

Specification of SA Series

Low Noise Preampfier		SA series		
	SA-200F3	SA-220F5	SA-230F5	
Frequency range(typ.)	DC to 700kHz	1kHz to 80MHz	1kHz to 100MHz	
Input form	DC coupling, unblanced single-ended input	AC coupling, unbalanced single-ended input	AC coupling, unbalanced single-ended input	
Input impedance	1k / 10k / 100kΩ ±5(DC)	-	50Ω ±5%(100kHz)	
CMRR	-	-	-	
Input voltage noise density	0.7nV/√Hz max. (1kHz) 0.5nV/√Hz typ. (1MHz)	0.7nV/√Hz max. (100kHz) 0.5nV/√Hz typ. (10k to 1MHz)	0.35nV/√Hz max. (100kHz) 0.25nV/√Hz typ. (10k to 1MHz)	
Input noise current density	2.2pA/√Hz typ.(10kHz)	200fA/√Hz typ.(100kHz)	5.0pA/√Hz typ.(100kHz)	
Noise figure	-	-	0.7dB max. 0.6dB typ. (10MHz) 1.0dB max. 0.8dB typ. (100MHz)	
Max. output voltage	±10V/1k (1kHz)	2.0Vp-p/50ΩHz (1kHz to 20MHz)	2.0Vp-p/50ΩHz (1kHz to 20MHz)	
Output impedance	50Ω ± 5% (DC)	50Ω ± 5% (100kHz)	50Ω ± 5% (100kHz)	
Voltage gain	40 ± 0.5dB / 1MΩ (1kHz)	46 ± 0.5dB / 50Ω (1kHz)	46 ± 0.5dB / 50Ω (1kHz)	
Harmonics distortion	0.009% typ(1kHz±10V)	-	-	
Intercept point	-	-	30dBm typ. (68MHz)	
Power requirement*	± 15V ±5%	± 15V ±5%	+ 15V ±5%	
Dimension (mm)	68×43×17.6	68×43×28	68×43×17.6	
Weight	Approx. 90g	Approx. 130g	Approx. 90g	

* Using SA-915 as a power supply

	SA-400F3	SA-420F5	SA-421F5	SA-430F5
Frequency range(typ.)	DC to 600kHz	1kHz to 70MHz	30Hz to 30MHz	1kHz to 100MHz
Input form	DC coupling, balanced differential input	AC coupling, balanced differential input	AC coupling, balanced differential input	AC coupling, balanced differential input
Input impedance	1k / 10k / 100kΩ ±5(DC)	1MΩ ±5%(kHz)	1MΩ ±5%(kHz)	50Ω ±5%(100kHz)
CMRR	110dB min. 120dB typ. (50Hz)	55dB min. 1kHz to 10MHz	46dB min. 1kHz to 10MHz	80dB min. 90dB typ. (100kHz)
Input voltage	0.9nV/√Hz max	0.9nV/√Hz	0.5nV/√Hz	0.45nV/√Hz typ

noise density	(1kHz) 0.75nV/ $\sqrt{\text{Hz}}$ typ.(1kHz)	(100kHz)	(100kHz)	(100kHz) 0.35nV/ $\sqrt{\text{Hz}}$ typ. (10k to 1MHz)
Input noise current density	3.0pA/ $\sqrt{\text{Hz}}$ typ. (10kHz)	100fA/ $\sqrt{\text{Hz}}$ (1kHz)	100fA/ $\sqrt{\text{Hz}}$ (100Hz)	7.0pA/ $\sqrt{\text{Hz}}$ typ. (100kHz)
Noise figure	-	-	-	1.25dB max. 1.10dB typ.(10MHz) 1.75dB max. 1.40dB typ. (100MHz)
Max. output voltage	$\pm 10\text{V}/1\text{k}\Omega$ (1kHz)	2Vp-p min./50 Ω (1kHz to 20MHz)	2Vp-p min./50 Ω (1kHz to 20MHz)	2Vp-p/50 Ω (1kHz to 20MHz)
Output impedance	50 $\Omega \pm 5\%$ (DC)	50 $\Omega \pm 5\%$ (100kHz)	50 $\Omega \pm 5\%$ (100kHz)	50 $\Omega \pm 5\%$ (100kHz)
Voltage gain	40 \pm 0.5dB / 1M Ω (1kHz)	46 \pm 0.5dB / 50 Ω (1kHz)	46 \pm 0.5dB / 50 Ω (1kHz)	46 \pm 0.5dB / 50 Ω (1kHz)
Harmonics distortion	0.008% typ. (1kHz \pm 10V)	-	-	-
Intercept point	-	-	-	28dBm typ. (68MHz)
Power requirement*	$\pm 15\text{V} \pm 5\%$	$\pm 15\text{V} \pm 5\%$	$\pm 15\text{V} \pm 5\%$	$\pm 15\text{V} \pm 5\%$
Dimension (mm)	68x67x28	68x43x28	68x43x28	68x43x28
Weight	Approx. 180g	Approx. 100g	Approx. 100g	Approx. 130g

* Using SA-915 as a power supply