


Ordering number: EN * 5171

Thick Film Hybrid IC

	No. * 5171	STK405-100
	2ch AF Power Amplifier (Split Power Supply) 60W + 60W min, THD = 10%	

Preliminary

Overview

The STK405-100, a member of the STK405-000 series, is a low-cost, 2-channel audio power amplifier hybrid IC that is ideal for a wide range of stereo sets. It has dedicated 6Ω output drive, in contrast with the STK401-000 series which supports 6Ω/3Ω output drive.

Features

- Class B amplifiers
- Output load impedance $R_L = 6\Omega$ support
- EIAJ-output compatible ($f = 1\text{kHz}$, THD = 10%)
- Low supply switching shock noise
- Pin assignment grouped into individual blocks of inputs, outputs and supply lines to minimize the adverse effects of pattern layout on operating characteristics
- External bootstrap circuit not necessary
- Standby operation possible using external circuit
- Voltage gain $V_G = 26\text{dB}$ for easy gain distribution within the set
- Member of 10W/ch to 80W/ch pin-compatible series

Series Organization

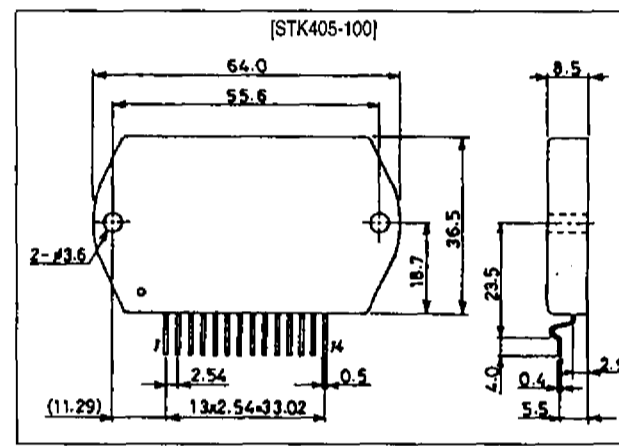
The following devices form a series with differing output capacity. Some of the following devices are under development. Contact your Sanyo sales representative if you require more detailed information.

Type No.	Output power	Supply voltage [V]	
		$V_{CC\text{ max}}$	V_{CC}
STK405-010	10W + 10W	±26.0	±14.0
STK405-030	20W + 20W	±30.5	±18.5
STK405-050	30W + 30W	±34.5	±22.0
STK405-070	40W + 40W	±39.0	±25.0
STK405-090	50W + 50W	±42.0	±26.5
STK405-100	60W + 60W	±45.0	±29.0
STK405-110	70W + 70W	±50.0	±31.0
STK405-120	80W + 80W	±52.5	±33.0

Package Dimensions

unit: mm

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O1295HA (ID) No. 5171-1/4

STK405-100

Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC \text{ max}}$		± 45.0	V
Thermal resistance	θ_{j-c}	Per power transistor	2.1	$^\circ\text{C/W}$
Junction temperature	T_j		150	$^\circ\text{C}$
Operating substrate temperature	T_c		125	$^\circ\text{C}$
Storage temperature	T_{stg}		-30 to +125	$^\circ\text{C}$
Available time for load short-circuit	t_s	$V_{CC} = \pm 29.0\text{V}, R_L = 6\Omega, f = 50\text{Hz}, P_O = 60\text{W}$	1	s

Operating Characteristics at $T_a = 25^\circ\text{C}$, $R_L = 6\Omega$ (noninductive load), $R_g = 600\Omega$, $V_G = 26\text{dB}$

Parameter	Symbol	Conditions	min	typ	max	Unit
Quiescent current	I_{CCO}	$V_{CC} = \pm 37.0\text{V}$, no load	-	13	20	mA
Output power	P_O	$V_{CC} = \pm 29.0\text{V}$, $f = 1\text{kHz}$, THD = 10.0%	60	-	-	W
Total harmonic distortion	THD	$V_{CC} = \pm 29.0\text{V}$, $f = 1\text{kHz}$, $P_O = 5.0\text{W}$	-	0.04	0.1	%
Frequency response	f_L, f_H	$V_{CC} = \pm 29.0\text{V}$, $P_O = 1.0\text{W}$, -3dB	-	20 to 50k	-	Hz
Input impedance	r_i	$V_{CC} = \pm 29.0\text{V}$, $f = 1\text{kHz}$, $P_O = 1.0\text{W}$	-	55	-	$\text{k}\Omega$
Output noise voltage	V_{NO}	$V_{CC} = \pm 37.0\text{V}$, $R_g = 10\text{k}\Omega$	-	-	1.2	mVrms
Neutral voltage	V_N	$V_{CC} = \pm 37.0\text{V}$	-100	0	+100	mV

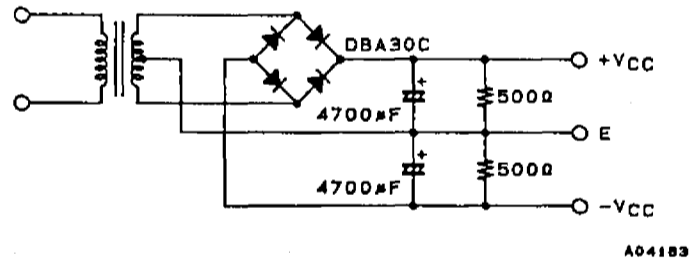
Notes.

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

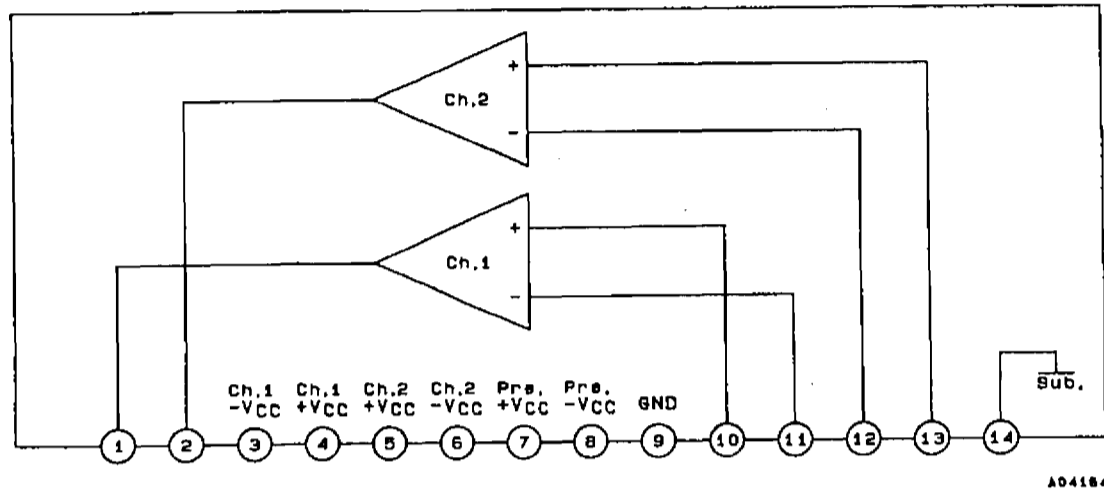
Available time for load short-circuit and output noise voltage are measured using the transformer supply specified below.

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.

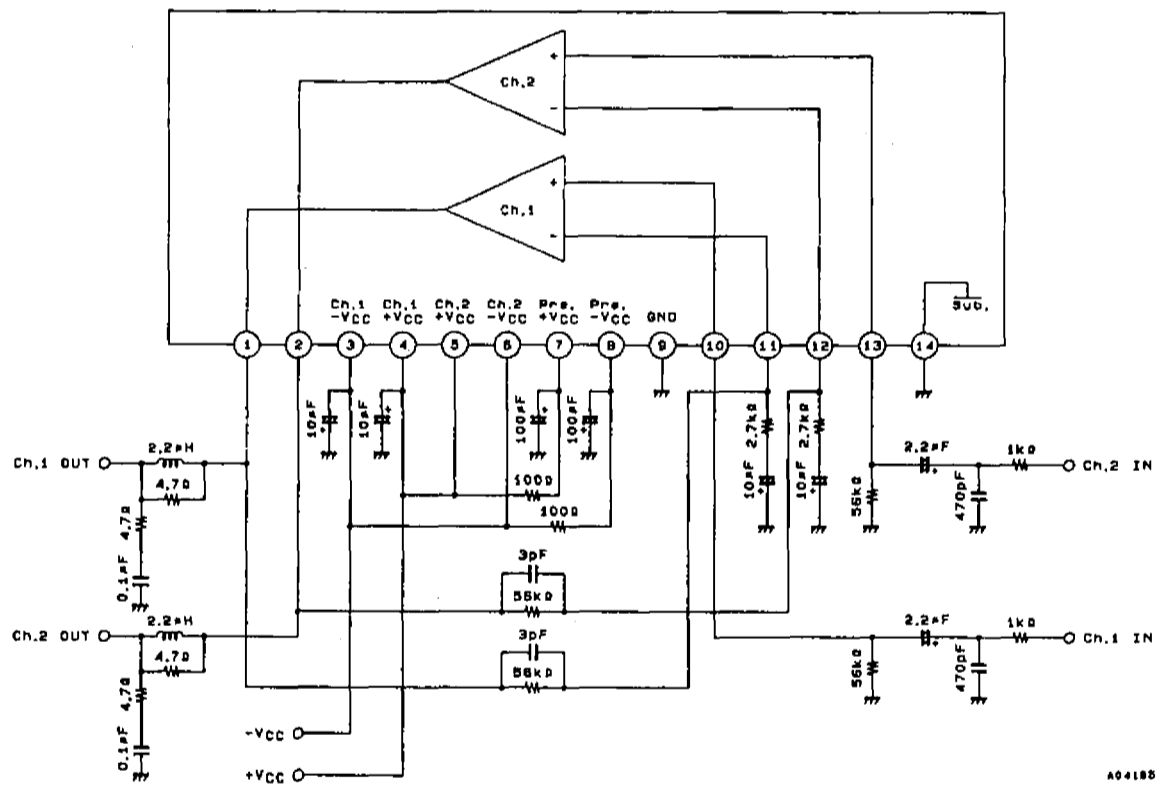
Specified Transformer Supply (RP-25 or Equivalent)



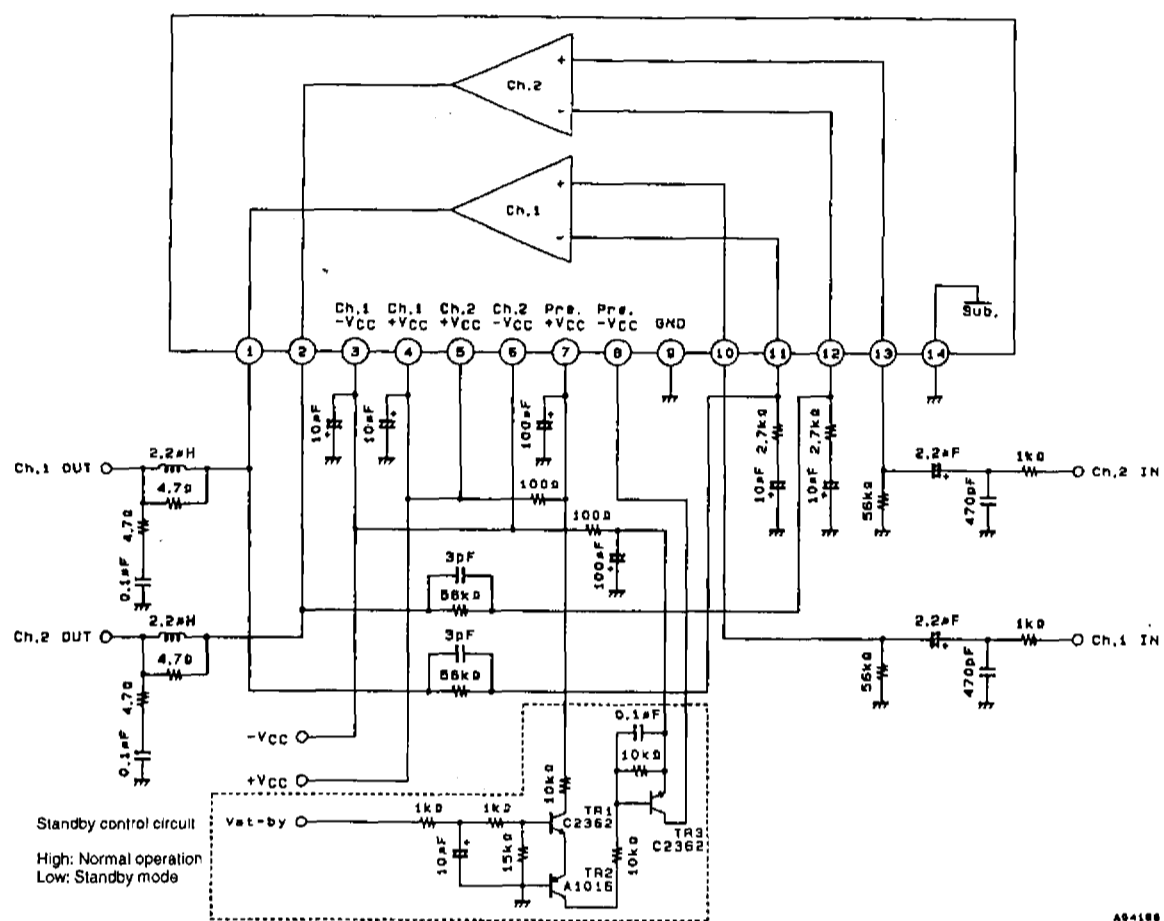
Block Diagram



Test Circuit



Sample Application Circuit (Standby Mode Supported)



A04180

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