

SSM2141

FEATURES

- **High Common-Mode Rejection**
 - DC **100dB Typ**
 - 60Hz **100dB Typ**
 - 20kHz **70dB Typ**
 - 40kHz **62dB Typ**
- **Low Distortion** **0.001% Typ**
- **Fast Slew Rate** **9.5V/μs Typ**
- **Wide Bandwidth** **3MHz Typ**
- **Low Cost**
- **Complements SSM-2142 Differential Line Driver**

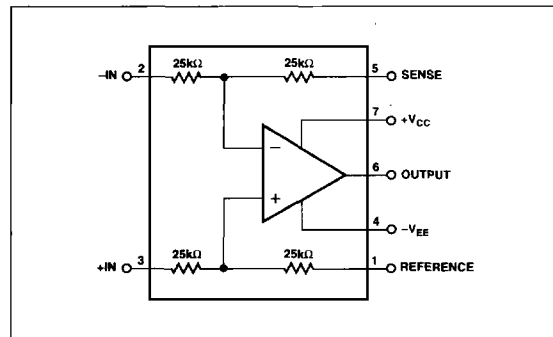
APPLICATIONS

- **Line Receivers**
- **Summing Amplifiers**
- **Buffer Amplifiers – Drives 600Ω Load**

ORDERING INFORMATION

PACKAGE		OPERATING TEMPERATURE RANGE
PLASTIC 8-PIN	NARROW BODY SO 8-PIN	
SSM2141P	SSM2141S	XIND (−40°C ≤ T _A ≤ +85°C)

FUNCTIONAL DIAGRAM



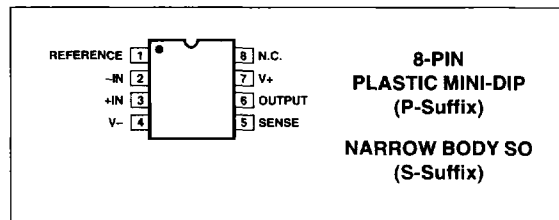
GENERAL DESCRIPTION

The SSM-2141 is an integrated differential amplifier intended to receive balanced line inputs in audio applications requiring a high level of noise immunity and optimum common-mode rejection. The SSM-2141 typically achieves 100dB of common-mode rejection (CMR), whereas implementing an op amp with four off-the-shelf precision resistors will typically achieve only 40dB of CMR – inadequate for high-performance audio.

The SSM-2141 achieves low distortion performance by maintaining a large slew rate of 9.5V/μs and high open-loop gain. Distortion is less than 0.002% over the full audio bandwidth. The SSM-2141 complements the SSM-2142 balanced line driver. Together, these devices comprise a fully integrated solution for equivalent transformer balancing of audio signals without the problems of distortion, EMI fields, and high cost.

Additional applications for the SSM-2141 include summing signals, differential preamplifiers, and 600Ω low distortion buffer amplifiers.

PIN CONNECTIONS



ABSOLUTE MAXIMUM RATINGS (Note 1)

Supply Voltage	±18V
Input Voltage (Note 1)	Supply Voltage
Output Short-Circuit Duration	Continuous
Storage Temperature Range	
P Package	-65°C to +150°C
Lead Temperature (Soldering, 60 sec)	+300°C
Junction Temperature	+150°C
Operating Temperature Range	-40°C to +85°C

PACKAGE TYPE	θ_{JA} (Note 2)	θ_{JC}	UNITS
8-Pin Plastic DIP (P)	103	43	°C/W

NOTES:

- For supply voltages less than ±18V, the absolute maximum input voltage is equal to the supply voltage.
- θ_{JA} is specified for worst case mounting conditions, i.e., θ_{JA} is specified for device in socket for P-DIP package.

ELECTRICAL CHARACTERISTICS at $V_S = \pm 18V$, $T_A = +25^\circ C$, unless otherwise noted.

PARAMETER	SYMBOL	CONDITIONS	SSM-2141			UNITS
			MIN	TYP	MAX	
Offset Voltage	V_{OS}	$V_{CM} = 0V$	-1000	25	1000	μV
Gain Error		No Load, $V_{IN} = \pm 10V$, $R_S = 0\Omega$	-	0.001	0.01	%
Input Voltage Range	IVR	(Note 1)	±10	-	-	V
Common-Mode Rejection	CMR	$V_{CM} = \pm 10V$	80	100	-	dB
Power Supply Rejection Ratio	PSRR	$V_S = \pm 6V$ to $\pm 18V$	-	0.7	15	μV/V
Output Swing	V_O	$R_L = 2k\Omega$	±13	±14.7	-	V
Short-Circuit Current Limit	I_{sc}	Output Shorted To Ground	+45/-15	-	-	mA
Small-Signal Bandwidth (-3dB)	BW	$R_L = 2k\Omega$	-	3	-	MHz
Slew Rate	SR	$R_L = 2k\Omega$	6	9.5	-	V/μs
Total Harmonic Distortion	THD	$R_L = 100k\Omega$ $R_L = 600\Omega$	-	0.001 0.01	-	%
Capacitive Load Drive Capability	C_L	No Oscillation	-	300	-	pF
Supply Current	I_{SY}	No Load	-	2.5	3.5	mA

NOTE:

- Input voltage range guaranteed by CMR test.

ELECTRICAL CHARACTERISTICS at $V_S = \pm 18V$, $-40^\circ C \leq T_A \leq +85^\circ C$.

PARAMETER	SYMBOL	CONDITIONS	SSM-2141			UNITS
			MIN	TYP	MAX	
Offset Voltage	V_{OS}	$V_{CM} = 0V$	-2500	200	2500	μV
Gain Error		No Load, $V_{IN} = \pm 10V$, $R_S = 0\Omega$	-	0.002	0.02	%
Input Voltage Range	IVR	(Note 1)	±10	-	-	V
Common-Mode Rejection	CMR	$V_{CM} = \pm 10V$	75	90	-	dB
Power Supply Rejection Ratio	PSRR	$V_S = \pm 6V$ to $\pm 18V$	-	1.0	20	μV/V
Output Swing	V_O	$R_L = 2k\Omega$	±13	±14.7	-	V
Slew Rate	SR	$R_L = 2k\Omega$	-	9.5	-	V/μs
Supply Current	I_{SY}	No Load	-	2.6	4.0	mA

NOTE:

- Input voltage range guaranteed by CMR test.