



= Preliminary = **AK4499EX**  
**Premium Switched Resister Stereo DAC**

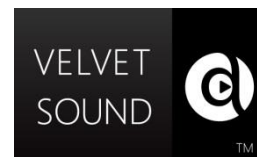
### 1. General Description

The AK4499EX is a new concept Premium multi-bit Stereo DAC with newly developed Switched Resistor technology, achieving the industry's leading level low distortion and low noise characteristics. It is suitable for playback of high-resolution audio sources that are becoming widespread in Network Audio and USB-DACs Audio systems. Multi-bit Modulator input for a high-precision audio source playback.

Application: AV Receivers, CD/SACD player, Network Audios, USB DACs, USB Headphones,  
Measurement Equipment, Control Systems, Public Audios (PA)

### 2. Features

- Stereo Switched Resister DAC
- THD+N: -124 dB
- Dynamic Range, S/N: 138 dB, Mono Mode (135dB, Stereo Mode)
- Multi-bit Modulator Data Interface with 5.6448, 11.2896 MHz Clock
  - 7-bit Modulator Data
- Mono Mode
- Power Supply:
  - TVDD = 1.7 to 3.6 V, DVDD = 1.7 to 1.98 V,
  - AVDD = 4.75 to 5.25 V, VDDL/R = 4.75 to 5.25 V
- Digital Input Level: CMOS
- Package: 64-pin HTQFP
- Temperature: -40 to 85 °C



### 3. Block Diagram and Functions

#### 3.1. Block Diagram

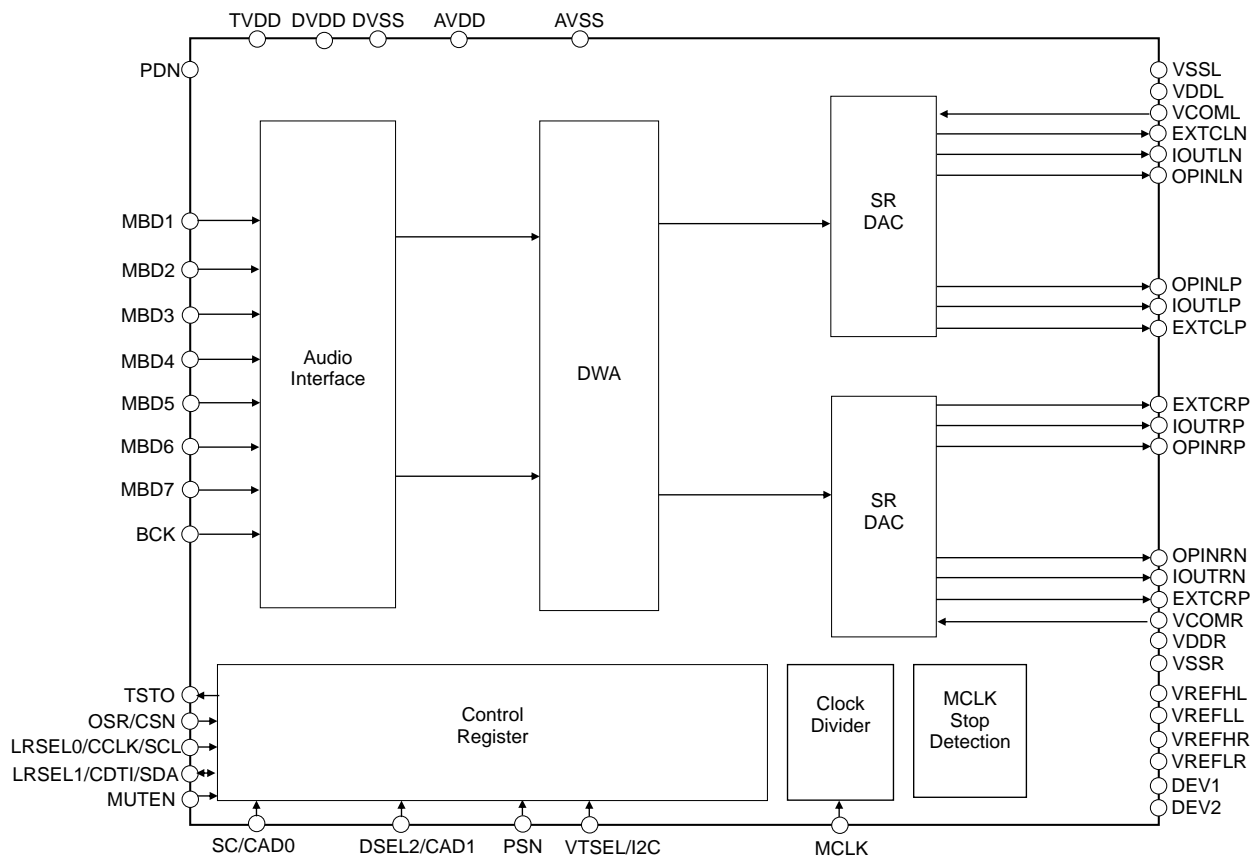


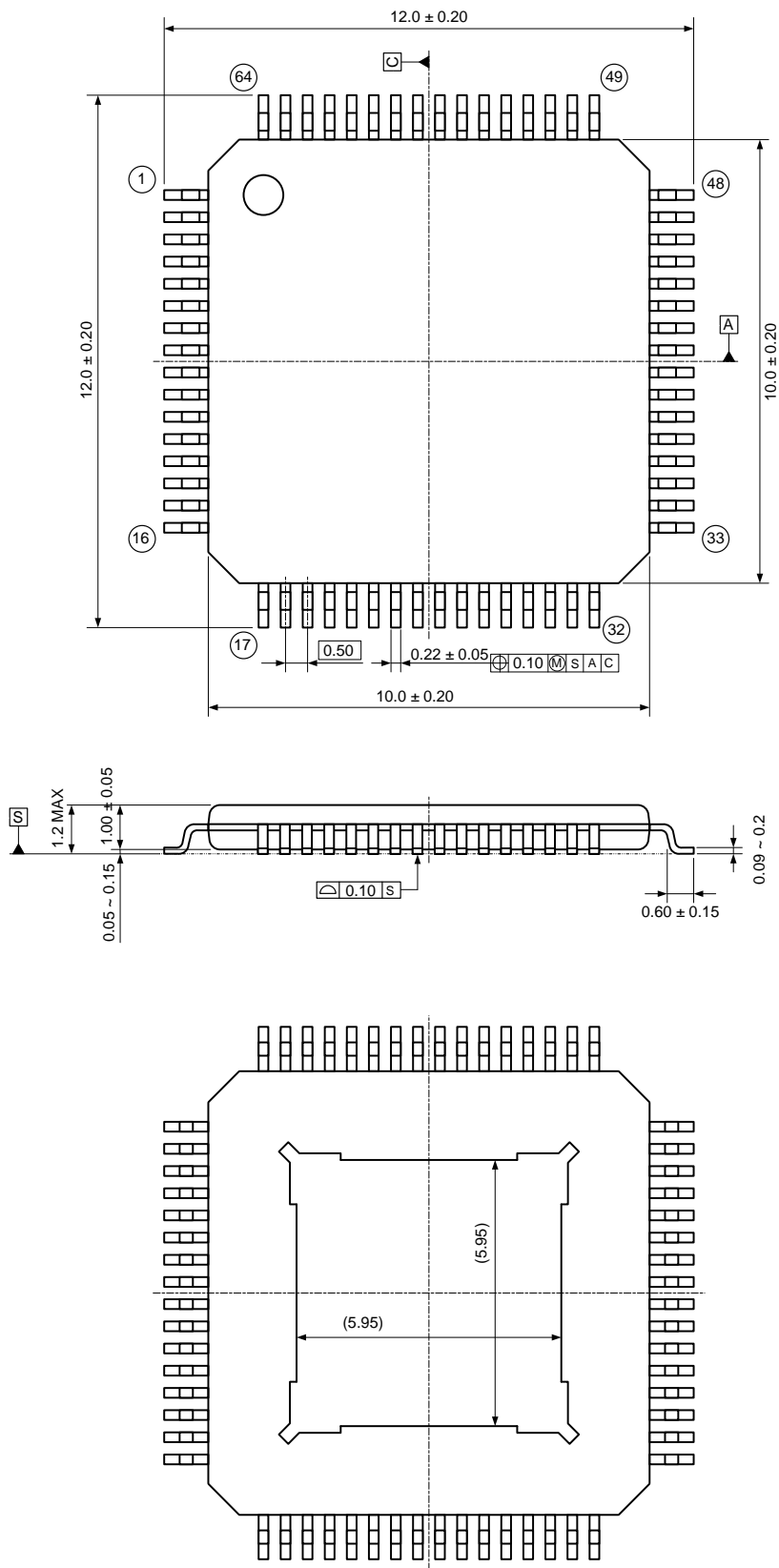
Figure 1. Block Diagram

#### 3.2. Functions

Block	Functions
Audio Interface	BCK is used to clock MBD7-1 data into the shift register.
DWA	Processing two's compliment MBD7-1 data by Data Weighted Average.
SR DAC	Converting MBD7-1 data from DWA output to analog signal and that is designed by Switched Resister DAC.
Control Register	Internal registers keep its settings for each mode. Control registers are accessed in 3-wire (CSN, CCLK, CDTI) or I2C-Bus (SCL, SDA) control mode.
Clock Divider	Generates the clock for SR DAC from the input clock of the MCLK pin.
MCLK Stop Detection	Detects when the master clock input is absent.

4. Package

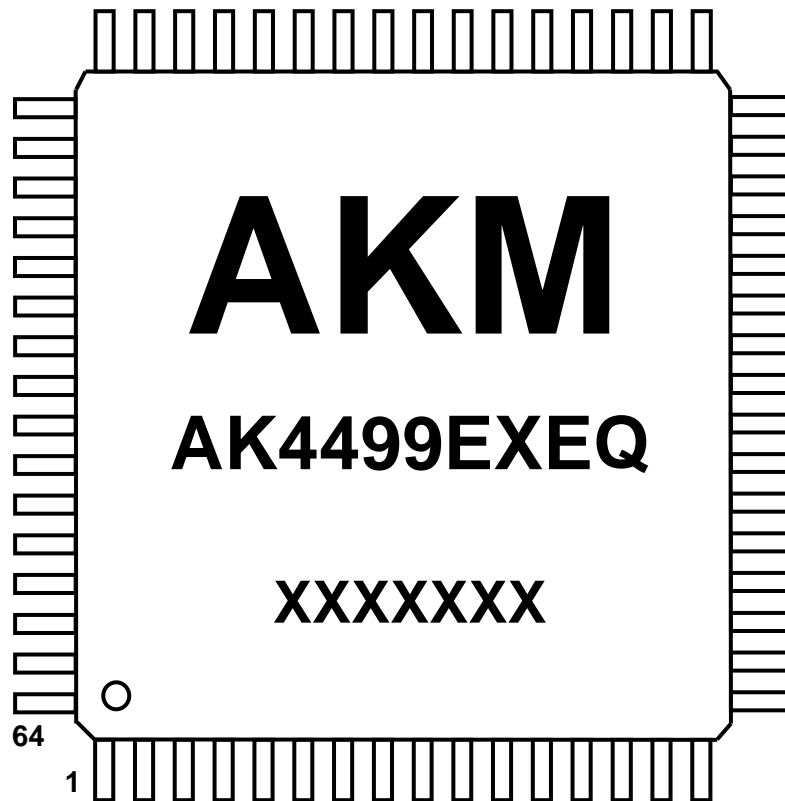
4.1. Outline Dimensions  
64-pin HTQFP10×10 (Unit: mm)



#### 4.2. Material & Terminal Finish

Package molding compound:	Epoxy, Halogen (Br and Cl) free
Lead frame material:	EFTEC-64T
Terminal Surface treatment:	Solder (Pb free) plate

#### 4.3. Marking



- 1) Pin #1 indication
- 2) Date Code: XXXXXXXX (7 digits)
- 3) Marking Code: AK4499EXEQ
- 4) AKM Logo

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