

# CM2038B

## 2.4W Audio Amplifier Stereo

**General Description:** CM2038B is an audio amplifier of class AB, when connected to a 5V supply, THD+N less than 10%, will deliver 2.4W to a 4  $\Omega$  load or 1.5W to a 8  $\Omega$  load. The CM2038B is unity-gain stable and can be configured by external gain-setting resistors, It features a low-power consumption shutdown mode with very low shutdown current, and thermal shutdown protection. It also utilizes circuitry to reduce “clicks and pops” during device turn-on and turn-off. It can also be applied in headphone function mode.

### Features:

1. Power output at 5V supply, 4  $\Omega$  load, THD+N<10%, is 2.4W.
2. Power output at 5V supply, 8  $\Omega$  load, THD+N<10%, is 1.5W.
3. Operating supply voltage: VDD =2.2V~5.5V.
4. Typical shutdown current: 0.2uA.
5. Improved pop & click circuitry eliminates noise during turn-on and turn-off transitions
6. DIP-16 packages.

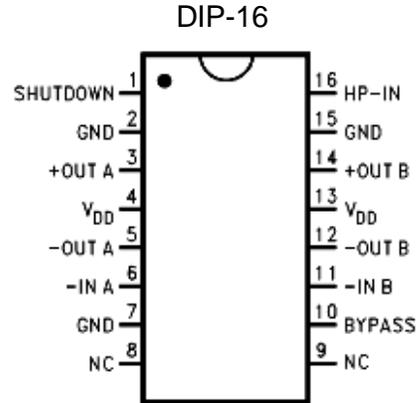
### Electrical Characteristics:

| Symbol            | Parameter                         | Conditions                                       | Typical | Limit | Units   |
|-------------------|-----------------------------------|--|---------|-------|---------|
|                   |                                   |  |         |       |         |
| I <sub>DD</sub>   | Quiescent power supply current    | V <sub>IN</sub> =0V, I <sub>O</sub> =0A, No Load | 6.5     | 14    | mA      |
| I <sub>SD</sub>   | Shutdown current                  | V <sub>SD</sub> = V <sub>DD</sub>                | 0.2     | 4.0   | $\mu$ A |
| V <sub>SDIH</sub> | Shutdown voltage input high       | V <sub>DD</sub> =5V                              | 1.5     |       | V       |
| V <sub>SDIL</sub> | Shutdown voltage input low        | V <sub>DD</sub> =5V                              | 1.3     |       | V       |
| V <sub>OS</sub>   | Output offset voltage             | V <sub>IN</sub> =0V, No Load                     | 9       | 50    | mV      |
| P <sub>O</sub>    | Output power (8 $\Omega$ load)    | THD+N=10%(max);<br>f=1kHz                        | 1.5     | 1.8   | W       |
|                   | Output power (4 $\Omega$ load)    |  | 2.4     | 2.7   |         |
| T <sub>WU</sub>   | Wake-up time                      |  | 100     |       | ms      |
| THD+N             | Total harmonic distortion + noise | P <sub>O</sub> =0.5Wrms;f=1kHz                   | 0.3     | 0.6   | %       |

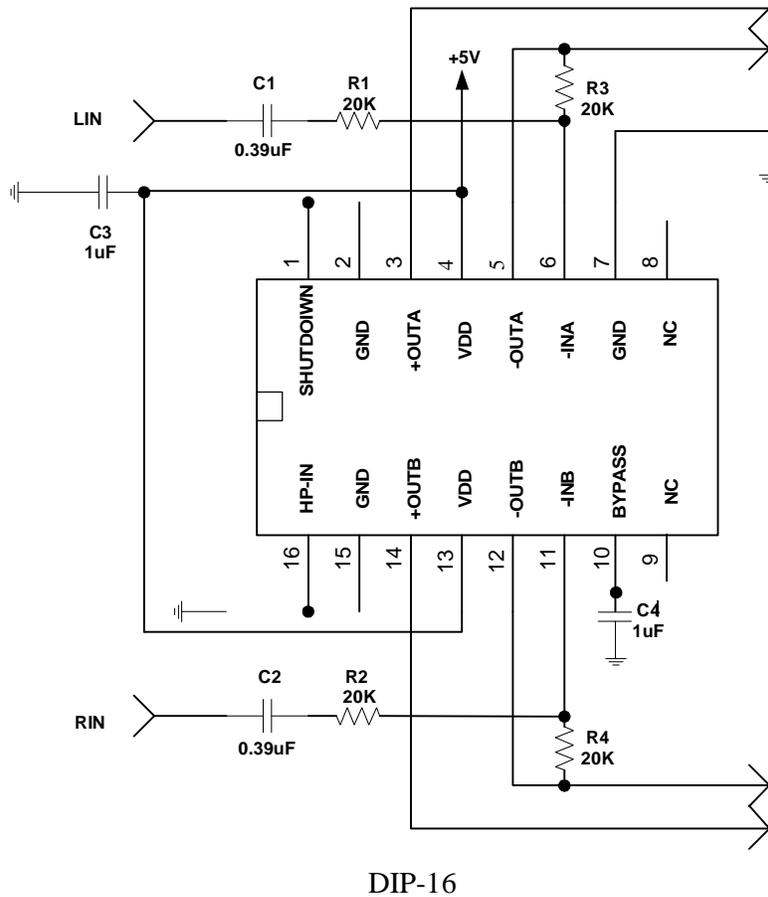
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|                   |                              |  |                              |     |    |
|-------------------|------------------------------|--|------------------------------|-----|----|
| PSRR              | Power supply rejection ratio | $V_{\text{ripple}}=200\text{mV}$       | -63<br>(217Hz)<br>-77 (1kHz) | -55 | dB |
| $X_{\text{TALK}}$ | Channel separation           | $f=1\text{kHz}$ , $C_B=1.0\mu\text{F}$ | -65                          | -55 | dB |

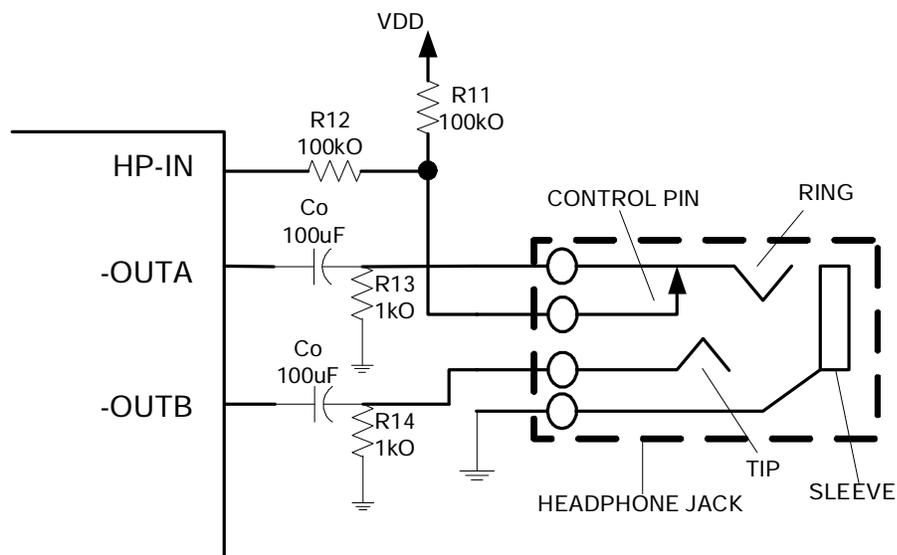
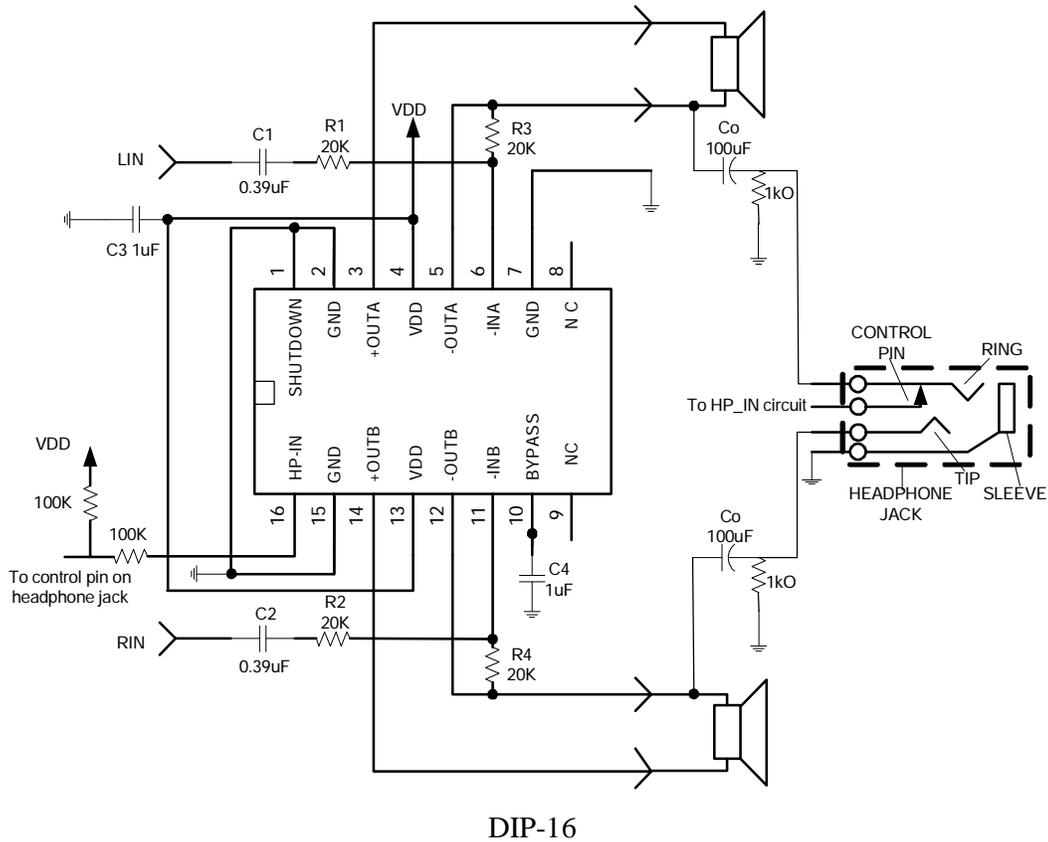
## Packaging information:



## Typical application:



## Application information(Include headphone mode)



### Application of headphone mode:

If with no headphones connected to the headphone jack, there is a low voltage applied to HP-IN pin, this voltage placing the amplifier in bridged mode operation to drive the speakers. If connecting headphones to the headphone jack, the voltage applied to HP-IN pin is pulled up to VDD by resistor R11, this enables the headphone function, and mutes the bridged speakers.

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## Package Information

