



SANYO Semiconductors

DATA SHEET

STK433-270-E — Thick-Film Hybrid IC 3-channel class AB audio power IC, 60W×3ch

Overview

The STK433-270-E is a hybrid IC designed to be used in 60W × 3ch class AB audio power amplifiers.

Applications

- Audio power amplifiers.

Features

- Pin-to-pin compatible outputs ranging from 40W to 60W.
- Can be used to replace the STK433-000/-100 series (30W to 150W × 2ch) and STK433-300 series (80W to 150W × 3ch) due to its pin compatibility.
- Miniature package (67.0mm × 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

	STK433-240A-E	STK433-260A-E	STK433-270-E
Output 1 (10%/1kHz)	40W×3ch	50W×3ch	60W×3ch
Output 2 (0.6%/20Hz to 20kHz)	25W×3ch	35W×3ch	40W×3ch
Maximum rating V_{CC} max (quiescent)	±38V	±46V	±50V
Maximum rating V_{CC} max (6 Ω)	±36V	±40V	±44V
Maximum rating V_{CC} max (4 Ω)	±30V	±33V	±38V
Recommended operating V_{CC} (6 Ω)	±24V	±27V	±29V
Dimensions (excluding pin height)	67.0mm×25.6mm×9.0mm		

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STK433-270-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 power supply voltage 0	V _{CC} max (0)	Non signal	±50	V
Maximum power supply voltage 1	V _{CC} max (1)	R _L ≥6Ω	±44	V
Maximum power supply voltage 2	V _{CC} max (2)	R _L =4Ω	±38	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	3.5	°C/W
Junction temperature	Tj max	Both the Tj max and Tc max conditions must be met.	150	°C
Operating substrate temperature	Tc max		125	°C
Storage temperature	Tstg		-30 to +125	°C
Available time for load short-circuit *4	ts	V _{CC} =±29V, R _L =6Ω, f=50Hz, P _O =40W, 1-channel drive	0.3	s

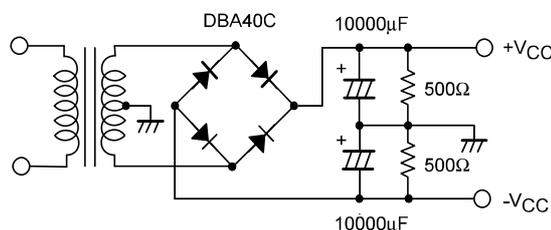
Operating Characteristics at Tc=25°C, R_L=6Ω, Rg=600Ω, VG=30dB, non-inductive load R_L, unless otherwise specified

Parameter	Symbol	Conditions *2				Ratings			unit	
		V _{CC} (V)	f (Hz)	P _O (W)	THD (%)	min	typ	max		
Output power *1	P _O (1)	±29	20 to 20k		0.6	38	40		W	
	P _O (2)	±29.5	1k		10		60			
	P _O (3)	±26	1k		1	R _L =4Ω	40			
Total harmonic distortion *1	THD (1)	±29	20 to 20k	5.0				0.6	%	
	THD (2)	±29	1k				0.1			
Frequency characteristics *1	f _L , f _H	±29		1.0		+0 -3dB	20 to 50k		Hz	
Input impedance	ri	±29	1k	1.0			55		kΩ	
Output noise voltage *3	V _{NO}	±35				Rg=2.2kΩ		1.0	mVrms	
Quiescent current	I _{CCO}	±35				No loading	30	70	120	mA
Standby current	I _{CST}	±35							1.0	mA
Output neutral voltage	V _N	±35					-70	0	+70	mV
Pin 13 voltage when standby ON *7	VST ON	±29				Standby		0	0.6	V
Pin 13 voltage when standby OFF *7	VST OFF	±29				Operating	2.5		5.5	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 and output noise voltage measurement.
- *5: Please connect -PreV_{CC} pin (#1 pin) with the stable minimum voltage, and connect so that current does not flow in by reverse bias.
- *6: Thermal design must be implemented based on the conditions under which the customer's end products are expected to operate on the market.
- *7: The impression voltage of '#13 (Stand-By) pin' must not exceed the maximum rating. Power amplifier operate by impressing voltage +2.5 to +5.5V to '#13 (Stand-By) pin'.
- *8: A thermoplastic adhesive is used to adhere the case.

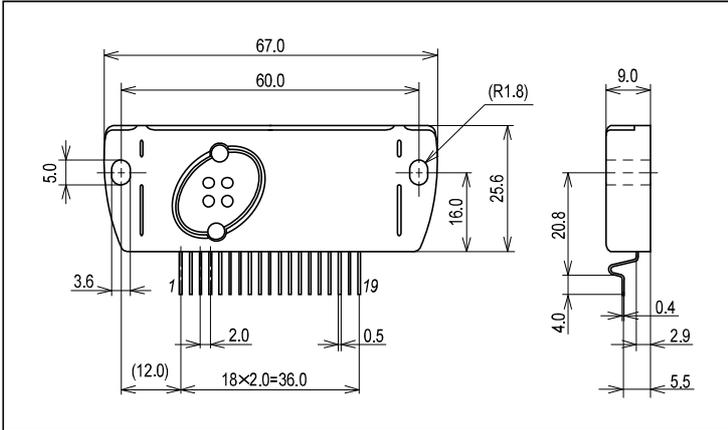
Designated transformer power supply (MG-200 equivalent)



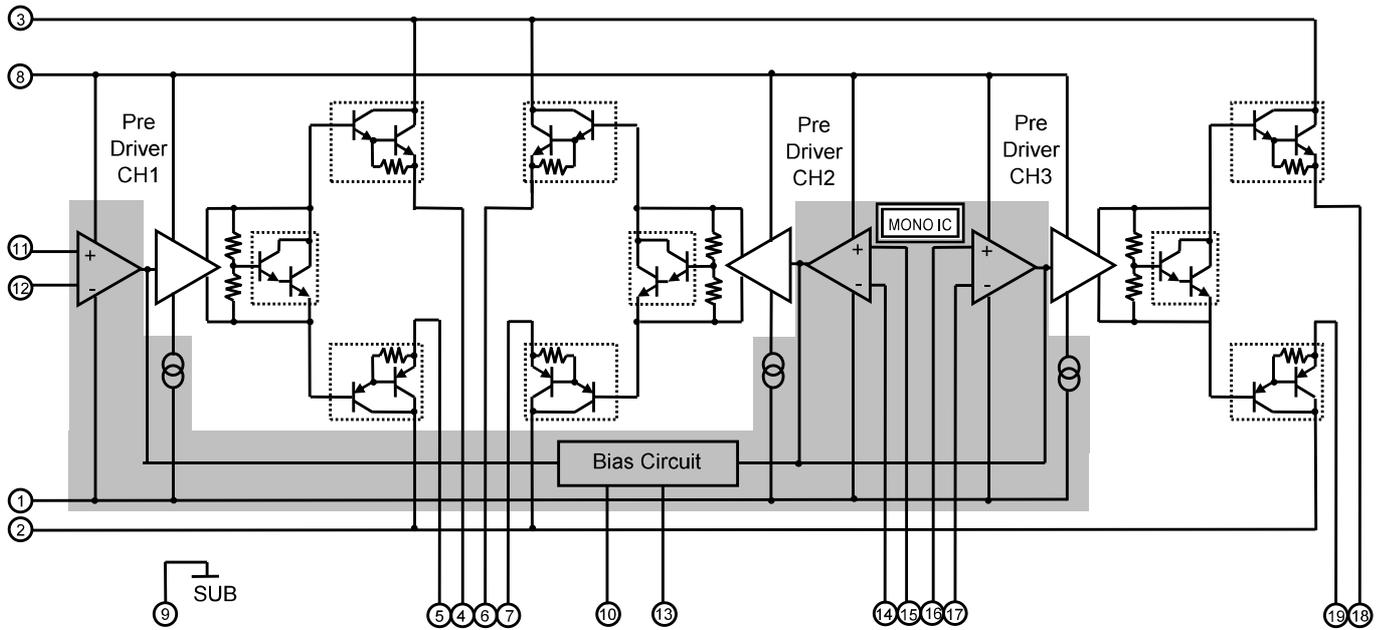
STK433-270-E

Package Dimensions

unit:mm (typ)

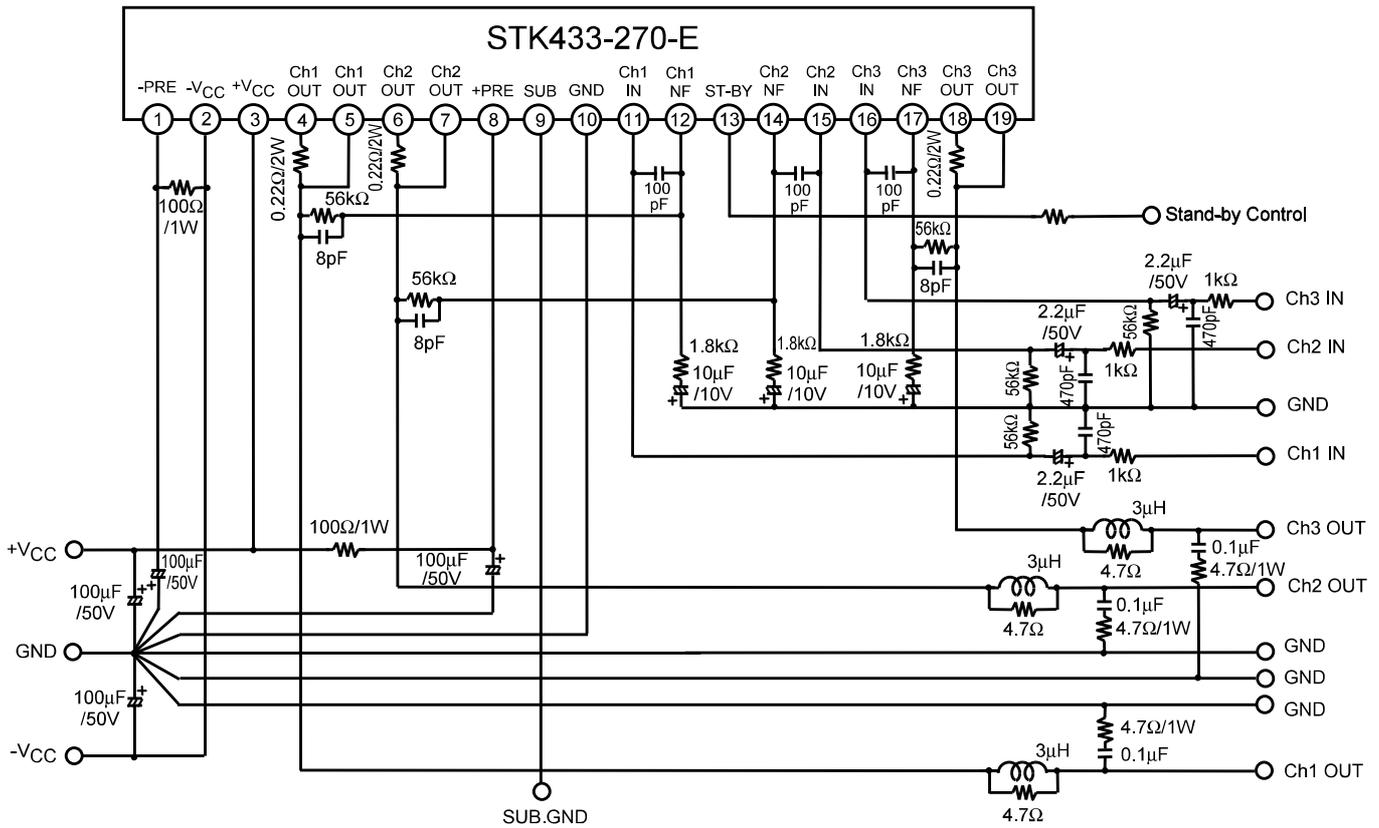


Internal Equivalent Circuit



STK433-270-E

Test Circuit



Sample PCB Trace Pattern

