

Bass Amplifier

Monolithic IC MM1124

Outline

This IC was developed to boost bass on TV and free-standing VCR decks, etc.

The recent trend toward large-screen TV and movie software has increased the demand for powerful bass and wider sound, so that the bass boost function has become part of TV and VCR functions.

This IC was designed especially for bass, and easily reproduces a powerful sound.

Features

1. Dynamic bass boost
Boost can be adjusted higher for lower sound, and smaller for bigger sound.
2. Boost switching pin
Boost amount can be switched for music and video software, giving a change to the set
3. High range boost
By boosting the high range as well, a more realistic sound is reproduced
4. Boost attack circuit
Gives quick response and follows sudden volume changes

Package

SOP-16B (MM1124AF, MM1124BF, MM1124CF)

DIP-16B (MM1124AD, MM1124BD)

Series Table

| Model name | Boost | | Boost start input level |
|------------|-------|------|-------------------------|
| | FULL | 1/2 | |
| MM1124A | 19dB | 14dB | +3dBm |
| MM1124B | 12dB | 8dB | +3dBm |
| MM1124C | 8dB | 4dB | -14dBm |

Note 1 : Boost amounts for are input level of -37.8dBm

Note 2 : The above are reference values, and may vary depending on the specifications.

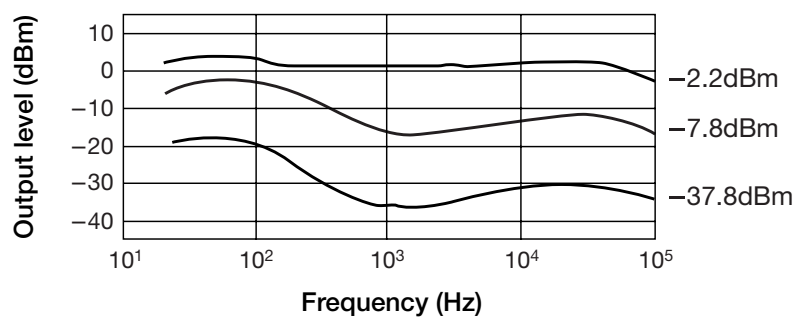
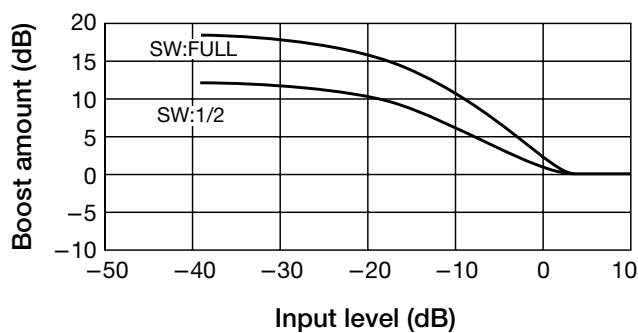
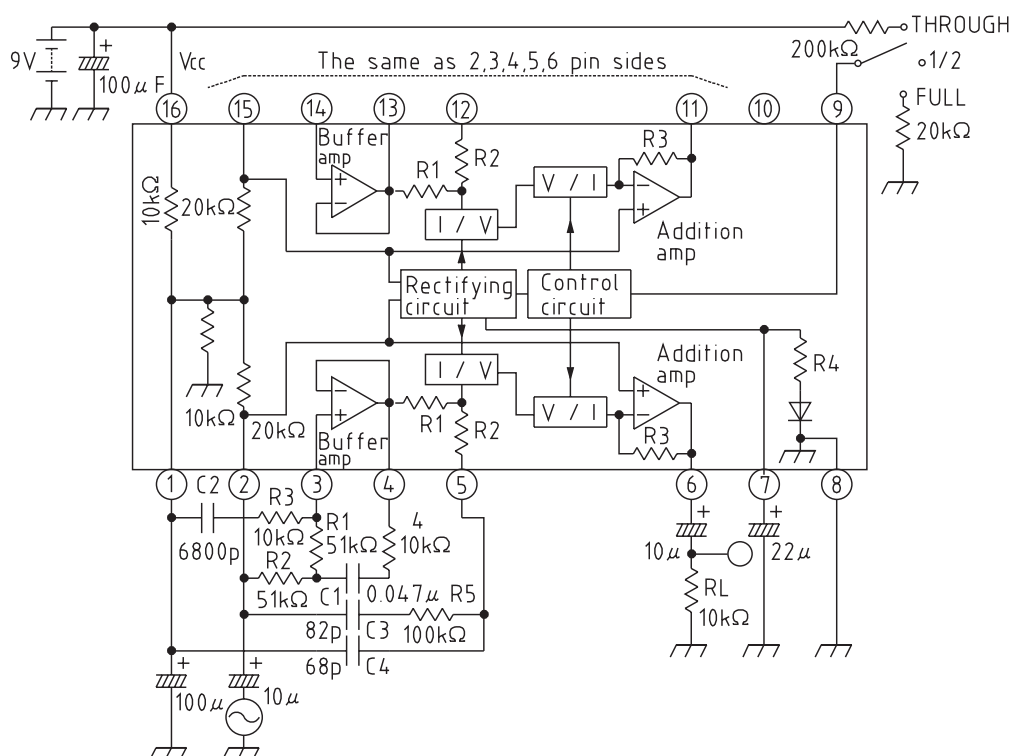
Absolute Maximum Ratings (Ta=25°C)

| Item | Symbol | Ratings | Units |
|-----------------------|----------------------|---------------------------------|-------|
| Storage temperature | T _{STG} | -40~+125 | °C |
| Operating temperature | T _{OPR} | -20~+70 | °C |
| Power supply voltage | V _{CC} max. | -0.3~+15 | V |
| Operating voltage | V _{CC} | +5~+12 | V |
| Allowable loss | P _d | 350 (SOP-16B) 1200 (DIP-16B) | mW |

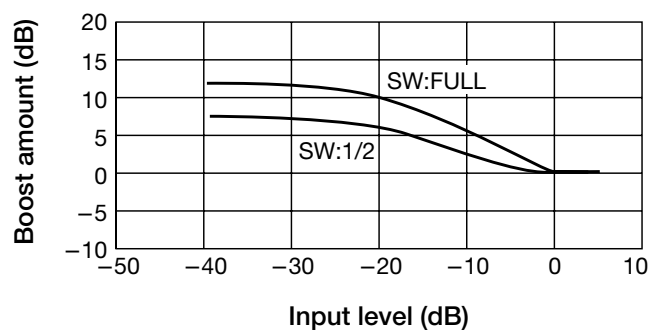
Electrical Characteristics (Ta=25°C)

| Item | Rank | Measurement conditions | | | Min. | Typ. | Max. | Units |
|---------------------------------|------|------------------------|--|-----------------------|--------|--------|--------|-------------------|
| | | SW | f (Hz) | V _{IN} (dBm) | | | | |
| Consumption current | | FULL | 1k | -7.8 | | 6.6 | 9.0 | mA |
| Voltage gain | | Through | 1k | -7.8 | -1 | 0 | +1 | dB |
| Boost 1 (Bst1) | A | FULL | 100 | -37.8 | 17 | 19 | 21 | dB |
| | B | FULL | 100 | -37.8 | 10 | 12 | 14 | dB |
| | C | FULL | 100 | -37.8 | 6 | 8 | 10 | dB |
| Boost 2 | A | 1/2 | 100 | -37.8 | Bst1-6 | Bst1-5 | Bst1-4 | dB |
| | B | 1/2 | 100 | -37.8 | Bst1-5 | Bst1-4 | Bst1-3 | dB |
| | C | 1/2 | 100 | -37.8 | Bst1-5 | Bst1-4 | Bst1-3 | dB |
| Total harmonic distortion ratio | | FULL | 1k | -7.8 | | 0.1 | 0.3 | % |
| | | 1/2 | 1k | -7.8 | | 0.1 | 0.3 | % |
| | | Through | 1k | -7.8 | | 0.03 | 0.1 | % |
| Crosstalk | | FULL | 1k | -7.8 | | -50 | -44 | dB |
| Maximum output voltage | | FULL | THD=10% | | 1.8 | 2.4 | | V _{rms} |
| Output noise voltage | | FULL | V _{IN} =0V, 30kHzLPF | | | 250 | 500 | μV _{rms} |
| | | Through | R _g =10kΩ | | | 25 | 50 | μV _{rms} |
| Ripple rejection rate | A | FULL | Superimpose VR=0dB (100Hz, 100mV _{rms}) on V _{cc} and measure output pin | | | -32 | -26 | dB |
| | | Through | | | | -48 | -42 | dB |
| | B | FULL | | | | -36 | -30 | dB |
| | | Through | | | | -48 | -42 | dB |
| | C | FULL | | | | -42 | -34 | dB |
| | | Through | | | | -56 | -48 | dB |
| SW pin voltage range | | FULL | 1k | -7.8 | 0 | | 0.3 | V |
| | | 1/2 | 1k | -7.8 | 1.2 | | 1.6 | V |
| | | Through | 1k | -7.8 | 2.5 | | 9 | V |

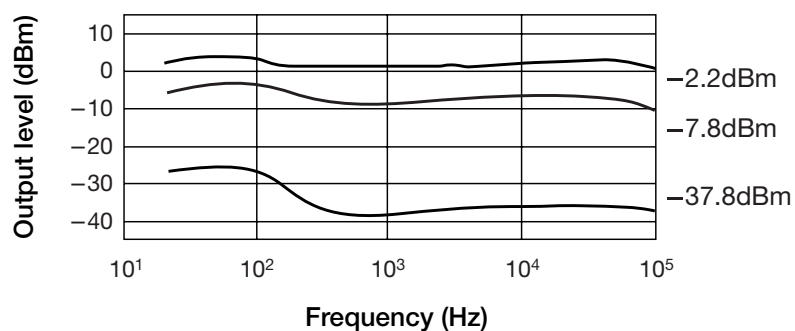
Note : No rank indication means common rank



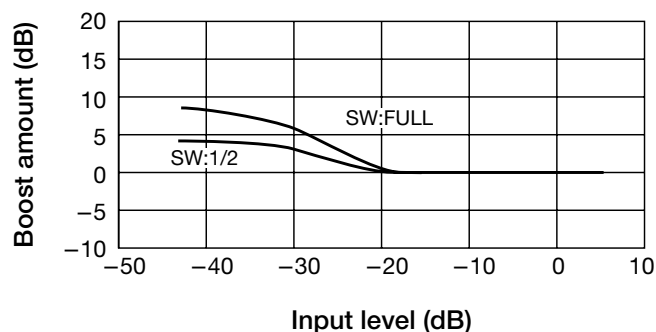
■ Boost amount-Input level (rank B)



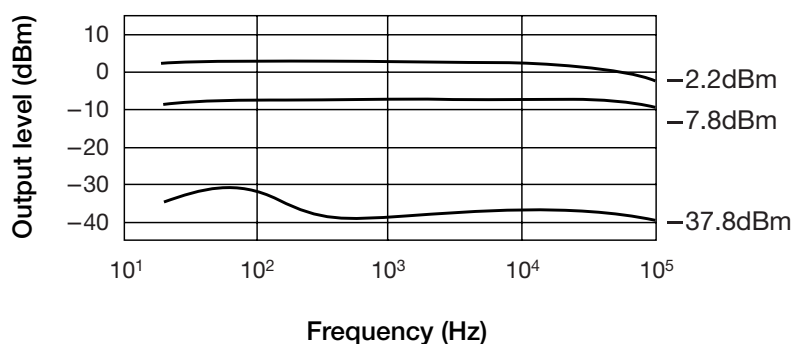
■ Output level-Frequency (rank B) SW : FULL



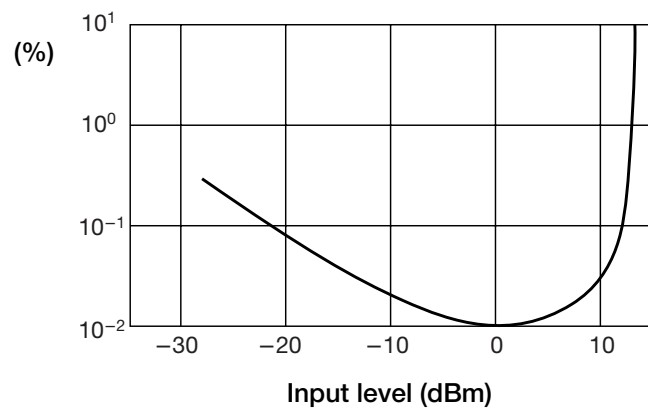
■ Boost amount-Input level (rank C)



■ Output level-Frequency (rank C) SW : FULL



■ THROUGH distortion rate characteristics ($V_{CC}=9V$, $f=1kHz$)



■ CH Crosstalk

