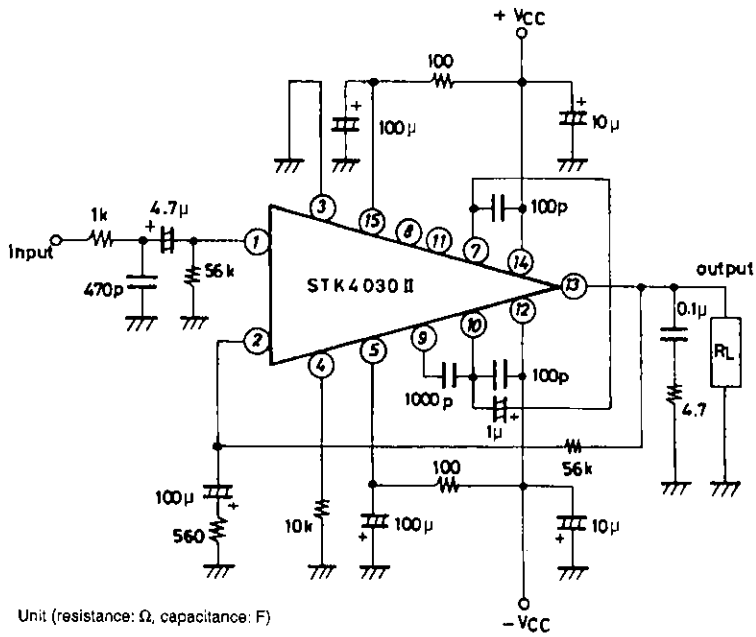
* For measurement of the available time for load short-circuit and output noise voltage, use the specified transformer power supply shown below.

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

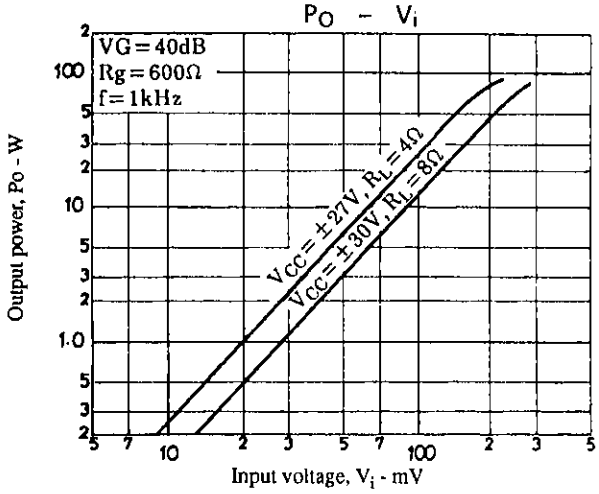


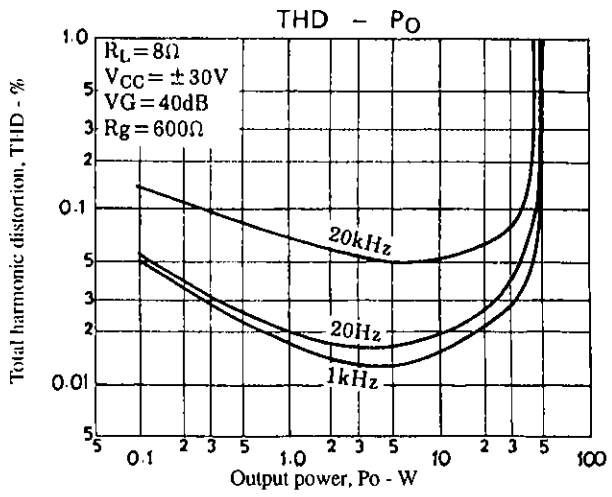
Specified Transformer Power Supply
(Equivalent to RP-25)

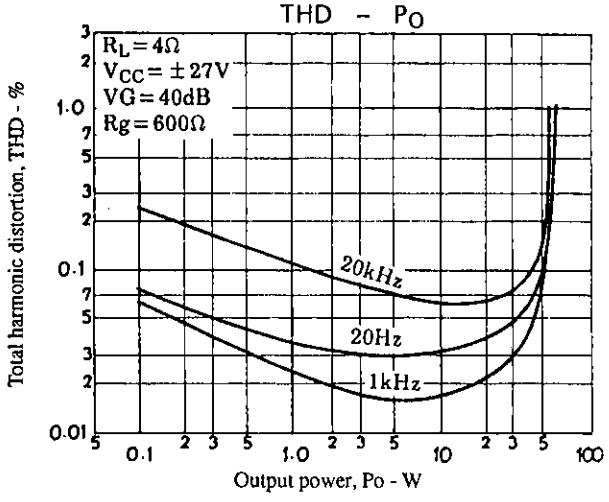
Sample Application Circuit: 20W min AF Power Amplifier

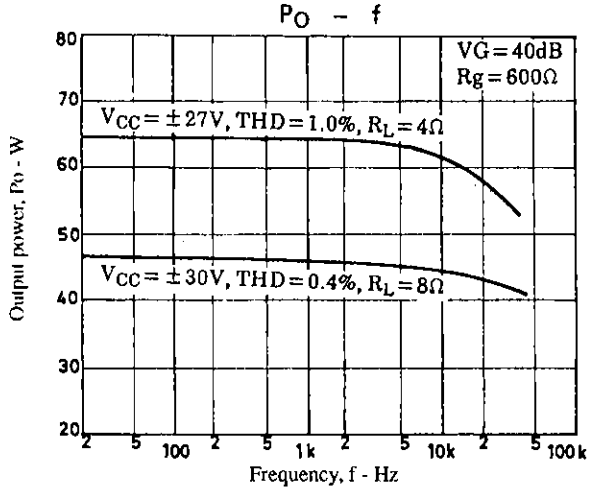


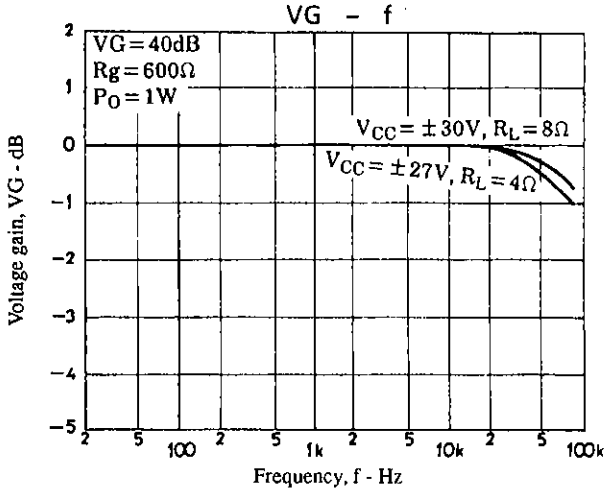
Unit (resistance: Ω, capacitance: F)

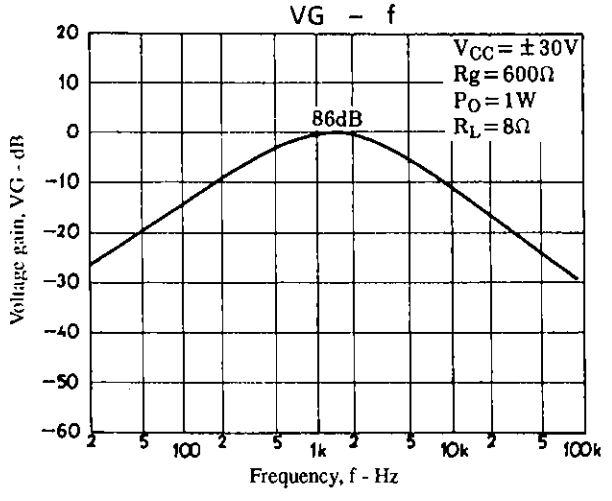

PO – Vi
VG=40dB
Rg=600Ω
f=1kHz
VCC=±27V, RL=4Ω
VCC=±30V, RL=8Ω
Output power, Po - W
Input voltage, Vi - mV


THD – PO
RL=8Ω
VCC=±30V
VG=40dB
Rg=600Ω
20kHz
20Hz
1kHz
Total harmonic distortion, THD - %
Output power, Po - W


THD – PO
RL=4Ω
VCC=±27V
VG=40dB
Rg=600Ω
20kHz
20Hz
1kHz
Total harmonic distortion, THD - %
Output power, Po - W


PO – f
VG=40dB
Rg=600Ω
VCC=±27V, THD=1.0%, RL=4Ω
VCC=±30V, THD=0.4%, RL=8Ω
Output power, Po - W
Frequency, f - Hz


VG – f
VG=40dB
Rg=600Ω
PO=1W
VCC=±30V, RL=8Ω
VCC=±27V, RL=4Ω
Voltage gain, VG - dB
Frequency, f - Hz


VG – f
VCC=±30V
Rg=600Ω
PO=1W
RL=8Ω
86dB
Voltage gain, VG - dB
Frequency, f - Hz