



Supreme Sound Opamp V5 Datasheet

The Supreme Sound Opamp (SS Opamp) is a specialized, single-purpose opamp for high quality analogue audio amplification.

Unlike the general-purpose IC opamp designs, which focus on high open loop gain, Burson aimed to achieve low open-loop distortion, low noise, low drift and low offset. The Supreme Sound Opamp also exhibited a wider bandwidth and wide power supply range. These qualities are essential in high quality analog audio amplification.

The input stage features a pair of carefully matched field-effect transistors. Each pair of transistors went through two stages of screening to ensure best possible matching. The main amplification section employed a current mirror configuration instead of the conventional voltage amplification. By keeping the current limiting resistor to a minimum value we minimized RC parameter of the circuitry, and hence achieved a wider frequency response.

Another pair of matched output transistors is coupling with the emitter follower stage. This arrangement ensured high driving current and low output impedance, which made the SS Opamp suitable for a wide range of audio applications.

		Measurement		
Absolute Maximum Ratings		Min	Tpy	Max
Supply Voltage		$\pm 3.5\text{ V}$		$\pm 15\text{ V}$
Operating Ambient Temperature		$- 25^\circ\text{ C}$		50° C
Storage temperature range		$- 65^\circ\text{ C}$		85° C
DC Characteristics	Conditions	Testing Temperature 25° C Supply Voltage $\pm 12\text{ V}$		
Quiescent Current (mA)			Single	7mA
			Dual	14mA

Input offset voltage (mV)	$R_s = 0$	0.008mV	0.12mV	
Input offset current (mA)		0.04mA	0.07mA	0.12mA
Input BIAS current (μ A)		102 μ A	180 μ A	270 μ A
Common-Mode Rejection Ratio			98dB	
Power Supply Rejection Ratio			10 μ V/V	
AC Characteristics				
	Conditions	Testing Temperature 25° C Supply Voltage \pm 12V		
Open-loop gain (dB)			73dB	
Open-loop bandwidth (dB)	RL=600 Ω		45Khz	
Gain Bandwidth Product (MHz)	@ 100KHZ		50 MHz	
Slew Rate (V/ μ S)	f = 10kHz; RS = 2K Ω	36V/ μ S		49V/ μ S
Input Resistant (KOhm)			50M Ω	
Crosstalk distortion (dB) (Dual Opamp)	f = 1kHz; RS = 600 Ω		>90dB	
Total Harmonic Distortion (%) 1Khz @ 2V output	1Khz @ 2V output; RL=600 Ω		0.03%	
Output Impedance (Ohm)	AV = 30dB Closed-loop f = 10kHz, RL = 600 Ω		0.3 Ω	