查询SSM2134供应商 捷多邦，专业PCB打样工厂，24小时加急出货

ANALOG DEVICES

Low Noise Audio Operational Amplifier

SSM-2134

FEATURES

- Very Low Input Noise Voltage ..... 3.5nV/$\sqrt{Hz}$ Typ
- Wide Small-Signal Bandwidth ..... 10MHz Typ
- High Current Drive Capability ($10V_{RMS}$ into 600Ω @ V_S = ±18V)
- High Slew Rate ..... 13V/µs Typ
- Wide Power Bandwidth ..... 200kHz Typ
- High Open-Loop Gain ..... 200V/mV Typ
- Extended Industrial Temperature Range ..... –40°C to +85°C
- Direct Replacement for Industry Standard 5534AN

APPLICATIONS

- High Quality Audio Amplifiers
- Telephone Channel Amplifiers
- Active Filter Designs
- Microphone Preamplifiers
- Audio Line Drivers
- Low-Level Signal Detection
- Servo Control Systems

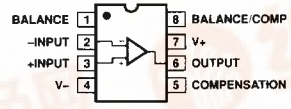
GENERAL DESCRIPTION

The SSM-2134 is a high performance low noise operational amplifier which offers exceptionally low voltage noise of 3.5nV/$\sqrt{Hz}$, outstanding output drive capability, and very high small-signal and power bandwidth. This makes the SSM-2134 an ideal choice for use in high quality and professional audio equipment, instrumentation, and control circuits.

The SSM-2134 is internally compensated for $A_V \geq 3$. However, the frequency response can be optimized with an external compensation capacitor to enable the SSM-2134 to operate at unity-gain or drive large capacitive loads.

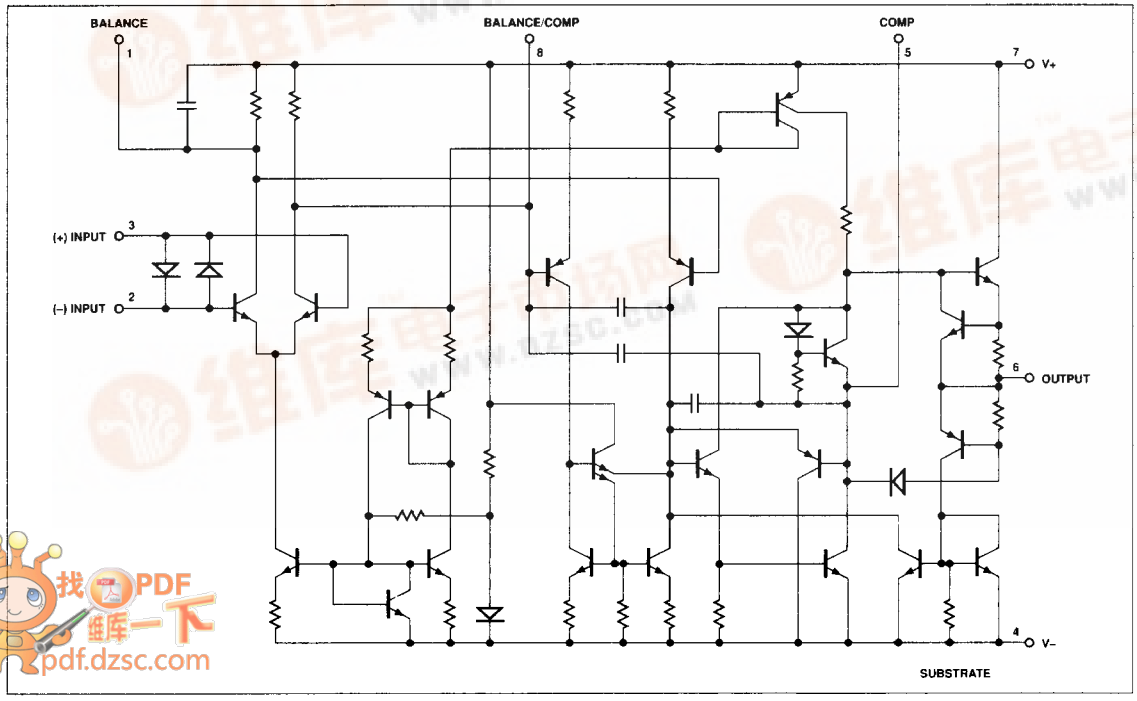
The SSM-2134 is offered in an 8-pin plastic DIP and its performance and characteristics are guaranteed over the extended industrial temperature range of –40°C to +85°C.

PIN CONNECTIONS



8-PIN
EPOXY DIP
(P-Suffix)

SIMPLIFIED SCHEMATIC



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SSM-2134

ORDERING INFORMATION †

PACKAGE		OPERATING TEMPERATURE RANGE
SSM2134P	8-Pin Plastic	–40°C to +85°C

ABSOLUTE MAXIMUM RATINGS

Supply Voltage ..... ±22V
Differential Input Voltage (Note 1) ..... ±0.5V
Input Voltage (Note 2) ..... ±22V
Power Dissipation 300mW
Derate Above +24°C ..... 2.5mW/°C
Short-Circuit Duration (Note 3) ..... Indefinite
Operating Temperature Range ..... –40°C to +85°C
Storage Temperature ..... –60°C to +150°C

NOTES:
1. The SSM-2134's inputs are protected by diodes. Current limiting resistors are not used in order to achieve low noise. If differential input voltage exceeds ±0.6V, the input current should be limited to 10mA.
2. For supply voltages less than ±22V, the absolute maximum input voltage is equal to the supply voltage.
3. Output maybe shorted to ground at $V_S = \pm15V$, $T_A = +25°C$. Temperature and/or supply voltages must be limited to ensure dissipation rating is not exceeded.

ELECTRICAL CHARACTERISTICS at $V_S = \pm15V$ and $T_A = +25°C$, unless otherwise noted.

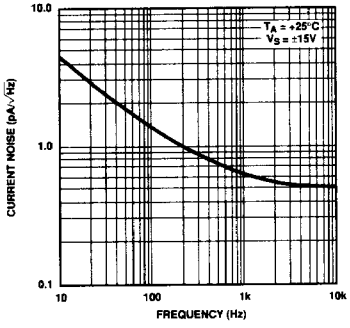
			SSM-2134P			
PARAMETER	**SYMBOL**	**CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNITS**
Input Offset Voltage	V_{OS}		–	0.3	2	mV
		$-40°C \le T_A \le +85°C$	–	0.4	3	
Input Offset Current	I_{OS}		–	15	300	nA
		$-40°C \le T_A \le +85°C$	–	25	400	
Input Bias Current	I_B		–	350	1500	nA
		$-40°C \le T_A \le +85°C$	–	500	2000	
Large-Signal Voltage Gain	A_{VO}	$R_L \ge 600\Omega$, $V_O = \pm10V$	25	200	–	V/mV
		$R_L \ge 600\Omega$, $V_O = \pm10V$, $-40°C \le T_A \le +85°C$	15	150	–	
Supply Current	I_{SY}	No Load	–	4.5	6.5	mA
Output Voltage Swing	V_O	$V_S = \pm15V$, $R_L \ge 600\Omega$	±12	±13	–	V
		$V_S = \pm18V$, $R_L \ge 600\Omega$	±15	±16	–	
Output Short-Circuit Current	I_{SC}	(Note 1)	–	65	–	mA
Input Resistance-Differential-Mode	R_{IN}	(Note 2)	30	100	–	kΩ
Input Voltage Range	IVR		±12	±13	–	V
Common-Mode Rejection	CMR	$V_{CM} = \pm12V$	70	114	–	dB
Power Supply Rejection Ratio	PSRR		–	6	100	µV/V
Rise Time	t_r	$R_L \ge 600\Omega$, $C_C = 22pF$	–	20	–	ns
Overshoot	OS	$C_L = 100pF$	–	20	–	%
AC Gain		$C_C = 0$, $f_O = 10kHz$	–	6	–	V/mV
		$C_C = 22pF$, $f_O = 10kHz$	–	2.2	–	
Unity-Gain Bandwidth	GBW	$C_C = 22pF$, $C_L = 100\ pF$	–	10	–	MHz
Slew Rate	SR	$C_C = 0$	–	13	–	V/µs
		$C_C = 22pF$	–	6	–	
Full Power Bandwidth	BW_P	$V_O = \pm10V$, $C_C = 22pF$	–	95	–	kHz
		$C_C = 0$	–	200	–	
Input Noise Voltage Density	e_n	$f_O = 30Hz$	–	5.5	7.0	$nV/\sqrt{Hz}$
		$f_O = 1kHz$	–	3.5	4.5	
Input Noise Current Density	i_n	$f_O = 30Hz$	–	2.5	–	$pA/\sqrt{Hz}$
		$f_O = 1kHz$	–	0.6	–	
Broadband Noise Figure	F_N	$R_S = 5k\Omega$, f = 10Hz to 20kHz	–	0.7	–	dB
Total Harmonic Distortion	THD	$V_{IN} = 3V_{RMS}$, $A_V = +1000$, $R_L = 2k\Omega$	–	0.025	–	%

NOTES:
1. Output may be shorted to ground at $V_S = \pm15V$, $T_A = +25°C$. Temperature and/or supply voltages must be limited to ensure dissipation rating is not exceeded.
2. Guaranteed by design.

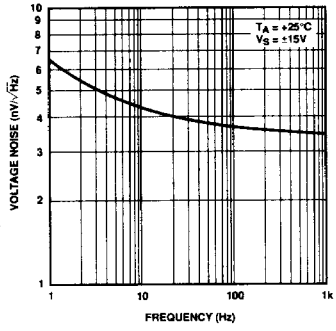
Specifications subject to change, Consult latest data sheet.

TYPICAL PERFORMANCE CHARACTERISTICS *Continued*

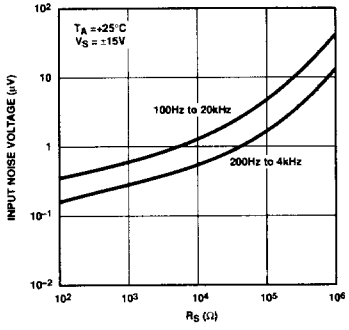
CURRENT NOISE DENSITY vs FREQUENCY



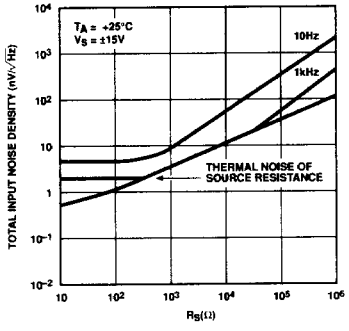
VOLTAGE NOISE DENSITY vs FREQUENCY



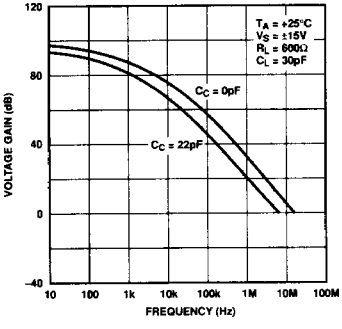
BROADBAND INPUT NOISE VOLTAGE



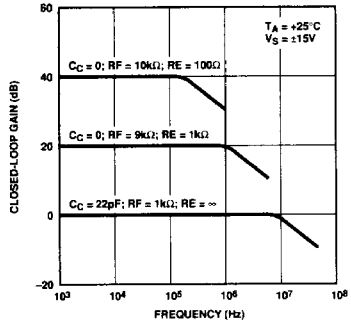
TOTAL INPUT NOISE DENSITY



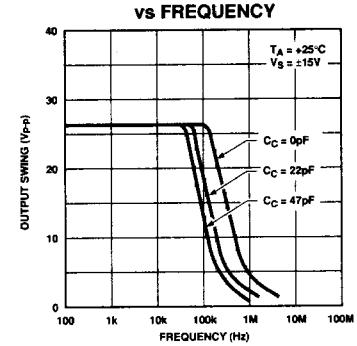
OPEN-LOOP GAIN vs FREQUENCY



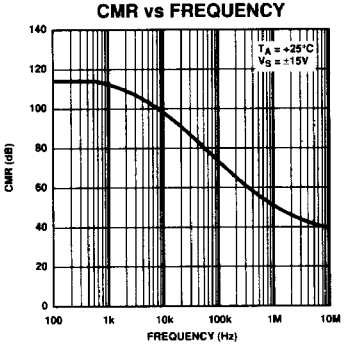
CLOSED-LOOP GAIN vs FREQUENCY



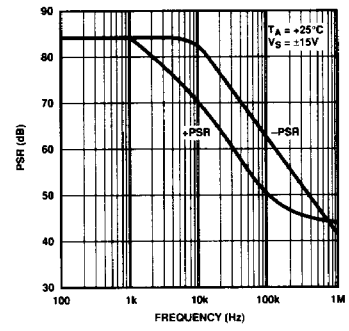
OUTPUT VOLTAGE SWING vs FREQUENCY



CMR vs FREQUENCY

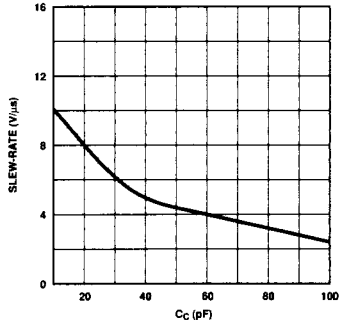


PSR vs FREQUENCY

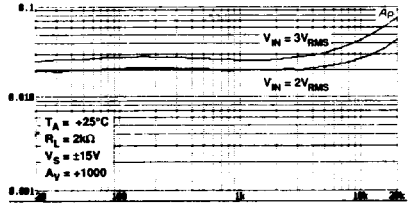


TYPICAL PERFORMANCE CHARACTERISTICS *Continued*

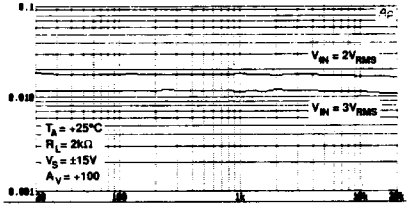
SLEW RATE vs COMPENSATION CAPACITOR



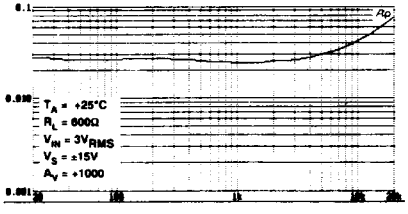
TOTAL HARMONIC DISTORTION vs FREQUENCY



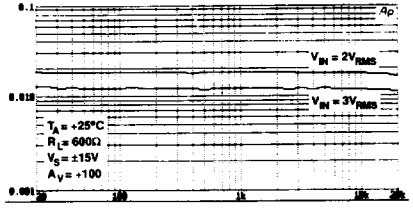
TOTAL HARMONIC DISTORTION vs FREQUENCY



TOTAL HARMONIC DISTORTION vs FREQUENCY

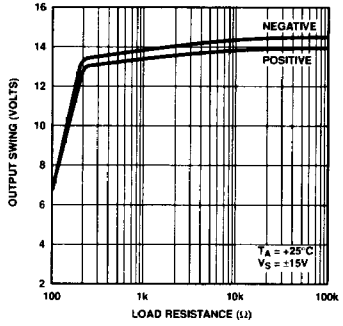


TOTAL HARMONIC DISTORTION vs FREQUENCY

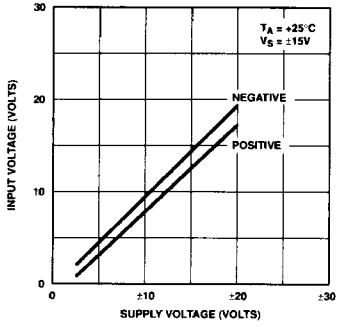


TYPICAL PERFORMANCE CHARACTERISTICS *Continued*

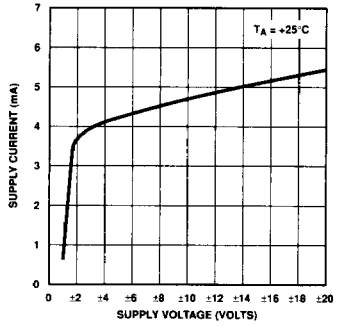
OUTPUT VOLTAGE SWING vs LOAD RESISTANCE



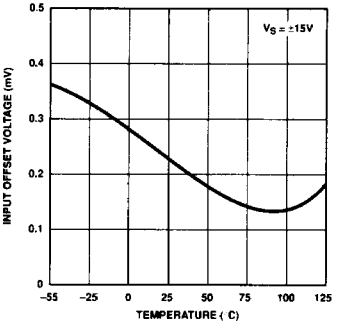
INPUT COMMON-MODE VOLTAGE vs SUPPLY VOLTAGE



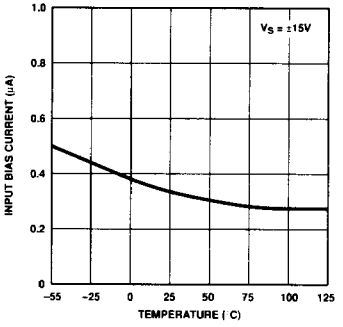
SUPPLY CURRENT vs SUPPLY VOLTAGE



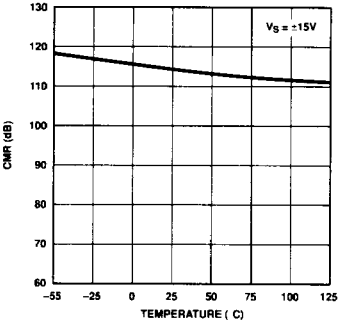
INPUT OFFSET VOLTAGE vs TEMPERATURE



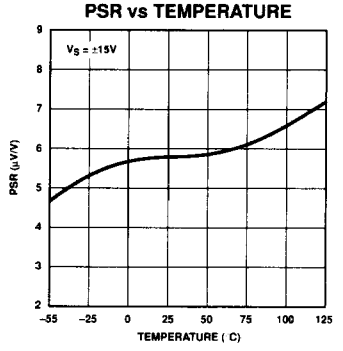
INPUT BIAS CURRENT vs TEMPERATURE



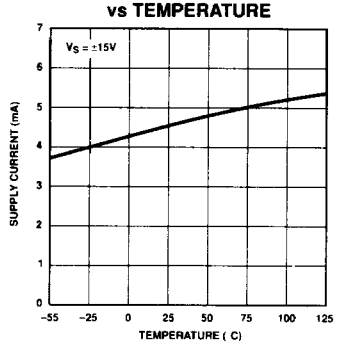
CMR vs TEMPERATURE



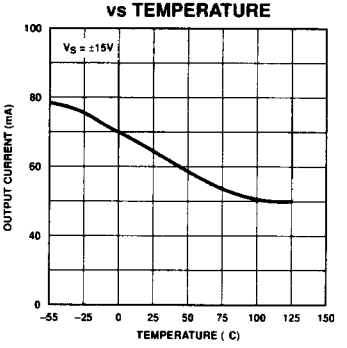
PSR vs TEMPERATURE



SUPPLY CURRENT vs TEMPERATURE

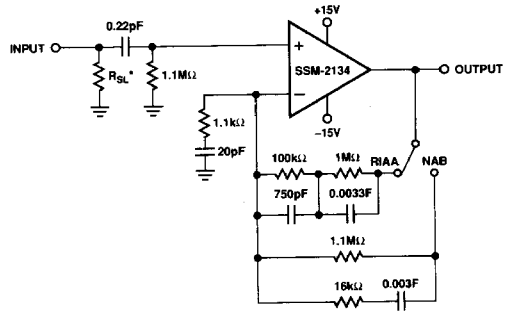


SHORT-CIRCUIT CURRENT vs TEMPERATURE

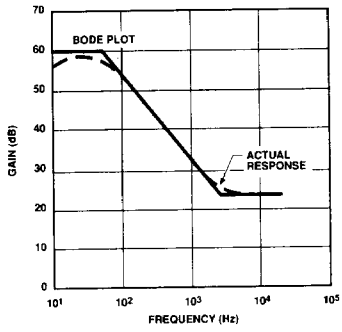


APPLICATIONS INFORMATION

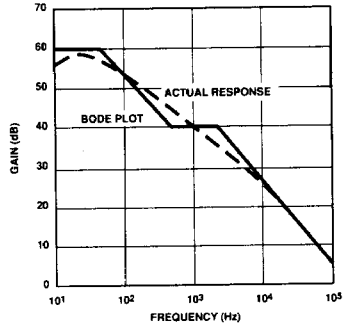
PREAMPLIFIER-RIAA/NAB COMPENSATION



*SELECT TO PROVIDE SPECIFIED TRANSDUCER LOADING
OUTPUT NOISE 0.8mV$_{RMS}$ (WITH INPUT SHORTED)



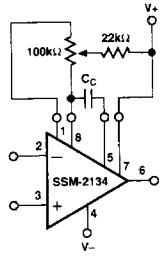
BODE PLOT OF RIAA EQUALIZATION AND THE RESPONSE REALIZED IN AN ACTUAL CIRCUIT USING THE SSM-2134



BODE PLOT OF NAB EQUALIZATION AND THE RESPONSE REALIZED IN THE ACTUAL CIRCUIT USING THE SSM-2134

TEST CIRCUIT

FREQUENCY COMPENSATION AND OFFSET VOLTAGE ADJUSTMENT CIRCUIT



CLOSED-LOOP FREQUENCY RESPONSE