

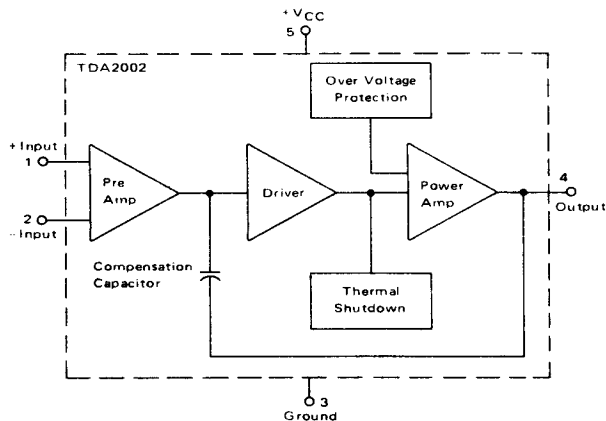
# TDA2002 TDA2002A

## 8 WATT AUDIO POWER AMPLIFIER

The TDA2002 and TDA2002A are Class B power amplifiers designed for automotive and general-purpose audio applications. High output current capability (3.5 A) enables these devices to drive low-impedance loads (down to 1.6  $\Omega$ ) with low harmonic and crossover distortion. High-voltage protection is available (TDA2002) which enables the amplifier to withstand 40 V transients. These devices provide an output power of 8 watts (typ) with  $R_L = 2 \Omega$  and 4.8 watts (min) with  $R_L = 4 \Omega$  at 14.4 volts.

- Internal Thermal Overload Protection
- Internal Short-Circuit Current Limiting
- Supply Over Voltage Protection
- Wide Supply Voltage Range (8--18 Volts)
- Low External Component Count

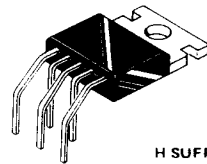
### BLOCK DIAGRAM



8 WATT

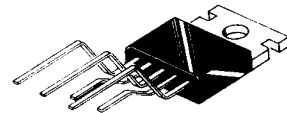
## AUDIO POWER AMPLIFIER

SILICON MONOLITHIC  
INTEGRATED CIRCUIT

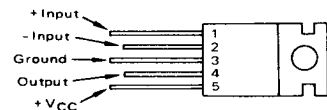


H SUFFIX  
PLASTIC PACKAGE  
CASE 314A

V SUFFIX  
PLASTIC PACKAGE  
CASE 314B



### PIN CONNECTIONS



### ORDERING INFORMATION

| Device     | Temperature Range | Plastic Package |
|------------|-------------------|-----------------|
| TDA2002H * | -40 to +85°C      | Case 314A       |
| TDA2002V * | -40 to +85°C      | Case 314B       |
| TDA2002AH  | -40 to +85°C      | Case 314A       |
| TDA2002AV  | -40 to +85°C      | Case 314B       |

\*High Voltage

# TDA2002, TDA2002A

## MAXIMUM RATINGS (T<sub>A</sub> = +25°C)

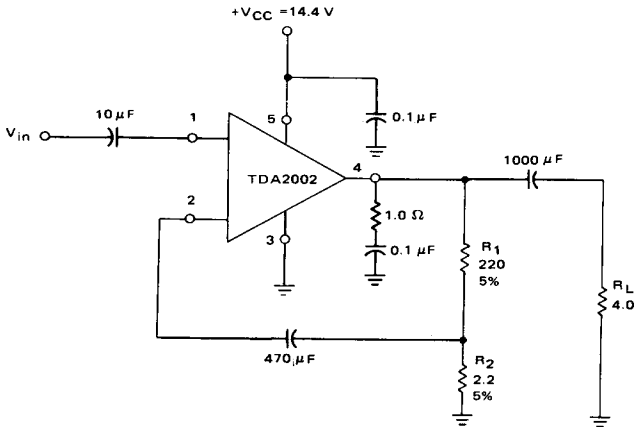
| Rating                                | Value       | Unit |
|---------------------------------------|-------------|------|
| Peak Supply Voltage                   |             | V    |
| TDA2002 (Transients of 50 ms or less) | 40          |      |
| TDA2002/2002A (Steady State)          | 28          |      |
| Operating Power Supply Voltage        | 18          | V    |
| Peak Output Current (Nonrepetitive)   | 4.5         | A    |
| (Repetitive)                          | 3.5         |      |
| Junction Temperature                  | 150         | °C   |
| Storage Temperature Range             | -65 to +150 | °C   |
| Operating Temperature Range           | -40 to +85  | °C   |

## ELECTRICAL CHARACTERISTICS (V<sub>CC</sub> = 14.4 Vdc, R<sub>L</sub> = 4.0 Ω, f = 1.0 kHz, T<sub>A</sub> = 25°C unless otherwise noted) \*

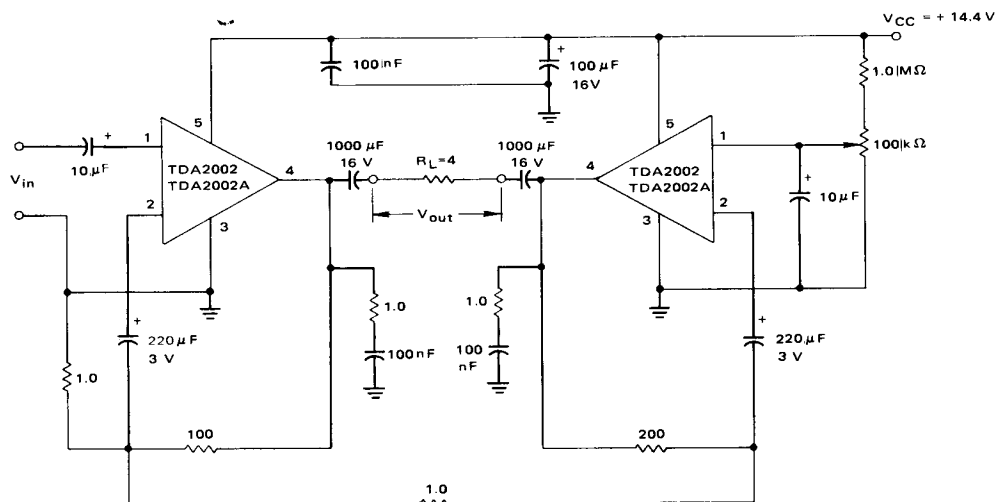
| Characteristic                                                                                                                                                                                                                                    | Symbol         | Min                  | Typ                     | Max              | Unit |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------|-------------------------|------------------|------|
| Quiescent Drain Current<br>(V <sub>in</sub> = 0)                                                                                                                                                                                                  | I <sub>D</sub> | —                    | —                       | 80               | mA   |
| Quiescent Output Voltage<br>(V <sub>in</sub> = 0)                                                                                                                                                                                                 | V <sub>O</sub> | 6.4                  | 7.2                     | 8.0              | V    |
| Power Output — 10% Distortion<br>(V <sub>CC</sub> = 14.4 V, R <sub>L</sub> = 4.0 Ω)<br>(V <sub>CC</sub> = 14.4 V, R <sub>L</sub> = 2.0 Ω)<br>(V <sub>CC</sub> = 16 V, R <sub>L</sub> = 4.0 Ω)<br>(V <sub>CC</sub> = 16 V, R <sub>L</sub> = 2.0 Ω) | P <sub>O</sub> | 4.8<br>7.0<br>—<br>— | 5.2<br>8.0<br>6.5<br>10 | —<br>—<br>—<br>— | W    |
| Input Resistance<br>(Pin 1)                                                                                                                                                                                                                       | r <sub>i</sub> | 70                   | 150                     | —                | kΩ   |
| Equivalent Input Noise Voltage<br>(R <sub>S</sub> = 0, Bandpass = 20 Hz to 15 kHz)                                                                                                                                                                | e <sub>n</sub> | —                    | 4                       | —                | μV   |
| Equivalent Input Noise Current<br>(R <sub>S</sub> = 0, Bandpass = 20 Hz to 15 kHz)                                                                                                                                                                | i <sub>n</sub> | —                    | 0.1                     | —                | nA   |
| Power Supply Rejection Ratio<br>(f <sub>ripple</sub> = 100 Hz)                                                                                                                                                                                    | PSRR           | 30                   | 35                      | —                | dB   |

\*See Test Circuit — Figure 1.

FIGURE 1 — APPLICATION AND TEST CIRCUIT



**FIGURE 2 – 15 WATT APPLICATION CIRCUIT**  
(Typical Bridge Configuration)



**Note:** The TDA2002, A is not compensated for operation with a closed loop gain of 20 or less. Operation below a gain of 20 may cause stability problems.