MN6632A

2-Channel CMOS Electronic Volume Control for Audio Applications

■ Overview

The MN6632A provides attenuation levels in 1.5 dB decrements between 0 and approximately –78 dB, and OFF state (–100 dB). The resulting volume curve represents an enhanced version of the A curve.

The chip includes a built-in display output function that converts the current volume setting to one of 11 possible output voltages.

The chip permits preserving the volume settings with a capacitor or battery when the power is turned off. It automatically resets these settings to –48 dB, however, the next time that the power is applied if the backup voltage drops below the level required to preserve these settings.

Addition of external resistors and capacitors permits the adjustment of output volumes with "H" level pulses to the UP or DOWN pins.

The STEP pin is also controllable from a microcomputer.

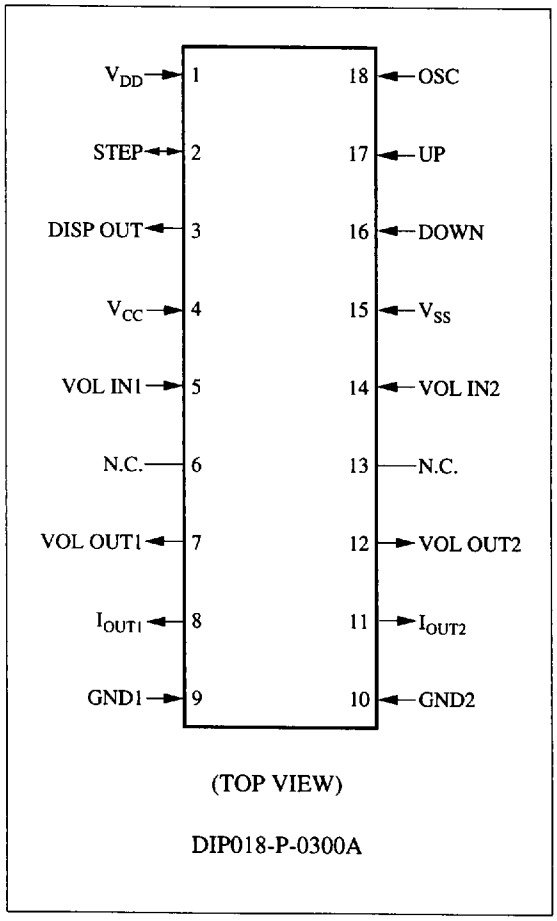
■ Features

- Low-distortion ratio of 0.003% due to R-2R ladder
- Attenuation levels: 0 dB to –78 dB, –100dB
- Volume curve that is an enhanced version of the A curve
- Attenuation decrements of approximately 1.5 dB
- Built-in backup function with automatic reset
- Built-in display output circuit
- Support for both key input and microcomputer control
- Built-in a self-exciting oscillator for determining the speed of volume changes
- Built-in functions for blocking input and preventing consumption of backup power supply when V_{CC} power off has been detected
- Built-in function for rejecting simultaneous UP and DOWN inputs

■ Applications

- Audio equipment

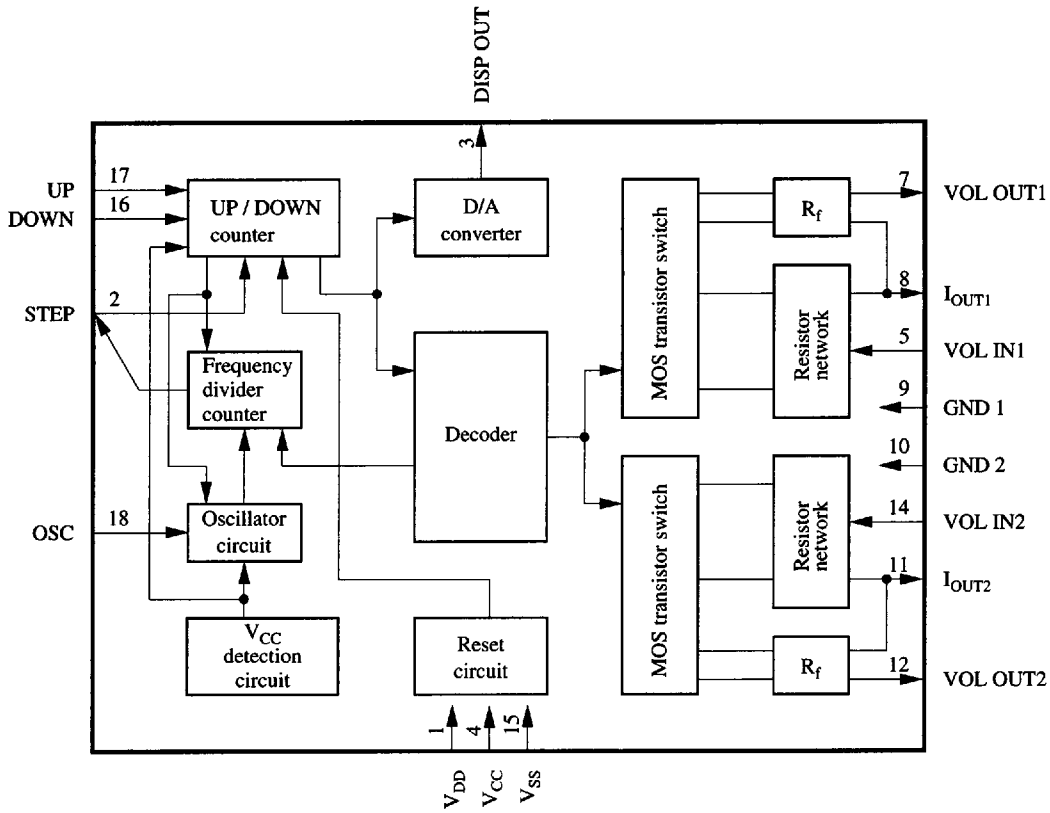
■ Pin Assignment



(TOP VIEW)

DIP018-P-0300A

■ Block diagram



■ Pin Descriptions

Pin No.	Symbol	Pin Name	I/O	Function Description
1	V_{DD}	V_{DD} power supply	I	Backup power supply pin (+5 V typ.)
2	STEP	STEP	I/O	Pulse input pin for adjusting attenuation level using frequency-divided oscillator output
3	DISP OUT	Display output	O	Output pin for driving display
4	V_{CC}	V_{CC} power supply	I	Power supply pin (+5 V typ.)
5	VOL IN1	Volume input 1	I	Volume input pin for channel 1
6	N.C.	No connection	—	Although this pin is not connected to the internal circuits, always connect it to GND1 to obtain proper feedthrough characteristics.
7	VOL OUT1	Volume output 1	O	Volume output pin for channel 1
8	I_{OUT1}	Current output 1	O	Output pin for channel 1 volume current and connection pin for feedback resistor
9	GND1	Ground 1	I	Analog ground pin for channel 1
10	GND2	Ground 1	I	Analog ground pin for channel 2
11	I_{OUT2}	Current output 2	O	Output pin for channel 2 volume current and connection pin for feedback resistor
12	VOL_{OUT2}	Volume input 2	O	Volume output pin for channel 2
13	N.C.	No connection	—	Although this pin is not connected to the internal circuits, always connect it to GND2 to obtain proper feedthrough characteristics.
14	VOL IN2	Volume input 2	I	Volume input pin for channel 2
15	V_{SS}	V_{SS} power supply	I	Ground pin for digital circuits (0 V typ.)
16	DOWN	Volume down	I	"H" level input to this pin lowers the volume.
17	UP	Volume up	I	"H" level input to this pin heightens the volume. Note that simultaneous "H" level input to both UP and DOWN pins produces no change in volume.
18	OSC	Oscillator	I	Pin for connecting self-excited oscillator. Connecting this pin to V_{CC} through a resistor and to V_{SS} through a capacitor produces self-excited oscillation during volume changes.

■ Package Dimensions (Unit: mm)

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