



SANYO Semiconductors

DATA SHEET

STK433-030-E — Thick-Film Hybrid IC 2-channel class AB audio power IC, 30W+30W

Overview

The STK433-030-E is a hybrid IC designed to be used in 30W × 2ch class AB audio power amplifiers.

Applications

- Audio power amplifiers.

Features

- Pin-to-pin compatible outputs ranging from 30W to 60W.
- Can be used to replace the STK433-100 series (80W to 150W/2ch) and STK433-200/-300 series (3-channel) due to its pin compatibility.
- Miniature package (47.0mm × 25.6mm × 9.0mm)
- Output load impedance: $R_L = 6\Omega$ to 4Ω supported
- Allowable load shorted time: 0.3 second
- Allows the use of predesigned applications for standby and mute circuits.

Series Models

	STK433-030-E	STK433-040-E	STK433-060-E	STK433-070-E
Output 1 (10%/1kHz)	30W×2 channels	40W×2 channels	50W×2 channels	60W×2 channels
Output 2 (0.4%/20Hz to 20kHz)	20W×2 channels	25W×2 channels	35W×2 channels	40W×2 channels
Max. rated V_{CC} (quiescent)	±34V	±38V	±46V	±50V
Max. rated V_{CC} (6Ω)	±32V	±36V	±40V	±44V
Max. rated V_{CC} (4Ω)	±26V	±30V	±33V	±37V
Recommended operating V_{CC} (6Ω)	±21V	±24V	±27V	±29V
Dimensions (excluding pin height)	47.0mm×25.6mm×9.0mm			

■ Any and all SANYO Semiconductor Co.,Ltd. products described or contained herein are, with regard to "standard application", intended for the use as general electronics equipment (home appliances, AV equipment, communication device, office equipment, industrial equipment etc.). The products mentioned herein shall not be intended for use for any "special application" (medical equipment whose purpose is to sustain life, aerospace instrument, nuclear control device, burning appliances, transportation machine, traffic signal system, safety equipment etc.) that shall require extremely high level of reliability and can directly threaten human lives in case of failure or malfunction of the product or may cause harm to human bodies, nor shall they grant any guarantee thereof. If you should intend to use our products for applications outside the standard applications of our customer who is considering such use and/or outside the scope of our intended standard applications, please consult with us prior to the intended use. If there is no consultation or inquiry before the intended use, our customer shall be solely responsible for the use.

■ Specifications of any and all SANYO Semiconductor Co.,Ltd. products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

STK433-030-E

Specifications

Absolute Maximum Ratings at Ta = 25°C (excluding rated temperature items), Tc=25°C unless otherwise specified

Parameter	Symbol	Conditions	Ratings	Unit
Maximum quiescent supply voltage 0	V _{CC} max (0)	When no signal	±34	V
Maximum supply voltage 1	V _{CC} max (1)	R _L ≥6Ω	±32	V
Maximum supply voltage 2	V _{CC} max (2)	R _L =4Ω	±26	V
Minimum operating supply voltage	V _{CC} min		±10	V
Pin 13 input voltage	VST max		-0.3 to +5.5	V
Thermal resistance	θj-c	Per power transistor	4.2	°C/W
Junction temperature	Tj max	Both the Tj max and Tc max conditions must be met.	150	°C
IC substrate operating temperature	Tc max		125	°C
Storage temperature	Tstg		-30 to +125	°C
Allowable load shorted time *4	ts	V _{CC} =±21V, R _L =6Ω, f=50Hz, P _O =20W, 1-channel active	0.3	s

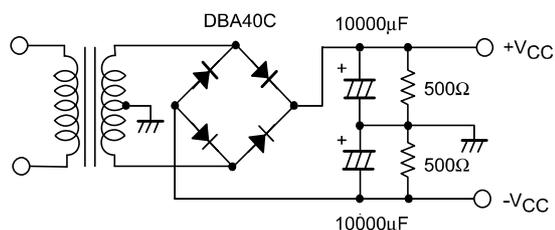
Operating Characteristics at Tc=25°C, R_L=6Ω, Rg=600Ω, VG=30dB, non-inductive load R_L, unless otherwise specified

Parameter	Symbol	Conditions *2					Ratings			unit
		V _{CC} (V)	f (Hz)	P _O (W)	THD (%)		min	typ	max	
Output power *1	P _O (1)	±21	20 to 20k		0.4		18	20		W
	P _O (2)	±21	1k		10			30		
	P _O (3)	±18	1k		1	R _L =4Ω		20		
Total harmonic distortion *1	THD (1)	±21	20 to 20k	5.0					0.4	%
	THD (2)	±21	1k					0.02		
Frequency characteristics *1	f _L , f _H	±21		1.0		+0 -3dB	20 to 50k			Hz
Input impedance	ri	±21	1k	1.0				55		kΩ
Output noise voltage *3	V _{NO}	±26				Rg=2.2kΩ			1.0	mVrms
Quiescent current	I _{CCO}	±26				No loading	20	45	70	mA
Standby current	I _{CST}	±26							1	mA
Output neutral voltage	V _N	±26					-70	0	+70	mV
Pin 13 voltage when standby ON	VST ON	±21				Standby			0.6	V
Pin 13 voltage when standby OFF	VST OFF	±21				Operating	2.5			V

[Remarks]

- *1: For 1-channel operation
- *2: Unless otherwise specified, use a constant-voltage power supply to supply power when inspections are carried out.
- *3: The output noise voltage values shown are peak values read with a VTVM. However, an AC stabilized (50Hz) power supply should be used to minimize the influence of AC primary side flicker noise on the reading.
- *4: Use the transformer power supply circuit shown in the figure below for allowable load shorted time measurement.
- *5: Please connect -Pre V_{CC} pin (#1 pin) with the stable minimum voltage and connect so that current does not flow in by reverse bias.
- * Thermal design must be implemented based on the conditions under which the customer's end products are expected to operate on the market.
- * A thermoplastic adhesive is used to adhere the case.

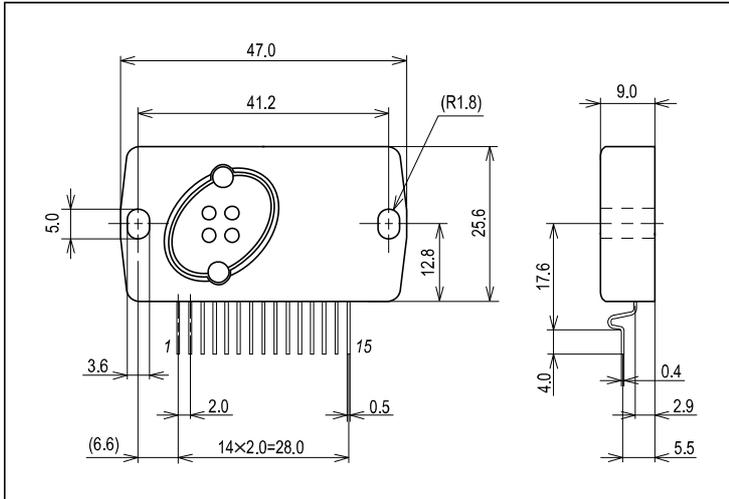
Designated transformer power supply (MG-200 equivalent)



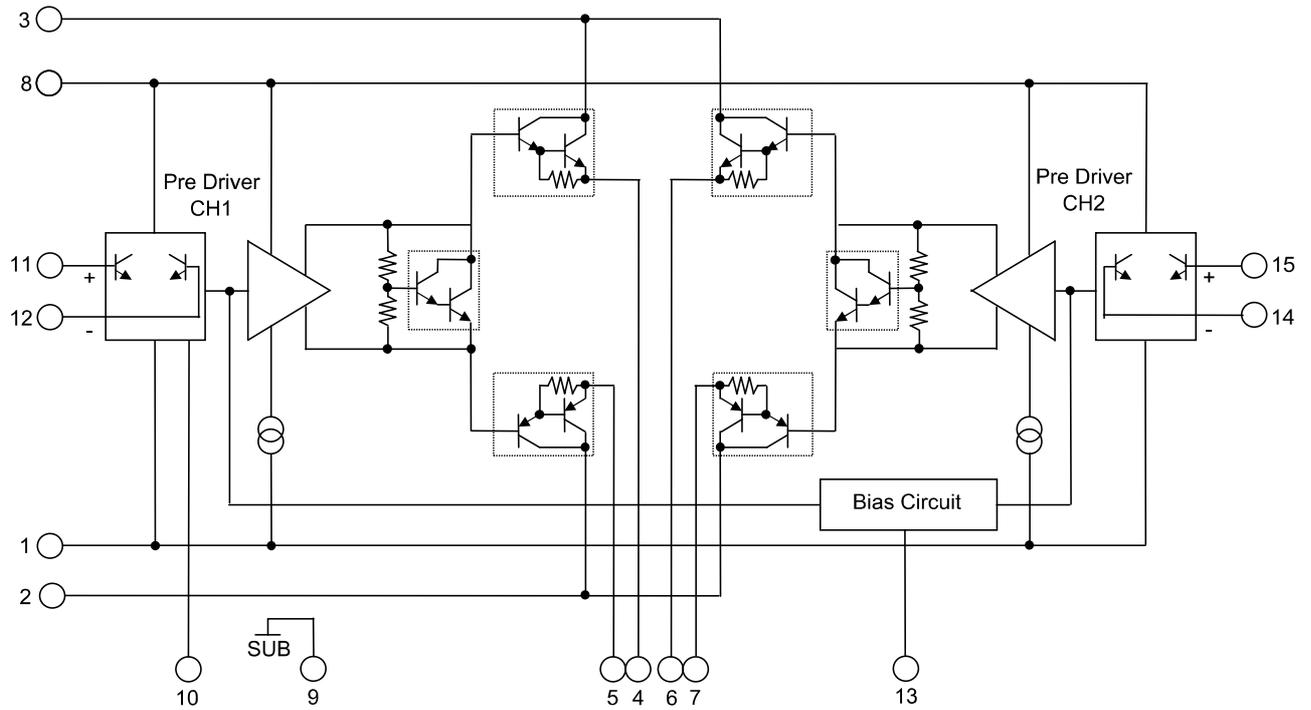
STK433-030-E

Package Dimensions

unit:mm (typ)

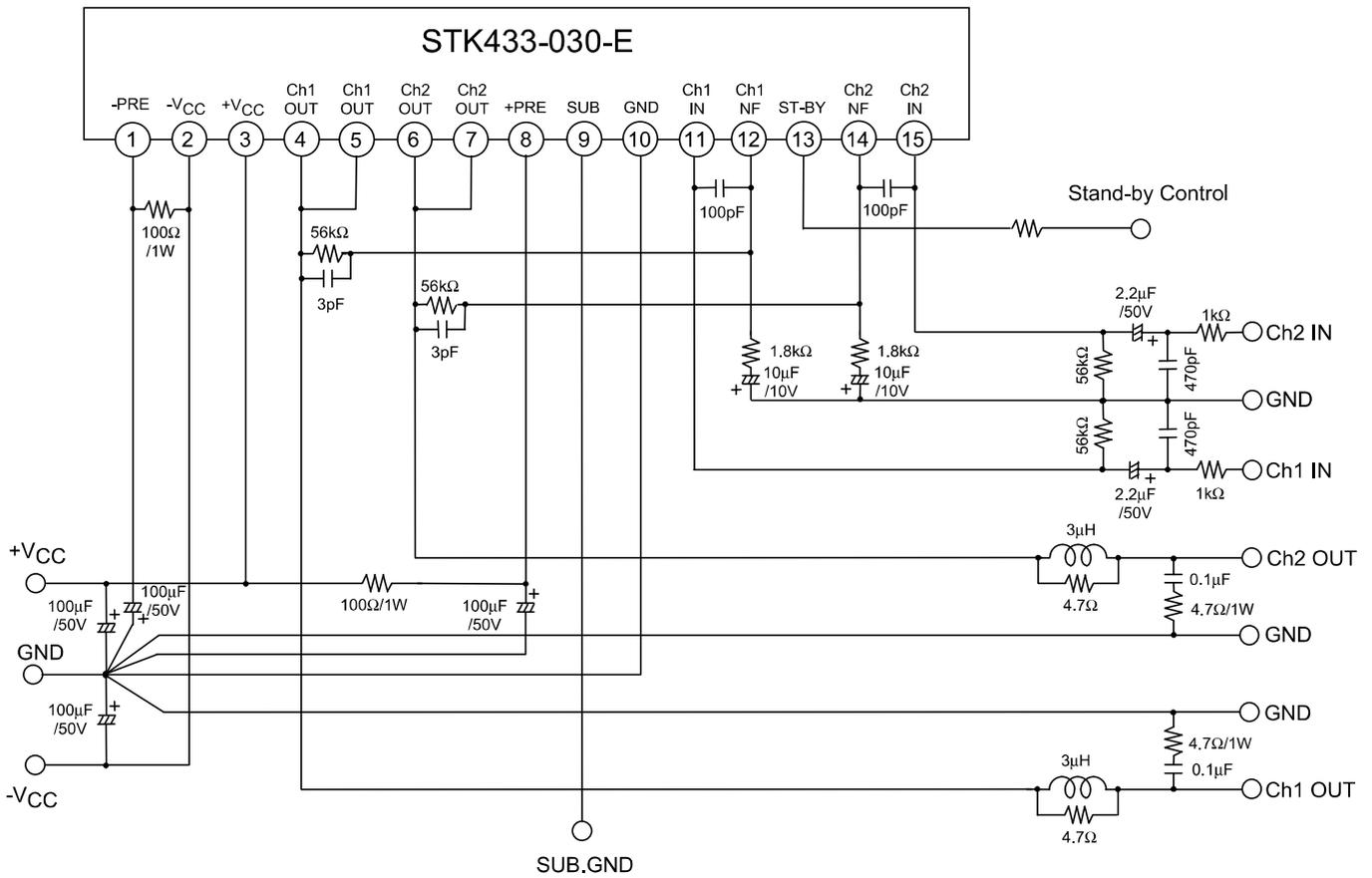


Internal Equivalent Circuit



STK433-030-E

Application Circuit Example



Sample PCB Trace Pattern

