

HIGH SPEED BIPOLAR AMPLIFIER

HSA SERIES

High Speed, Broad Bandwidth, High Voltage Output

In the test of electronic components and devices such as capacitors and coils, it can stably drives the DUT that cannot be driven by other amplifiers. Used in advanced research fields such as medicine and biotechnology.



LINE UP

	Frequency	Voltage	Current	Slew Rate
HSA42011	DC to 1 MHz	150 Vp-p	3 Ap-p	475 V/μs
HSA42012	DC to 1 MHz	150 Vp-p	6 Ap-p	475 V/μs
HSA42014	DC to 1 MHz	150 Vp-p	12 Ap-p	475 V/μs
HSA42052	DC to 500 kHz	300 Vp-p	5.66 Ap-p	450 V/μs

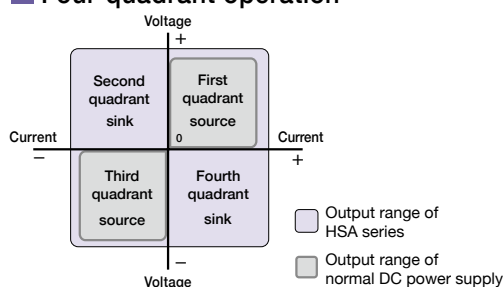
APPLICATIONS

- Driving multilayer ceramic capacitors (MLCC)
- Drive test of ultrasonic motor in combination with signal generator
- B-H curve measurement of magnetic materials such as magnetic powder core and ferrite
- Drive of piezoelectric element and measurement of resonance characteristics
- Reproduction of malfunction due to power supply noise of smartphone / touch panel
- Power fluctuation test of in-vehicle electrical components

SPECIFICATIONS

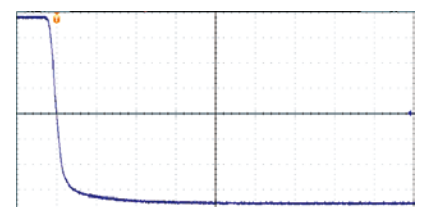
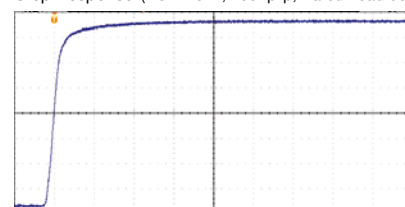
Model	HSA42011	HSA42012	HSA42014	New HSA42052	
Output	Maximum Output Voltage	RL: 50 Ω 53 Vrms (40 Hz to 1 MHz) 45 Vrms (20 Hz to 40 Hz) RL: 75 Ω ±75 V (DC to 1 MHz)	RL: 25 Ω 53 Vrms (40 Hz to 1 MHz) 45 Vrms (20 Hz to 40 Hz) RL: 37.5 Ω ±75 V (DC to 1 MHz)	RL: 12.5 Ω 53 Vrms (40 Hz to 1 MHz) 45 Vrms (20 Hz to 40 Hz) RL: 18.8 Ω ±75 V (DC to 1 MHz)	DC mode RL: 50 Ω 100 Vrms (40 Hz to 200 kHz) 40 Vrms (20 Hz to 500 kHz) RL: 75 Ω ±150 V (DC to 50 kHz) ±140 V (50 kHz to 200 kHz) ±55 V (200 kHz to 500 kHz) AC mode RL: 50 Ω 100 Vrms (40 Hz to 200 kHz) 40 Vrms (20 Hz to 500 kHz) RL: 75 Ω ±150 V (10 Hz to 50 kHz) ±140 V (50 kHz to 200 kHz) ±55 V (200 kHz to 500 kHz)
	Maximum Output Current(AC)	1.06 Arms, 3 Ap-p (40 Hz to 1 MHz)	2.12 Arms, 6 Ap-p (40 Hz to 1 MHz)	4.24 Arms, 12 Ap-p (40 Hz to 1 MHz)	2 Arms, 5.66 Ap-p (40 Hz to 200 kHz)
	Maximum Output Current(DC)	±1 A	±2 A	±4 A	±2 A
	Low Amplitude Frequency response	DC to 100 kHz -1 dB to +1 dB 100 kHz to 1 MHz -3 dB to +1 dB			DC mode DC to 100 kHz: -0.3 dB to +0.3 dB 100 kHz to 300 kHz: -1 dB to +0.5 dB 300 kHz to 500 kHz: -3 dB to +0.5 dB AC mode 10 Hz to 100 kHz: -0.3 dB to +0.3 dB 100 kHz to 300 kHz: -1 dB to +0.5 dB 300 kHz to 500 kHz: -3 dB to +0.5 dB
	Gain Accuracy	±5% (Fixed Gain: ×1, ×10, ×20, and ×50, Variable Gain: CAL, at 400 Hz)			±5% (Fixed Gain: ×1, ×20, ×40, and ×100, Variable Gain: CAL, at 400 Hz)
	Slew Rate	475 V/μs or above			450 V/μs or above
	Output DC Offset	±0.5 V or above			DC: ±1 V or above, AC: ±1 mV
	Output DC Bias	±75 V or above			±150 V or above
	Harmonic Distortion Rate	0.1% or less (40 Hz to 1 kHz, output 40 Vrms)			0.1% or less (40 Hz to 1 kHz, output 80 Vrms)
	Output Impedance	[0.19+0.0155√f×(1+j)] Ω or less (typ.) [0.19+0.00803√f×(1+j)] Ω or less (typ.) [0.19+0.00460√f×(1+j)] Ω or less (typ.)			[0.19+0.0084√f×(1+j)] Ω or less (typ.)
Input	Input Format	Input A, Input B or addition of input A and input B (When two inputs are on, the maximum input voltage is within ±10 V in total)			
	Input Impedance	50 Ω±5%/10 kΩ±5% switchable (Unbalanced, switch between two inputs A and B at once)			
Power Input	AC100 V to 230 V±10% (Maximum voltage 250 V), Overvoltage category II 50 Hz ±2 Hz or 60 Hz ±2 Hz (Single-phase), Power factor 0.95 or more				
Power Consumption	290 VA or less	580 VA or less	1050 VA or less	1050 VA or less	
Dimensions	220(W)×132.5(H)×450(D)mm	290(W)×132.5(H)×450(D)mm	350(W)×177(H)×450(D)mm	350(W)×177(H)×450(D)mm	
Weigh	approx. 9kg	approx. 11kg	approx. 16kg	approx. 16kg	

Four-quadrant operation



Fast response, wide frequency bandwidth, DC to 1MHz

Step Response (HSA42011, 150Vp-p, Rated Load 50Ω)



x:800ns/div. y:20V/div.