Discontinued

Ordering number : EN*A1632

Preliminary

SANYO Semiconductors

DATA SHEET

Thick-Film Hybrid IC

STK433-270-E — 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 = 6Ω 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 (6Ω)	±36V	±40V	±44V
Maximum rating V_{CC} max (4Ω)	±30V	±33V	±38V
Recommended operating V_{CC} (6Ω)	±24V	±27V	±29V
Dimensions (excluding pin height)	67.0mm×25.6mm×9.0mm		

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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.

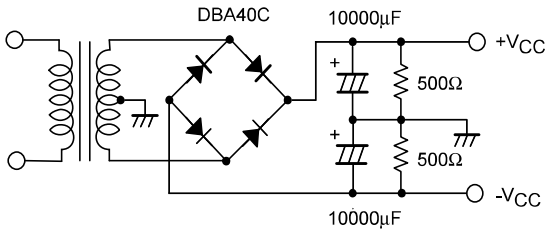
*5: Please connect -PreV_{CC} pin (#1 pin)with the stable minimum voltage, and connect so that current does not flow in by reverse bias.

*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'.

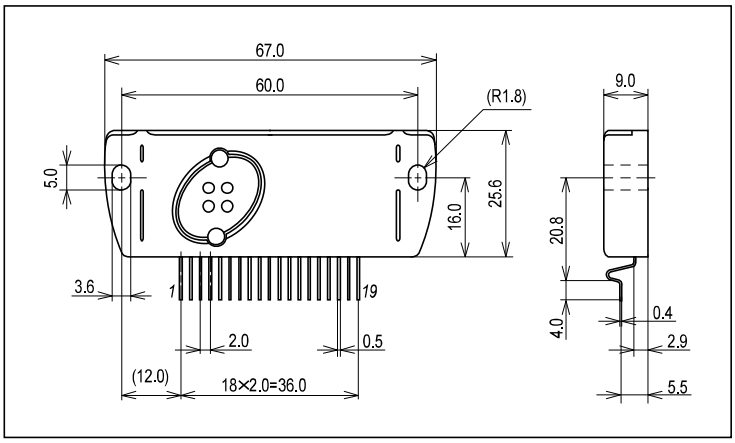
*8: A thermoplastic adhesive is used to adhere the case.

Designated transformer power supply
(MG-200 equivalent)

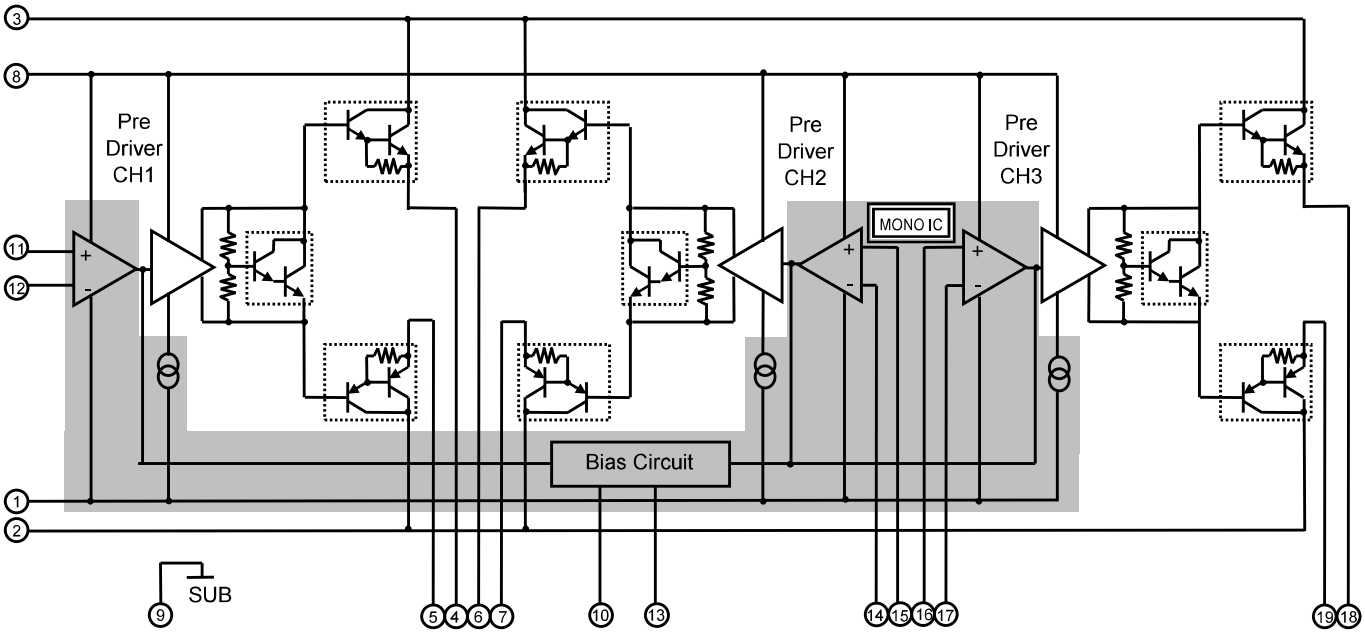


Package Dimensions

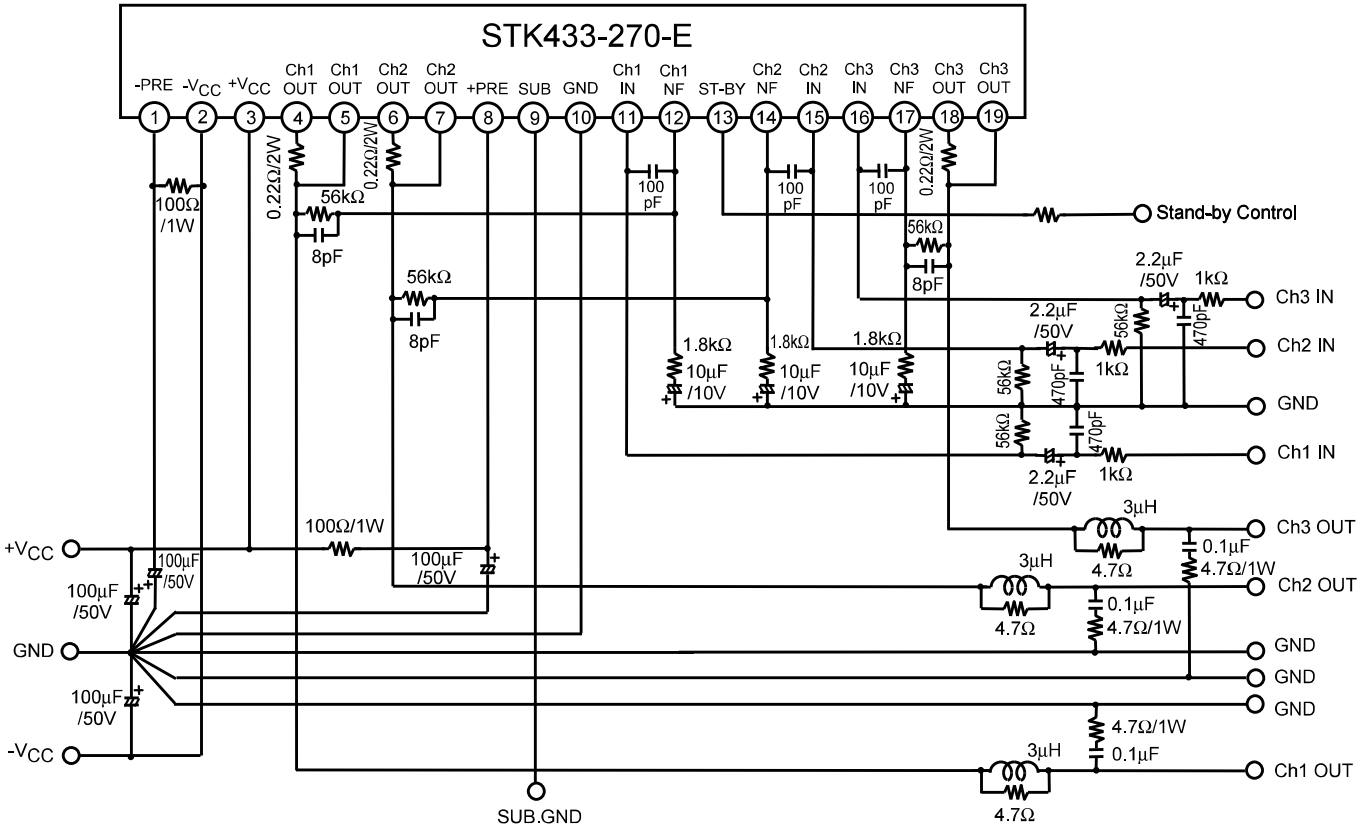
unit:mm (typ)



Internal Equivalent Circuit



Test Circuit



Sample PCB Trace Pattern