

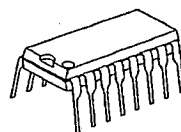
## DUAL BOOST AMPLIFIER for CAR AUDIO

### ■ GENERAL DESCRIPTION

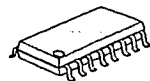
The NJM2160A is a dual boost amplifier designed for car audio system. It swings 14V peak-to-peak output voltage at 9V. It consists of two channel non-inverting amplifier with the gain of 8dB.

It is suitable for car audio system and other boost amplifier system.

### ■ PACKAGE OUTLINE



NJM2160AD



NJM2160AM

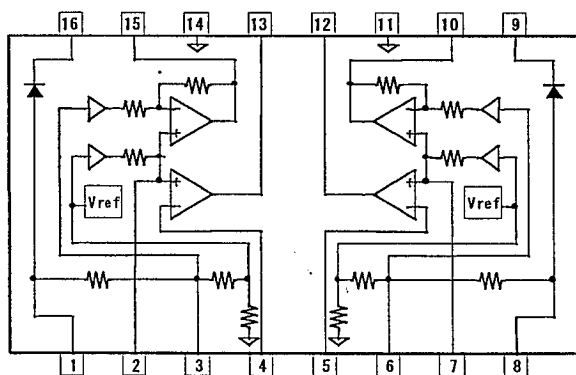


NJM2160AV

### ■ FEATURES

- Operating Voltage (+6—+12V)
- Operating Current (6mA typ.)
- Boost Output Function ( $V_o=14V_{pp}$ , @ $V^+=9V$ )
- Supply Voltage Rejection Ratio (50dB typ.)
- Total Harmonic Distortion (0.003% typ.)
- Noise Output Voltage ( $6\mu V_{rms}$  typ.)
- Bipolar Technology
- Package Outline DIP16, DMP16, SSOP16

### ■ PIN CONFIGURATION



NJM2160AD  
NJM2160AM  
NJM2160AV

### PIN FUNCTION

1.  $V_{CC}$
2. +Lin
3. CRPL
4. -Lin
5. -Rin
6. CRPR
7. +Rin
8.  $V_{CCR}$
9. +CR
10. -CR
11. GND
12. Rout
13. Lout
14. GNDL
15. -CL
16. +CL

## ■ ABSOLUTE MAXIMUM RANGES (Ta=25°C)

PARAMETER	SYMBOL	RANGE	UNIT
Supply Voltage	V <sup>+</sup>	+15	V
Output Current	I <sub>o</sub>	20	mA
Power Dissipation	P <sub>o</sub>	(D-Type) 700 (M, V-Type) 300	mW
Operating Temperature	T <sub>opr</sub>	-40~+85	°C
Storage Temperature	T <sub>stg</sub>	-40~+125	°C

## ■ ELECTRICAL CHARACTERISTIC (V<sup>+</sup>=9V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MAX.	TYP.	MAX.	UNIT
DC CHARACTERISTIC						
Operating Voltage	V <sup>+</sup>		6.0	9.0	12.0	V
Operating Current	I <sub>cc</sub>	No Signal	—	6.0	8.0	mA
Output Voltage	V <sub>oDC</sub>		—	7.8	—	V
AC CHARACTERISTIC (f=1kHz, R <sub>L</sub> =10kΩ)						
Voltage Gain	A <sub>v</sub>		7.5	8.0	8.5	dB
Channel Separation	CS	R <sub>s</sub> =600Ω, V <sub>o</sub> =1Vrms	70	75	—	dB
Channel Balance	BAL		—	—	0.5	dB
Roll-off Low Frequency	f <sub>RL</sub>	-1dB	—	—	5	Hz
Roll-off High Frequency	f <sub>RH</sub>	-1dB	20	—	—	kHz
Input Resistance	R <sub>IN</sub>		22	30	38	kΩ
Output Resistance	R <sub>OUT</sub>		—	—	10	Ω
Maximum Output Voltage	V <sub>oM</sub>	THD=0.1%	5.0	5.2	—	Vrms
Noise Output Voltage	V <sub>no</sub>	R <sub>s</sub> =600Ω, A-Weighting	—	6	10	μV
Total Harmonic Distortion	THD1	f=1kHz, V <sub>o</sub> =3Vrms, A-Weighting	—	0.003	0.01	%
	THD2	f=17Hz—20kHz, V <sub>o</sub> =3Vrms, A-Weighting	—	0.01	—	%
Supply Voltage	SVR1	R <sub>s</sub> =600Ω, f=1kHz, V <sub>RP</sub> =100mVrms	55	—	—	dB
Rejection Ratio	SVR2	R <sub>s</sub> =600Ω, f=20Hz—20kHz, V <sub>RP</sub> =100mVrms	—	50	—	dB

■ PIN INFORMATION

PIN NUMBER	PIN NAME	PIN FUNCTION
1	V <sub>ccL</sub>	Power Supply for Left Channel
2	+L <sub>in</sub>	+Input of Left Channel
3	CR <sub>PL</sub>	Capacitance for Left Channel Ripple Rejection
4	-L <sub>in</sub>	-Input of Left Channel
5	-R <sub>in</sub>	-Input of Right Channel
6	CR <sub>PR</sub>	Capacitance for Right Channel Ripple Rejection
7	+R <sub>in</sub>	+Input of Right Channel
8	V <sub>ccR</sub>	Power Supply for Right Channel
9	+CR	Capacitance for +Level-shift Right Channel
10	-CR	Capacitance for -Level-shift Right Channel
11	G <sub>NDR</sub>	Ground for Right Channel
12	R <sub>out</sub>	Output of Right Channel
13	L <sub>out</sub>	Output of Left Channel
14	G <sub>NDL</sub>	Ground for Left Channel
15	-CL	Capacitance for -Level-shift Left Channel
16	+CL	Capacitance for +Level-shift Left Channel

■ APPLICATION CIRCUIT

