



# TDA7429L

## 3 BAND EQUALIZER AUDIO PROCESSOR WITH SUBWOOFER CONTR

### 1 FEATURES

- 3 STEREO INPUTS
- AUXILIARY MONO INPUT
- INPUT ATTENUATION CONTROL IN 0.5dB STEP
- TREBLE MIDDLE AND BASS CONTROL
  - FOUR SPEAKERS ATTENUATORS:
  - 4 INDEPENDENT SPEAKERS CONTROL IN 1dB STEPS FOR BALANCE FACILITY
  - INDEPENDENT MUTE FUNCTION
- SUBWOOFER OUTPUT (L+R) CONTROLLED IN 1dB STEP INPUTS
- ALL FUNCTIONS PROGRAMMABLE VIA SERIAL BUS

### 2 DESCRIPTION

The TDA7429L is volume tone (bass middle and treble) balance (Left/Right) processors for quality audio

Figure 1. Package



Table 1. Order Codes

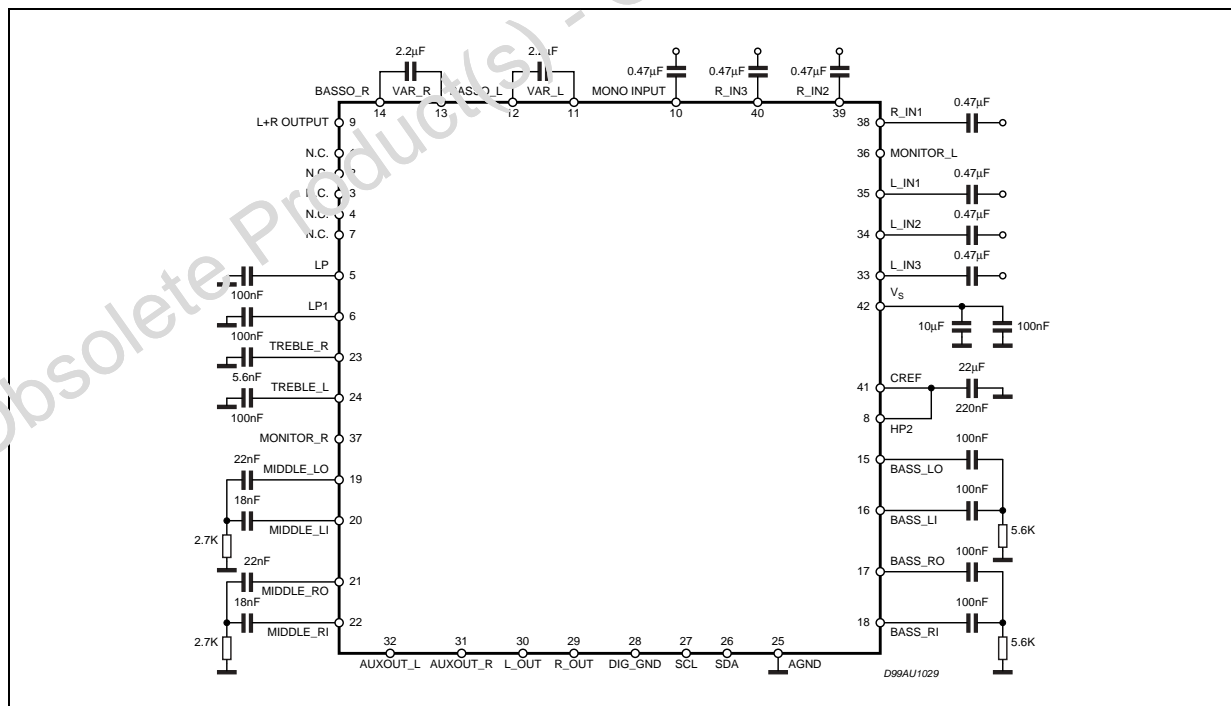
| Part Number | Package |
|-------------|---------|
| TDA7429L    | SDIP42  |

applications in TV and Hi-Fi systems, providing also an additional subwoofer control.

The AC signal setting is obtained by resistor networks and switches combined with operational amplifiers.

Thanks to the used BIPOLAR/CMOS Technology, Low Distortion, Low Noise and DC stepping are obtained.

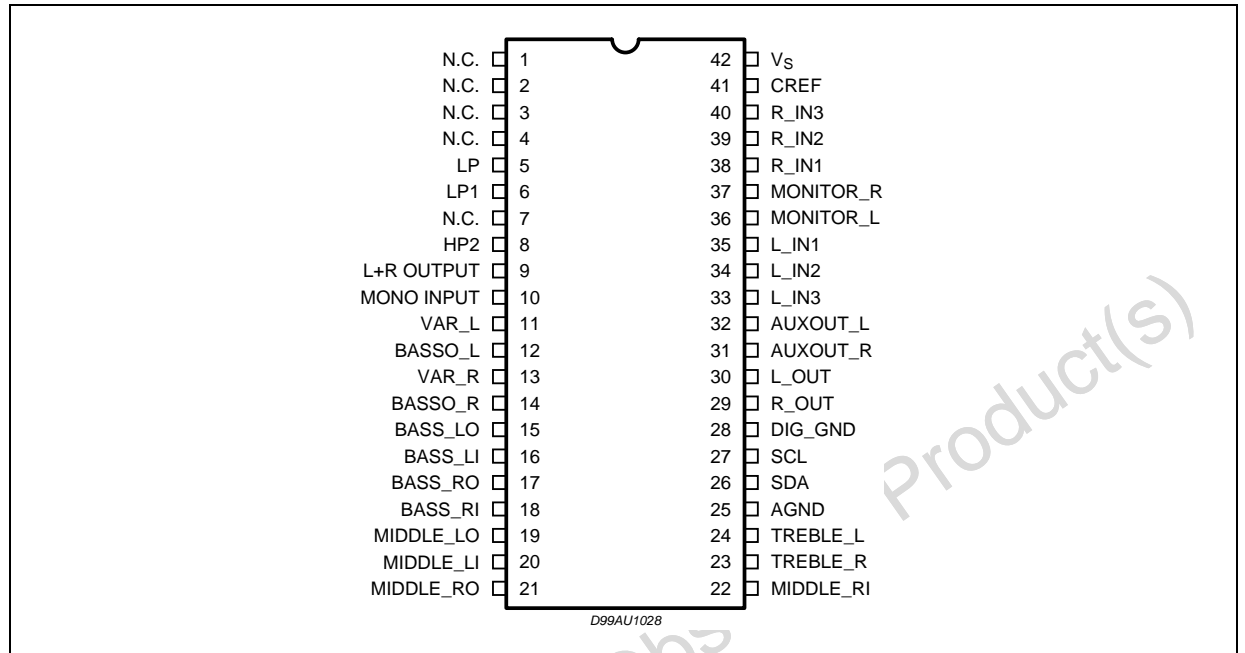
Figure 2. Test Circuit



**Table 2. Absolute Maximum Ratings**

| Symbol           | Parameter                     | Value      | Unit |
|------------------|-------------------------------|------------|------|
| V <sub>S</sub>   | Operating Supply Voltage      | 5.5        | V    |
| T <sub>amb</sub> | Operating Ambient Temperature | 0 to 70    | °C   |
| T <sub>stg</sub> | Storage Temperature Range     | -55 to 150 | °C   |

**Figure 3. Pin Description**



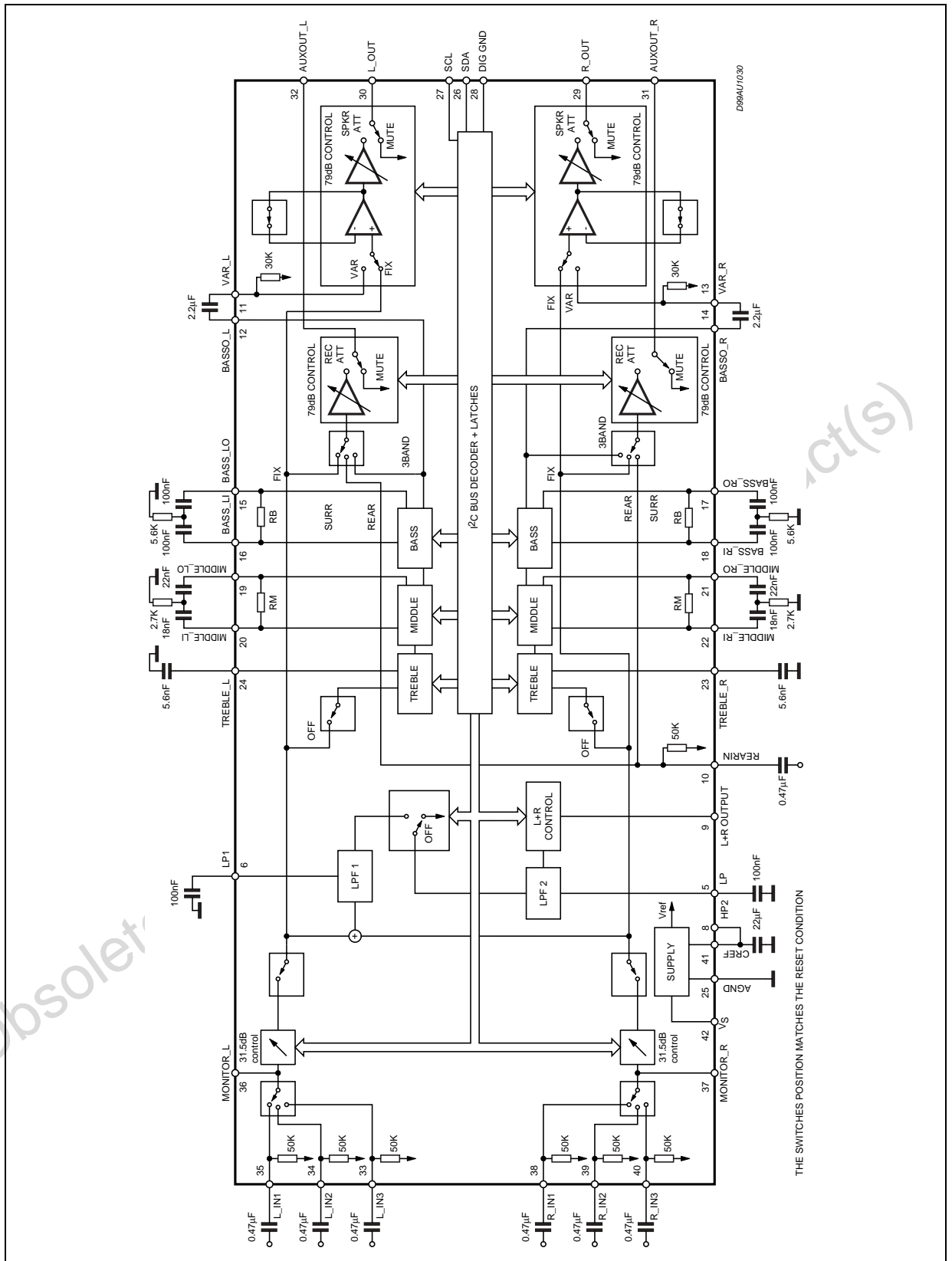
**Table 3. Quick Reference Data**

| Symbol          | Parameter   | Min. | Typ. | Max. | Unit             |
|-----------------|---|------|------|------|------------------|
| V <sub>S</sub>  | Supply Voltage  | 7    | 9    | 10.2 | V                |
| V <sub>CL</sub> | Max Input Signal Handling                                   | 2    |      |      | V <sub>RMS</sub> |
| THD             | Total Harmonic Distortion V = 0.1Vrms f = 1KHz              |      | 0.01 | 0.1  | %                |
| S/N             | Signal to Noise Ratio V <sub>out</sub> = 1Vrms (mode = OFF) |      | 106  |      | dB               |
| S <sub>C</sub>  | Channel Separation f = 1KHz                                 |      | 90   |      | dB               |
|                 | Treble Control (2dB step)                                   | -14  |      | 14   | dB               |
|                 | Middle Control (2dB step)                                   | -14  |      | 14   | dB               |
|                 | Bass Control (2dB step)                                     | -14  |      | 14   | dB               |
|                 | Balance Control 1dB step (LCH, RCH)                         | -79  |      | 0    | dB               |
|                 | Mute Attenuation  |      | 100  |      | dB               |

**Table 4. Thermal Data**

| Symbol                | Parameter                        | Value | Unit |
|-----------------------|----------------------------------|-------|------|
| R <sub>th j-pin</sub> | Thermal Resistance Junction-pins | 85    | °C/W |

Figure 4. Block Diagram



**Table 5. Electrical Characteristics** (refer to the test circuit  $T_{amb} = 25^{\circ}\text{C}$ ,  $V_S = 9\text{V}$ ,  $R_L = 10\text{K}\Omega$ ,  $V_{in} = 1\text{V}_{rms}$ ;  $R_G = 600\Omega$ , all controls flat ( $G = 0\text{dB}$ ),  $L+R \text{ CTRL} = +4\text{dB}$ ,  $\text{MODE} = \text{OFF}$ ;  $f = 1\text{KHz}$  unless otherwise specified).

| Symbol                               | Parameter                    | Test Condition                             | Min.       | Typ.       | Max.       | Unit             |
|--------------------------------------|------------------------------|--|------------|------------|------------|------------------|
| <b>SUPPLY</b>                        |                              |  |            |            |            |                  |
| $V_S$                                | Supply Voltage               |  | 7          | 9          | 10.2       | V                |
| $I_S$                                | Supply Current               |  | 10         | 18         | 26         | mA               |
| SVR                                  | Ripple Rejection             | $L_{CH} / R_{CH \text{ out}}$ , Mode = OFF | 60         | 80         |            | dB               |
| <b>INPUT STAGE</b>                   |                              |  |            |            |            |                  |
| $R_{IN}$                             | Input Resistance             |  | 35         | 50         | 65         | $\text{K}\Omega$ |
| $V_{CL}$                             | Clipping Level               | THD = 0.3%                                 | 2          | 2.5        |            | $V_{rms}$        |
| $C_{RANGE}$                          | Control Range                |  |            | 31.5       |            | dB               |
| $A_{VMIN}$                           | Min. Attenuation             |  | -1         | 0          | 1          | dB               |
| $A_{VMAX}$                           | Max. Attenuation             |  | 31         | 31.5       | 32         | dB               |
| $A_{STEP}$                           | Step Resolution              |  |            | 0.5        | 1          | dB               |
| <b>BASS CONTROL</b>                  |                              |  |            |            |            |                  |
| $G_b$                                | Control Range                | Max. Boost/cut                             | $\pm 11.5$ | $\pm 14.0$ | $\pm 16.0$ | dB               |
| $B_{STEP}$                           | Step Resolution              |  | 1          | 2          | 3          | dB               |
| $R_B$                                | Internal Feedback Resistance |  | 32         | 44         | 56         | $\text{K}\Omega$ |
| <b>MIDDLE CONTROL</b>                |                              |  |            |            |            |                  |
| $G_m$                                | Control Range                | Max. Boost/cut                             | $\pm 11.5$ | $\pm 14.0$ | $\pm 16.0$ | dB               |
| $M_{STEP}$                           | Step Resolution              |  | 1          | 2          | 3          | dB               |
| $R_M$                                | Internal Feedback Resistance |  | 17.5       | 25         | 32.5       | $\text{K}\Omega$ |
| <b>TREBLE CONTROL</b>                |                              |  |            |            |            |                  |
| $G_t$                                | Control Range                | Max. Boost/cut                             | $\pm 13.0$ | $\pm 14.0$ | $\pm 15.0$ | dB               |
| $T_{STEP}$                           | Step Resolution              |  | 1          | 2          | 3          | dB               |
| <b>CONTROL L+R</b>                   |                              |  |            |            |            |                  |
| $C_{RANGE}$                          | Control Range                |  | $\pm 11.5$ |            | $\pm 4$    | dB               |
| $S_{STEP}$                           | Step Resolution              |  | 0.5        | 1          | 1.5        | dB               |
| <b>SPEAKER &amp; AUX ATTENUATORS</b> |                              |  |            |            |            |                  |
| $C_{RANGE}$                          | Control Range                |  |            | 79         |            | dB               |
| $S_{STEP}$                           | Step Resolution              |  | -0.5       | 1          | 1.5        | dB               |
| $E_A$                                | Attenuation set error        | $A_V = 0 \text{ to } -20\text{dB}$         | -1.5       | 0          | 1.5        | dB               |
|                                      |                              | $A_V = -20 \text{ to } -79\text{dB}$       | -3         | 0          | 2          | dB               |

Table 5. Electrical Characteristics (continued)

| Symbol                 | Parameter                      | Test Condition   | Min. | Typ.   | Max. | Unit   |
|------------------------|--------------------------------|--|------|--------|------|--|
| V <sub>DC</sub>        | DC Steps                       | adjacent att. steps                                      | -3   | 0      | 3    | mV   |
| A <sub>MUTE</sub>      | Output Mute Condition          |  | +70  | 100    |      | dB   |
| R <sub>VEA</sub>       | Input Impedance                |  | 21   | 30     | 39   | K $\Omega$                                       |
| <b>AUDIO OUTPUTS</b>   |                                |  |      |        |      |  |
| N <sub>O(OFF)</sub>    | Output Noise (OFF)             | Output Mute, Flat<br>BW = 20Hz to 20KHz                  |      | 4<br>5 |      | $\mu$ V <sub>rms</sub><br>$\mu$ V <sub>rms</sub> |
| d                      | Distorsion                     | A <sub>v</sub> = 0 ; V <sub>in</sub> = 1V <sub>rms</sub> |      | 0.01   | 0.1  | %  |
| S <sub>C</sub>         | Channel Separation             |  | 70   | 90     |      | dB   |
| V <sub>OCL</sub>       | Clipping Level                 | d = 0.3%   | 2    | 2.5    |      | V <sub>rms</sub>                                 |
| R <sub>OUT</sub>       | Output Resistance              |  | 20   | 40     | 70   | $\Omega$   |
| V <sub>OUT</sub>       | DC Voltage Level               |  |      | 3.8    |      | V  |
| <b>MONITOR OUTPUTS</b> |                                |  |      |        |      |  |
| d                      | Distorsion                     | A <sub>v</sub> = 0 ; V <sub>in</sub> = 1V <sub>rms</sub> |      | 0.01   | 0.1  | %  |
| S <sub>C</sub>         | Channel Separation             |  | 70   | 90     |      | dB   |
| V <sub>OCL</sub>       | Clipping Level                 | d = 0.3%   | 2    | 2.5    |      | V <sub>rms</sub>                                 |
| R <sub>OUT</sub>       | Output Resistance              |  | 20   | 50     | 85   | $\Omega$   |
| V <sub>OUT</sub>       | DC Voltage Level               |  |      | 4.5    |      | V  |
| <b>BUS INPUTS</b>      |                                |  |      |        |      |  |
| V <sub>IL</sub>        | Input Low Voltage              |  |      |        | 1    | V  |
| V <sub>IH</sub>        | Input High Voltage             |  | 3    |        |      | V  |
| I <sub>IN</sub>        | Input Current                  |  | -5   |        | +5   | mA   |
| V <sub>O</sub>         | Output Voltage SDA Acknowledge | I <sub>O</sub> = 1.6mA                                   |      |        | 0.4  | V  |

### 3 I<sup>2</sup>C BUS INTERFACE

Data transmission from microprocessor to the TDA7429L and viceversa takes place through the 2 wires I<sup>2</sup>C BUS interface, consisting of the two lines SDA and SCL (pull-up resistors to positive supply voltage must be connected).

#### 3.1 Data Validity

As shown in fig. 5, the data on the SDA line must be stable during the high period of the clock. The HIGH and LOW state of the data line can only change when the clock signal on the SCL line is LOW.

#### 3.2 Start and Stop Conditions

As shown in fig.6 a start condition is a HIGH to LOW transition of the SDA line while SCL is HIGH. The stop condition is a LOW to HIGH transition of the SDA line while SCL is HIGH.

### 3.3 Byte Format

Every byte transferred on the SDA line must contain 8 bits. Each byte must be followed by an acknowledge bit. The MSB is transferred first.

### 3.4 Acknowledge

The master (mP) puts a resistive HIGH level on the SDA line during the acknowledge clock pulse (see fig. 7). The peripheral (audioprocessor) that acknowledges has to pull-down (LOW) the SDA line during this clock pulse.

The audioprocessor which has been addressed has to generate an acknowledge after the reception of each byte, otherwise the SDA line remains at the HIGH level during the ninth clock pulse time. In this case the master transmitter can generate the STOP information in order to abort the transfer.

### 3.5 Transmission without Acknowledge

Avoiding to detect the acknowledge of the audioprocessor, the  $\mu$ P can use a simpler transmission: simply it waits one clock without checking the slave acknowledging, and sends the new data.

This approach of course is less protected from misworking.

Figure 5. Data validity on the I<sup>2</sup>C bus

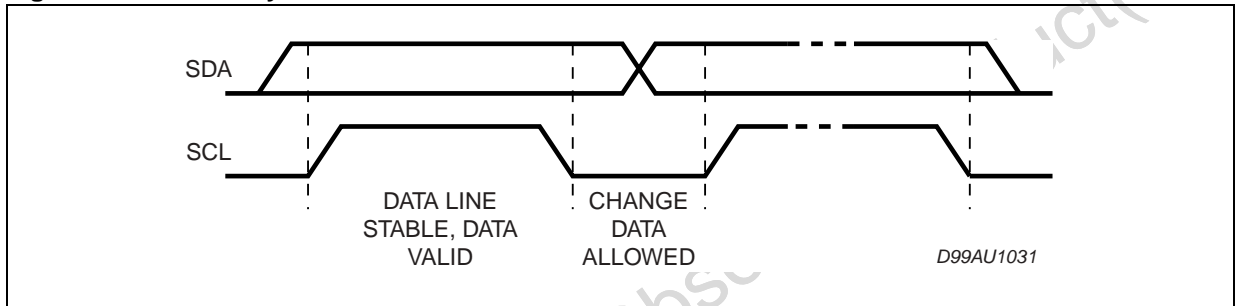


Figure 6. Timing Diagram of I<sup>2</sup>C bus

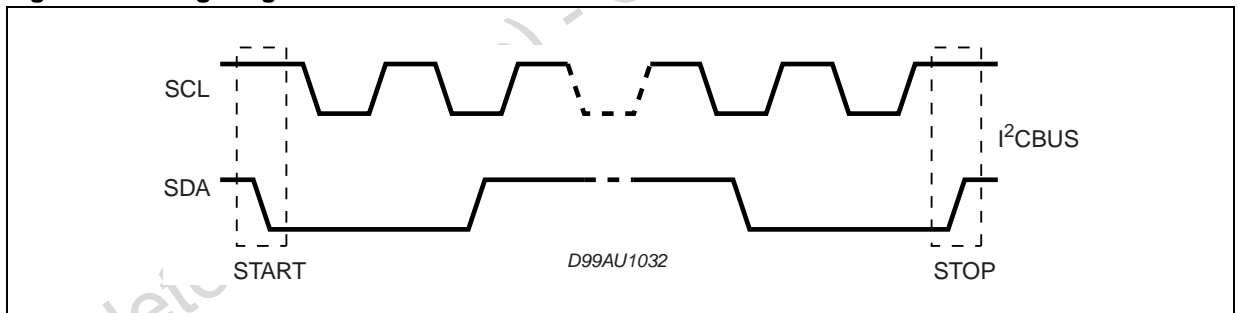
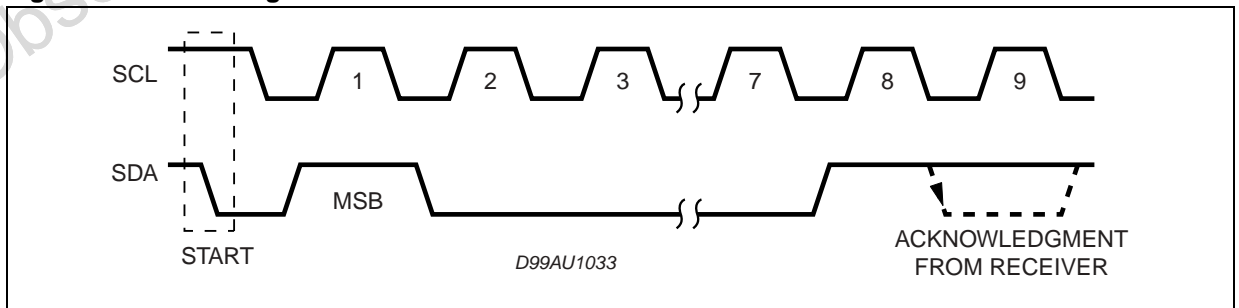


Figure 7. Acknowledge on the I<sup>2</sup>C bus





**Table 6. Function Selection**

The first byte (subaddress)

| MSB            |                |    |    |    |    |    | LSB |                              | SUBADDRESS |
|----------------|----------------|----|----|----|----|----|-----|------------------------------|------------|
| D7             | D6             | D5 | D4 | D3 | D2 | D1 | D0  |                              |            |
| B <sup>1</sup> | X <sup>2</sup> | X  | X  | 0  | 0  | 0  | 0   | INPUT ATTENUATION            |            |
| B              | X              | X  | X  | 0  | 0  | 0  | 1   | CONTROL OUT L+R & SUBWOOFER  |            |
| B              | X              | X  | X  | 0  | 0  | 1  | 0   | NOT USED                     |            |
| B              | X              | X  | X  | 0  | 0  | 1  | 1   | BASS & NATURAL BASE          |            |
| B              | X              | X  | X  | 0  | 1  | 0  | 0   | MIDDLE & TREBLE              |            |
| B              | X              | X  | X  | 0  | 1  | 0  | 1   | SPEAKER ATTENUATION "L"      |            |
| B              | X              | X  | X  | 0  | 1  | 1  | 1   | AUX ATTENUATION "L"          |            |
| B              | X              | X  | X  | 1  | 0  | 0  | 0   | AUX ATTENUATION "R"          |            |
| B              | X              | X  | X  | 1  | 0  | 0  | 1   | INPUT MULTIPLEXER, & AUX OUT |            |

&lt;1&gt; B = 1 incremental bus; active

B = 0 no incremental bus;

&lt;2&gt; X = indifferent 0,1

**Table 7. Input Attenuation Selection**

| MSB                             |    |    |    |    |    |    | LSB |                         | INPUT ATTENUATION |
|---------------------------------|----|----|----|----|----|----|-----|-------------------------|-------------------|
| D7                              | D6 | D5 | D4 | D3 | D2 | D1 | D0  | 0.5 dB STEPS            |                   |
| X                               |    |    |    |    | 0  | 0  | 0   | 0                       |                   |
| X                               |    |    |    |    | 0  | 0  | 1   | -0.5                    |                   |
| X                               |    |    |    |    | 0  | 1  | 0   | -1                      |                   |
| X                               |    |    |    |    | 0  | 1  | 1   | -1.5                    |                   |
| X                               |    |    |    |    | 1  | 0  | 0   | -2                      |                   |
| X                               |    |    |    |    | 1  | 0  | 1   | -2.5                    |                   |
| X                               |    |    |    |    | 1  | 1  | 0   | -3                      |                   |
| X                               |    |    |    |    | 1  | 1  | 1   | -3.5                    |                   |
|                                 |    |    |    |    |    |    |     | 4 dB STEPS              |                   |
| X                               |    | 0  | 0  | 0  |    |    |     | 0                       |                   |
| X                               |    | 0  | 0  | 1  |    |    |     | -4                      |                   |
| X                               |    | 0  | 1  | 0  |    |    |     | -8                      |                   |
| X                               |    | 0  | 1  | 1  |    |    |     | -12                     |                   |
| X                               |    | 1  | 0  | 0  |    |    |     | -16                     |                   |
| X                               |    | 1  | 0  | 1  |    |    |     | -20                     |                   |
| X                               |    | 1  | 1  | 0  |    |    |     | -24                     |                   |
| X                               |    | 1  | 1  | 1  |    |    |     | -28                     |                   |
| INPUT ATTENUATION = 0 ~ -31.5dB |    |    |    |    |    |    |     |                         |                   |
| D7                              | D6 | D5 | D4 | D3 | D2 | D1 | D0  | L+R OUTPUT SWITCH       |                   |
| X                               | 0  |    |    |    |    |    |     | (L+R) OUTPUT PIN ACTIVE |                   |



Table 8. Out &amp; (L+R) &amp; Subwoofer Selection

| MSB |    |    |    |    |    |    |    | LSB                |  |
|-----|----|----|----|----|----|----|----|--------------------|--|
| D7  | D6 | D5 | D4 | D3 | D2 | D1 | D0 | SUBWOOFER CONTROL  |  |
| X   |    |    |    |    |    | 0  | 0  | SUBWOOFER ON       |  |
| X   |    |    |    |    |    | 0  | 1  | NOT ALLOWED        |  |
| X   |    |    |    |    |    | 1  | 0  | SUBWOOFER OFF      |  |
| X   |    |    |    |    |    | 1  | 1  | NOT ALLOWED        |  |
|     |    |    |    |    |    |    |    | <b>OUT</b>         |  |
| X   |    |    |    |    | 0  |    |    | VAR                |  |
| X   |    |    |    |    | 1  |    |    | FIX                |  |
|     |    |    |    |    |    |    |    | <b>L+R CONTROL</b> |  |
| X   | 0  | 0  | 0  | 0  |    |    |    | +4                 |  |
| X   | 0  | 0  | 0  | 1  |    |    |    | +3                 |  |
| X   | 0  | 0  | 1  | 0  |    |    |    | +2                 |  |
| X   | 0  | 0  | 1  | 1  |    |    |    | +1                 |  |
| X   | 0  | 1  | 0  | 0  |    |    |    | 0                  |  |
| X   | 0  | 1  | 0  | 1  |    |    |    | -1                 |  |
| X   | 0  | 1  | 1  | 0  |    |    |    | -2                 |  |
| X   | 0  | 1  | 1  | 1  |    |    |    | -3                 |  |
| X   | 1  | 0  | 0  | 0  |    |    |    | -4                 |  |
| X   | 1  | 0  | 0  | 1  |    |    |    | -5                 |  |
| X   | 1  | 0  | 1  | 0  |    |    |    | -6                 |  |
| X   | 1  | 0  | 1  | 1  |    |    |    | -7                 |  |
| X   | 1  | 1  | 0  | 0  |    |    |    | -8                 |  |
| X   | 1  | 1  | 0  | 1  |    |    |    | -9                 |  |
| X   | 1  | 1  | 1  | 0  |    |    |    | -10                |  |
| X   | 1  | 1  | 1  | 1  |    |    |    | -11                |  |

Table 9. Bass Selection

| MSB |    |    |    |    |    |    |    | LSB        | BASS |
|-----|----|----|----|----|----|----|----|------------|------|
| D7  | D6 | D5 | D4 | D3 | D2 | D1 | D0 | 2 dB STEPS |      |
| X   | X  | X  | 1  | 0  | 0  | 0  | 0  | -14        |      |
| X   | X  | X  | 1  | 0  | 0  | 0  | 1  | -12        |      |
| X   | X  | X  | 1  | 0  | 0  | 1  | 0  | -10        |      |
| X   | X  | X  | 1  | 0  | 0  | 1  | 1  | -8         |      |
| X   | X  | X  | 1  | 0  | 1  | 0  | 0  | -6         |      |
| X   | X  | X  | 1  | 0  | 1  | 0  | 1  | -4         |      |
| X   | X  | X  | 1  | 0  | 1  | 1  | 0  | -2         |      |
| X   | X  | X  | 1  | 0  | 1  | 1  | 1  | 0          |      |
| X   | X  | X  | 1  | 1  | 1  | 1  | 1  | 0          |      |
| X   | X  | X  | 1  | 1  | 1  | 1  | 0  | 2          |      |
| X   | X  | X  | 1  | 1  | 1  | 0  | 1  | 4          |      |
| X   | X  | X  | 1  | 1  | 1  | 0  | 0  | 6          |      |
| X   | X  | X  | 1  | 1  | 0  | 1  | 1  | 8          |      |
| X   | X  | X  | 1  | 1  | 0  | 1  | 0  | 10         |      |
| X   | X  | X  | 1  | 1  | 0  | 0  | 1  | 12         |      |
| X   | X  | X  | 1  | 1  | 0  | 0  | 0  | 14         |      |

Table 10. Speaker/Aux Att. R &amp; L Selection

| MSB |    |    |    |    |    |    | LSB |                   | SPEAKER/AUX ATT |
|-----|----|----|----|----|----|----|-----|-------------------|-----------------|
| D7  | D6 | D5 | D4 | D3 | D2 | D1 | D0  | 1 dB STEPS        |                 |
| X   |    |    |    |    | 0  | 0  | 0   | 0                 |                 |
| X   |    |    |    |    | 0  | 0  | 1   | -1                |                 |
| X   |    |    |    |    | 0  | 1  | 0   | -2                |                 |
| X   |    |    |    |    | 0  | 1  | 1   | -3                |                 |
| X   |    |    |    |    | 1  | 0  | 0   | -4                |                 |
| X   |    |    |    |    | 1  | 0  | 1   | -5                |                 |
| X   |    |    |    |    | 1  | 1  | 0   | -6                |                 |
| X   |    |    |    |    | 1  | 1  | 1   | -7                |                 |
|     |    |    |    |    |    |    |     | <b>8 dB STEPS</b> |                 |
| X   | 0  | 0  | 0  | 0  |    |    |     | 0                 |                 |
| X   | 0  | 0  | 0  | 1  |    |    |     | -8                |                 |
| X   | 0  | 0  | 1  | 0  |    |    |     | -16               |                 |
| X   | 0  | 0  | 1  | 1  |    |    |     | -24               |                 |
| X   | 0  | 1  | 0  | 0  |    |    |     | -32               |                 |
| X   | 0  | 1  | 0  | 1  |    |    |     | -40               |                 |
| X   | 0  | 1  | 1  | 0  |    |    |     | -48               |                 |
| X   | 0  | 1  | 1  | 1  |    |    |     | -56               |                 |
| X   | 1  | 0  | 0  | 0  |    |    |     | -64               |                 |
| X   | 1  | 0  | 0  | 1  |    |    |     | -72               |                 |
|     |    |    |    |    |    |    |     | <b>MUTE</b>       |                 |
| X   | 1  | 0  | 1  | X  |    |    |     |                   |                 |
| X   | 1  | 1  | X  | X  |    |    |     |                   |                 |

Notes: 1. X = INDIFFERENT 0.1

2. SPEAKER/AUX ATTENUATION = 0dB to 79dB

Table 11. Middle &amp; Treble Selection

| MSB |    |    |    |    |    |    | LSB | MIDDLE            |
|-----|----|----|----|----|----|----|-----|-------------------|
| D7  | D6 | D5 | D4 | D3 | D2 | D1 | D0  | 2 dB STEPS        |
|     |    |    |    | 0  | 0  | 0  | 0   | -14               |
|     |    |    |    | 0  | 0  | 0  | 1   | -12               |
|     |    |    |    | 0  | 0  | 1  | 0   | -10               |
|     |    |    |    | 0  | 0  | 1  | 1   | -8                |
|     |    |    |    | 0  | 1  | 0  | 0   | -6                |
|     |    |    |    | 0  | 1  | 0  | 1   | -4                |
|     |    |    |    | 0  | 1  | 1  | 0   | -2                |
|     |    |    |    | 0  | 1  | 1  | 1   | 0                 |
|     |    |    |    | 1  | 1  | 1  | 1   | 0                 |
|     |    |    |    | 1  | 1  | 1  | 0   | 2                 |
|     |    |    |    | 1  | 1  | 0  | 1   | 4                 |
|     |    |    |    | 1  | 1  | 0  | 0   | 6                 |
|     |    |    |    | 1  | 0  | 1  | 1   | 8                 |
|     |    |    |    | 1  | 0  | 1  | 0   | 10                |
|     |    |    |    | 1  | 0  | 0  | 1   | 12                |
|     |    |    |    | 1  | 0  | 0  | 0   | 14                |
|     |    |    |    |    |    |    |     | <b>TREBLE</b>     |
|     |    |    |    |    |    |    |     | <b>2 dB STEPS</b> |
| 0   | 0  | 0  | 0  |    |    |    |     | -14               |
| 0   | 0  | 0  | 1  |    |    |    |     | -12               |
| 0   | 0  | 1  | 0  |    |    |    |     | -10               |
| 0   | 0  | 1  | 1  |    |    |    |     | -8                |
| 0   | 1  | 0  | 0  |    |    |    |     | -6                |
| 0   | 1  | 0  | 1  |    |    |    |     | -4                |
| 0   | 1  | 1  | 0  |    |    |    |     | -2                |
| 0   | 1  | 1  | 1  |    |    |    |     | 0                 |
| 1   | 1  | 1  | 1  |    |    |    |     | 0                 |
| 1   | 1  | 1  | 0  |    |    |    |     | 2                 |
| 1   | 1  | 0  | 1  |    |    |    |     | 4                 |
| 1   | 1  | 0  | 0  |    |    |    |     | 6                 |
| 1   | 0  | 1  | 1  |    |    |    |     | 8                 |
| 1   | 0  | 1  | 0  |    |    |    |     | 10                |
| 1   | 0  | 0  | 1  |    |    |    |     | 12                |
| 1   | 0  | 0  | 0  |    |    |    |     | 14                |

Table 12. Input/recout L &amp; R Selection

| MSB                |    |    |    |    |    |    | LSB |                   |  |
|--------------------|----|----|----|----|----|----|-----|-------------------|--|
| D7                 | D6 | D5 | D4 | D3 | D2 | D1 | D0  | INPUT MULTIPLEXER |  |
| X                  |    |    |    |    | 1  | 1  | 0   | IN1               |  |
| X                  |    |    |    |    | 0  | 0  | 0   | IN2               |  |
| X                  |    |    |    |    | 0  | 1  | 0   | IN3               |  |
| <b>AUX OUT "L"</b> |    |    |    |    |    |    |     |                   |  |
| X                  |    |    | 0  | 0  |    |    | 0   | VAR 1 (3BAND)     |  |
| X                  |    |    | 0  | 1  |    |    | 0   | NOT ALLOWED       |  |
| X                  |    |    | 1  | 0  |    |    | 0   | VAR 3 (REAR)      |  |
| X                  |    |    | 1  | 1  |    |    | 0   | FIX               |  |
| <b>AUX OUT "R"</b> |    |    |    |    |    |    |     |                   |  |
| X                  | 0  | 0  |    |    |    |    | 0   | VAR 1 (3BAND)     |  |
| X                  | 0  | 1  |    |    |    |    | 0   | NOT ALLOWED       |  |
| X                  | 1  | 0  |    |    |    |    | 0   | VAR 3 (REAR)      |  |
| X                  | 1  | 1  |    |    |    |    | 0   | FIX               |  |

Table 13. Power on reset

|  |                              |
|--|------------------------------|
| BASS & MIDDLE                          | 2dB                          |
| TREBLE                                 | 0dB                          |
| SURROUND & OUT CONTROL + (L+R) CONTROL | OFF + FIX + MAX. ATTENUATION |
| SPEAKER/AUX ATTENUATION L & R          | MUTE                         |
| INPUT ATTENUATION + (L+R) SWITCH       | MAX. ATTENUATION + ON        |
| NATURAL BASE                           | OFF                          |
| INPUT                                  | IN1                          |

Figure 11. Pin: TREBLE-L, TREBLE-R

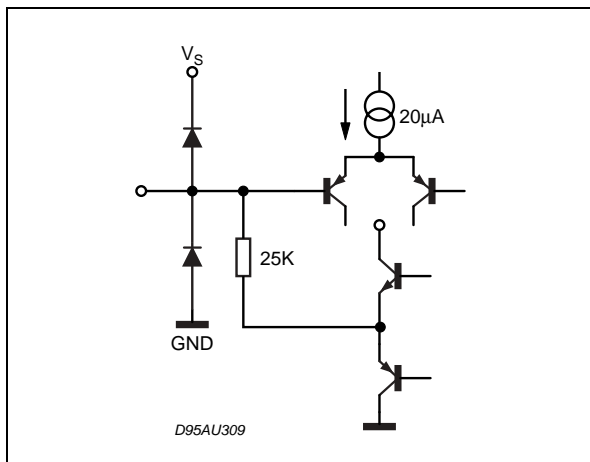


Figure 14. Pin: CREF

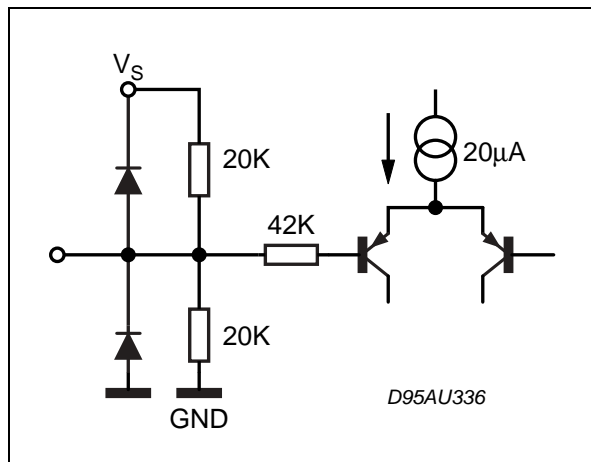


Figure 12. Pin: V<sub>OUT REF</sub>

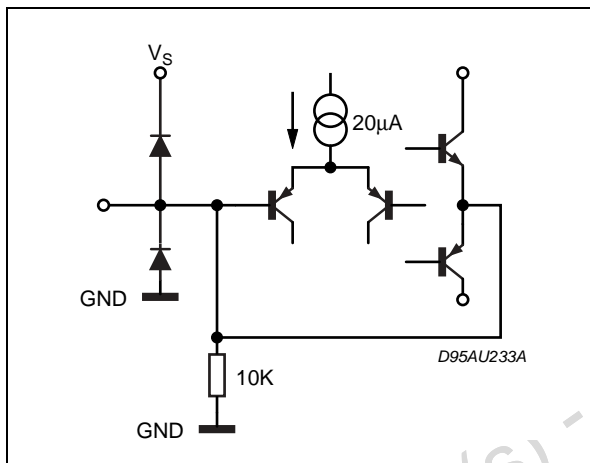


Figure 15. Pin: VAR-L, VAR-R

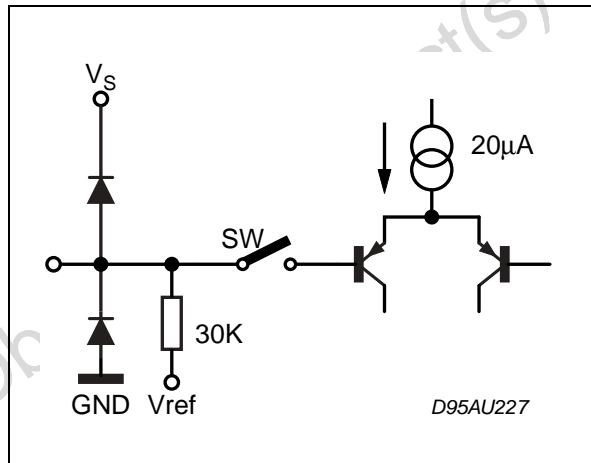


Figure 13. Pin: L-IN, R-IN, L-IN2, R-IN2, L-IN3, R-IN3, L-IN4, R-IN4

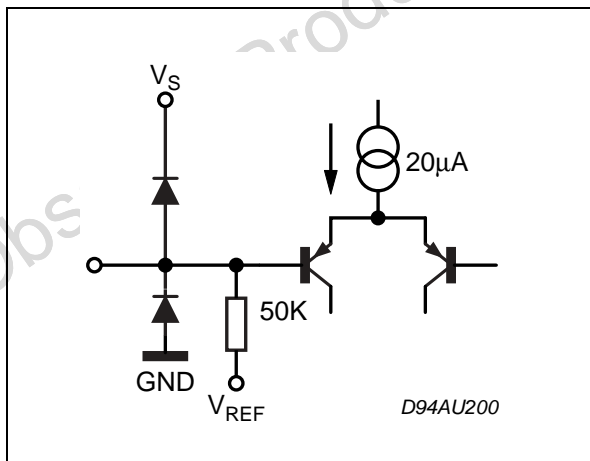


Figure 16. Pin: LP1, LP

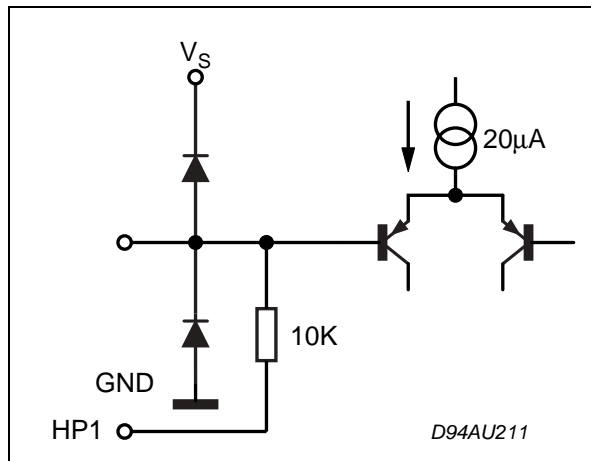


Figure 17. Pin: SCL, SDA

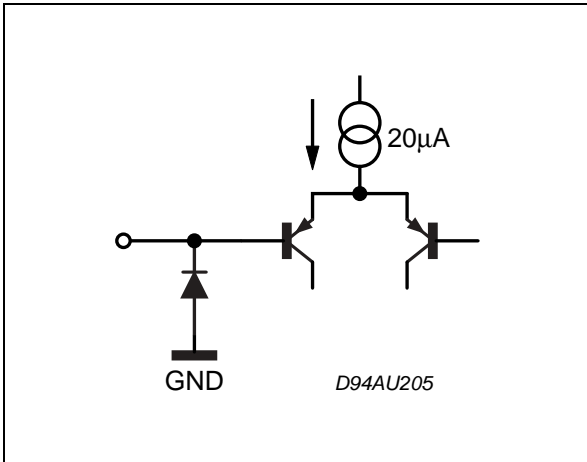


Figure 20. Pin: BASS-LI, BASS-RI, MIDDLE-LI, MIDDLE-R

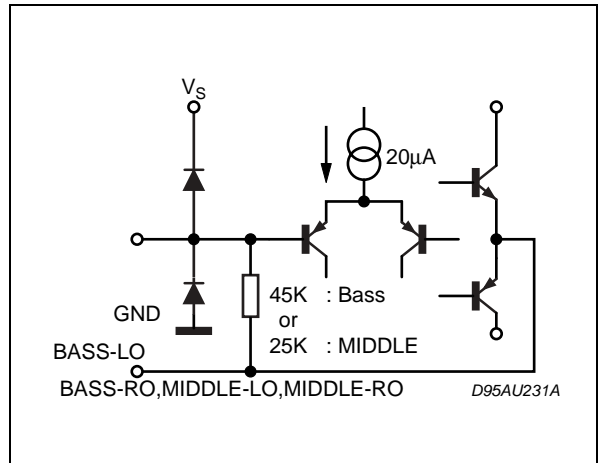


Figure 18. Pin: MONO INPUT

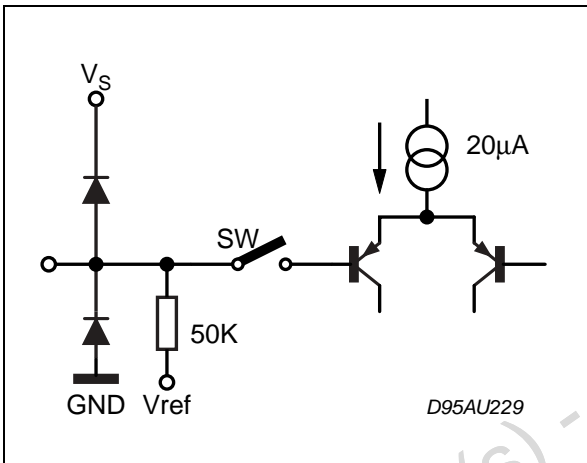


Figure 21. Pin: BASS-LO, BASS-RO, MIDDLE-LO, MIDDLE-RO

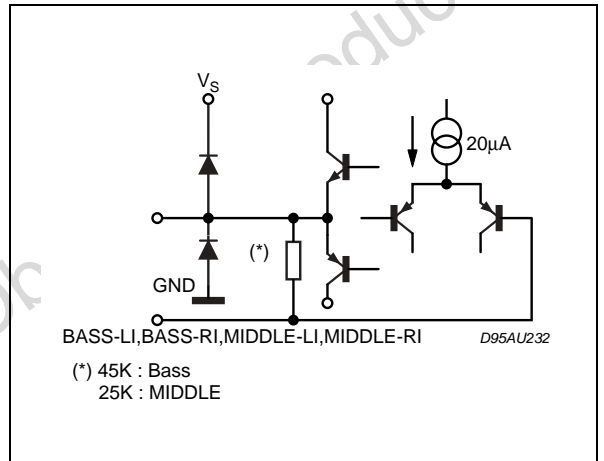


Figure 19. Pin: L-OUT, R-OUT, MONITOR-L, MONITOR-R, LTR OUTPUT, BASSO-L, BASSO-R, AUXOUT\_L, AUXOUT\_R

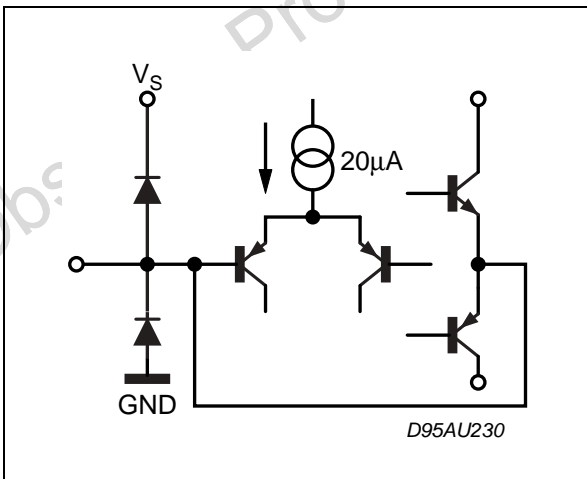
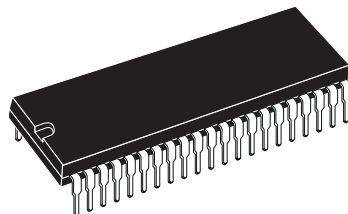


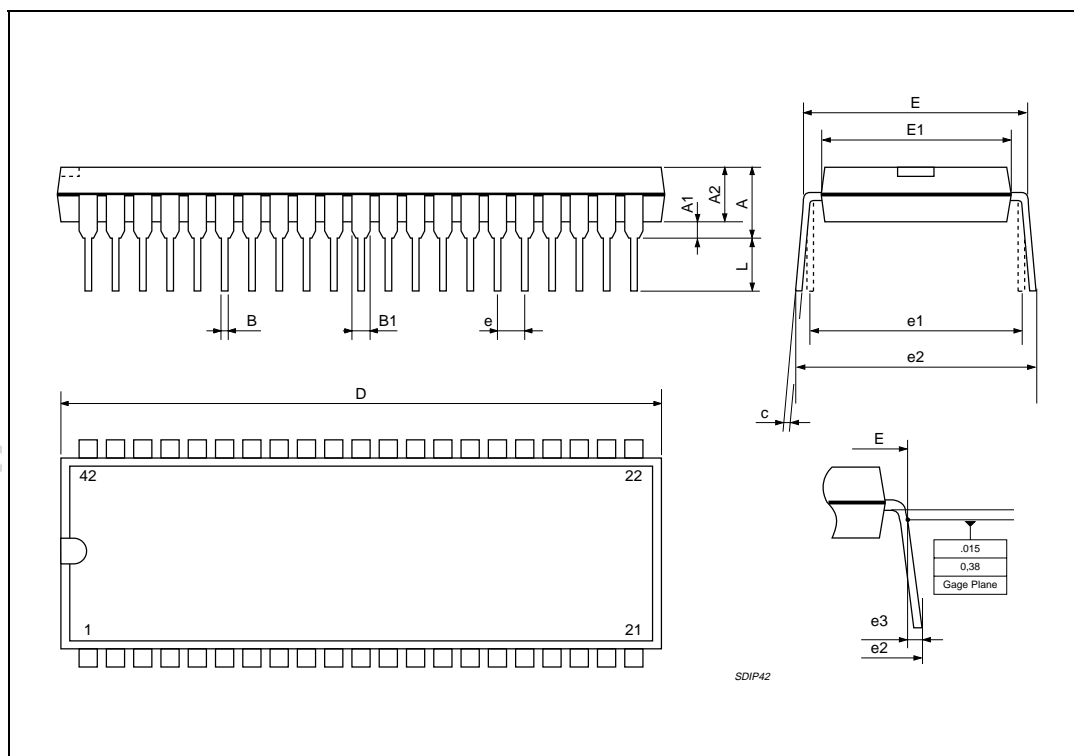
Figure 22. SDIP42 Mechanical Data &amp; Package Dimensions

| DIM. | mm    |       |       | inch   |        |        |
|------|-------|-------|-------|--------|--------|--------|
|      | MIN.  | TYP.  | MAX.  | MIN.   | TYP.   | MAX.   |
| A    |       |       | 5.08  |        |        | 0.20   |
| A1   | 0.51  |       |       | 0.020  |        |        |
| A2   | 3.05  | 3.81  | 4.57  | 0.120  | 0.150  | 0.180  |
| B    | 0.38  | 0.46  | 0.56  | 0.0149 | 0.0181 | 0.0220 |
| B1   | 0.89  | 1.02  | 1.14  | 0.035  | 0.040  | 0.045  |
| c    | 0.23  | 0.25  | 0.38  | 0.0090 | 0.0098 | 0.0150 |
| D    | 36.58 | 36.83 | 37.08 | 1.440  | 1.450  | 1.460  |
| E    | 15.24 |       | 16.00 | 0.60   |        | 0.629  |
| E1   | 12.70 | 13.72 | 14.48 | 0.50   | 0.540  | 0.570  |
| e    |       | 1.778 |       |        | 0.070  |        |
| e1   |       | 15.24 |       |        | 0.60   |        |
| e2   |       |       | 18.54 |        |        | 0.730  |
| e3   |       |       | 1.52  |        |        | 0.060  |
| L    | 2.54  | 3.30  | 3.56  | 0.10   | 0.130  | 0.140  |

### OUTLINE AND MECHANICAL DATA



### SDIP42 (0.600")



**Table 14. Revision History**

| <b>Date</b>  | <b>Revision</b> | <b>Description of Changes</b>  |
|--------------|-----------------|--|
| January 2004 | 2               | First Issue in EDOCS DMS   |
| June 2004    | 3               | Changed the Style-sheet in compliance to the new "Corporate Technical Publications Design Guide" |

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