

# LM2879 Dual 8W Audio Amplifier

### **General Description**

The LM2879 is a monolithic dual power amplifier which offers high quality performance for stereo phonographs, tape players, recorders, AM-FM stereo receivers, etc.

The LM2879 will deliver 8W/channel to an  $8\Omega$  load. The amplifier is designed to operate with a minimum of external components and contains an internal bias regulator to bias each amplifier. Device overload protection consists of both internal current limit and thermal shutdown.

### **Features**

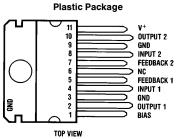
- A<sub>VO</sub> typical 90 dB
- 9W per channel (typical)
- 60 dB ripple rejection
- 70 dB channel separation

- Self-centering biasing
- $\blacksquare$  4 M $\Omega$  input impedance
- Internal current limiting
- Internal thermal protection

### **Applications**

- Multi-channel audio systems
- Tape recorders and players
- Movie projectors
- Automotive systems
- Stereo phonographs
- Bridge output stages
- AM-FM radio receivers
- Intercoms
- Servo amplifiers
- Instrument systems

### **Connection Diagram and Typical Application**



TL/H/5291-1

Order Number LM2879T See NS Package Number TA11B

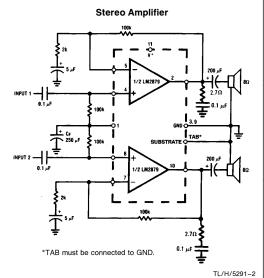


FIGURE 1

### **Absolute Maximum Ratings**

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage 35V Input Voltage (Note 1)  $\pm$  0.7V Operating Temperature (Note 2) 0°C to + 70°C

Storage Temperature  $-65^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$  Junction Temperature  $150^{\circ}\text{C}$  Lead Temp. (Soldering, 10 seconds)  $260^{\circ}\text{C}$  ESD rating to be determined. Thermal Resistance

 $\theta_{\mbox{\scriptsize JC}}$  1°C/W  $\theta_{\mbox{\scriptsize JA}}$  43°C/W

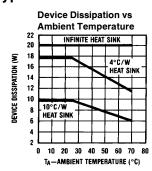
# $\textbf{Electrical Characteristics} \ \ \text{V}_S = 28 \text{V}, \ \ \text{T}_{TAB} = 25 \text{°C}, \ \ \text{R}_L = 8 \Omega, \ A_V = 50 \ (34 \ \text{dB}), \ \text{unless otherwise specified}.$

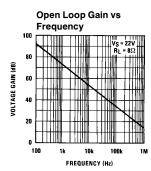
Parameter	Conditions	Min	Тур	Max	Units
Total Supply Current	P <sub>O</sub> =0W		12	65	mA
Operating Supply Voltage		6		32	V
Output Power/Channel	f=1 kHz, THD=10%, T <sub>TAB</sub> =25°C	6	8		W
Distortion	$f=1 \text{ kHz}, R_L=8\Omega$ $P_O=1 \text{ W/Channel}$		0.05	1	%
Output Swing	$R_L = 8\Omega$		V <sub>S</sub> -6V	•	Vp-p
Channel Separation	C <sub>BYPASS</sub> =50 μF, C <sub>IN</sub> =0.1 μF f=1 kHz, Output Referred V <sub>O</sub> =4 Vrms	-50	-70		dB
PSRR Positive Supply	$C_{BYPASS} = 50 \ \mu F, C_{IN} = 0.1 \ \mu F$ $f = 120 \ Hz, Output \ Referred$ $V_{ripple} = 1 \ Vrms$	-50	-60		dB
PSRR Negative Supply	Measured at DC, Input Referred		-60		dB
Common-Mode Range	Split Supplies ±15V, Pin 1 Tied to Pin 11		± 13.5		V
Input Offset Voltage			10		mV
Noise	Equivalent Input Noise R <sub>S</sub> =0, C <sub>IN</sub> =0.1 μF BW=20 - 20 kHz CCIR•ARM Output Noise Wideband R <sub>S</sub> =0, C <sub>IN</sub> =0.1 μF, A <sub>V</sub> =200		2.5 3.0 0.8		μV μV mV
Open Loop Gain	$R_S = 51\Omega$ , $f = 1$ kHz, $R_L = 8\Omega$		70		dB
Input Bias Current			100		nA
Input Impedance	Open Loop		4		MΩ
DC Output Voltage	V <sub>S</sub> =28V		14		V
Slew Rate			2		V/µs
Power Bandwidth	3 dB Bandwidth at 2.5W		65		kHz
Current Limit			1.5		Α

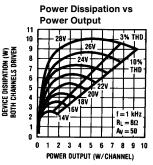
Note 1: The input voltage range is normally limited to  $\pm 0.7V$  with respect to pin 1. This range may be extended by shorting pin 1 to the positive supply.

Note 2: For operation at ambient temperature greater than 25°C, the LM2879 must be derated based on a maximum 150°C junction temperature. Thermal resistance, junction to case, is 3°C/W. Thermal resistance, case to ambient, is 40°C/W.

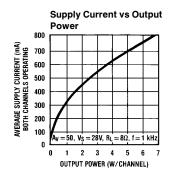
### **Typical Performance Characteristics**

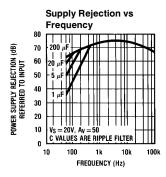


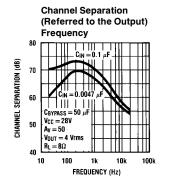


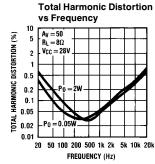


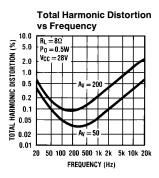
# **Typical Performance Characteristics** (Continued)

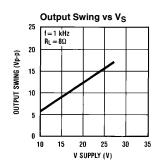


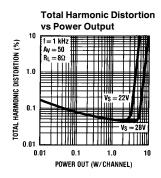


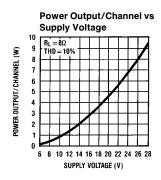


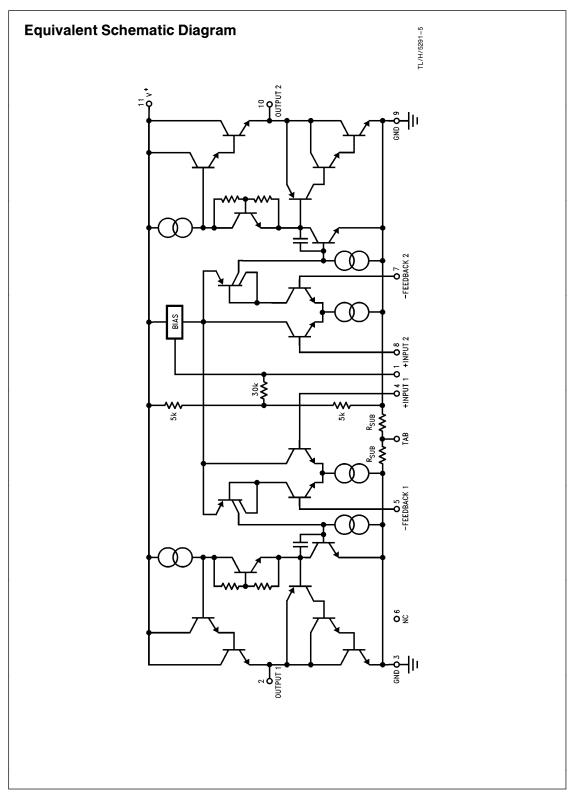










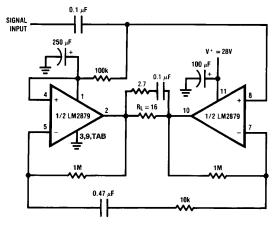


# **Typical Applications**

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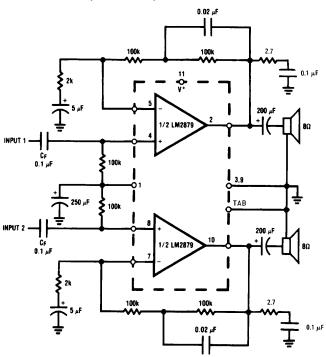
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### 12W Bridge Amplifier



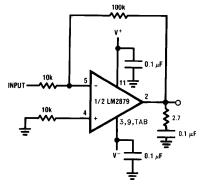
# Typical Applications (Continued)

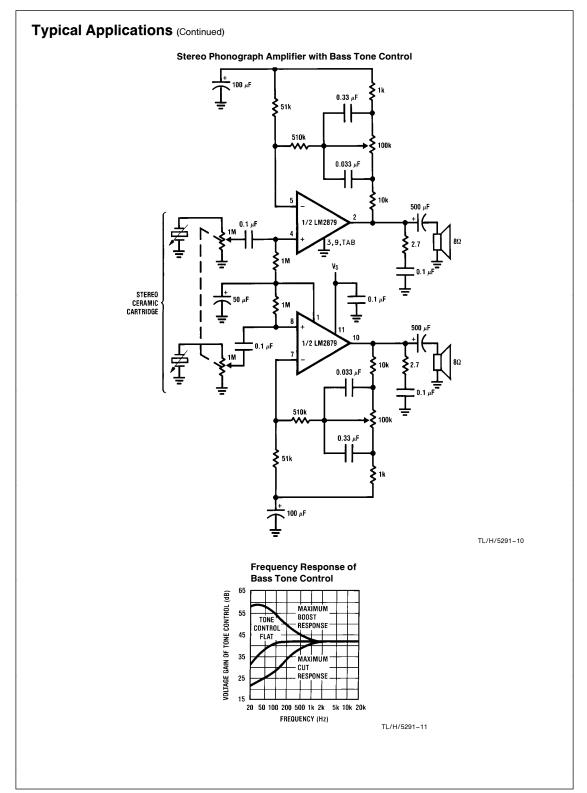
### Simple Stereo Amplifier with Bass Boost

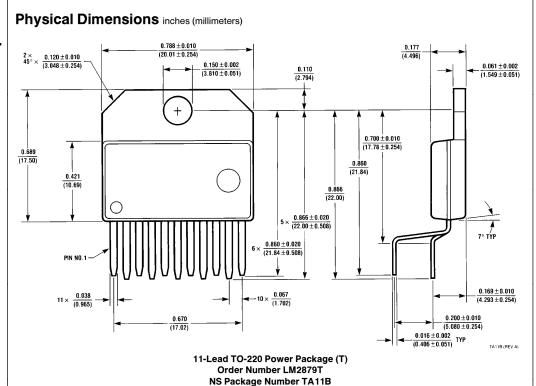


TL/H/5291-8

# Power Op Amp (Using Split Supplies)







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