

OKI Semiconductor

MSM5218

ADPCM Voice Analysis/Synthesis IC

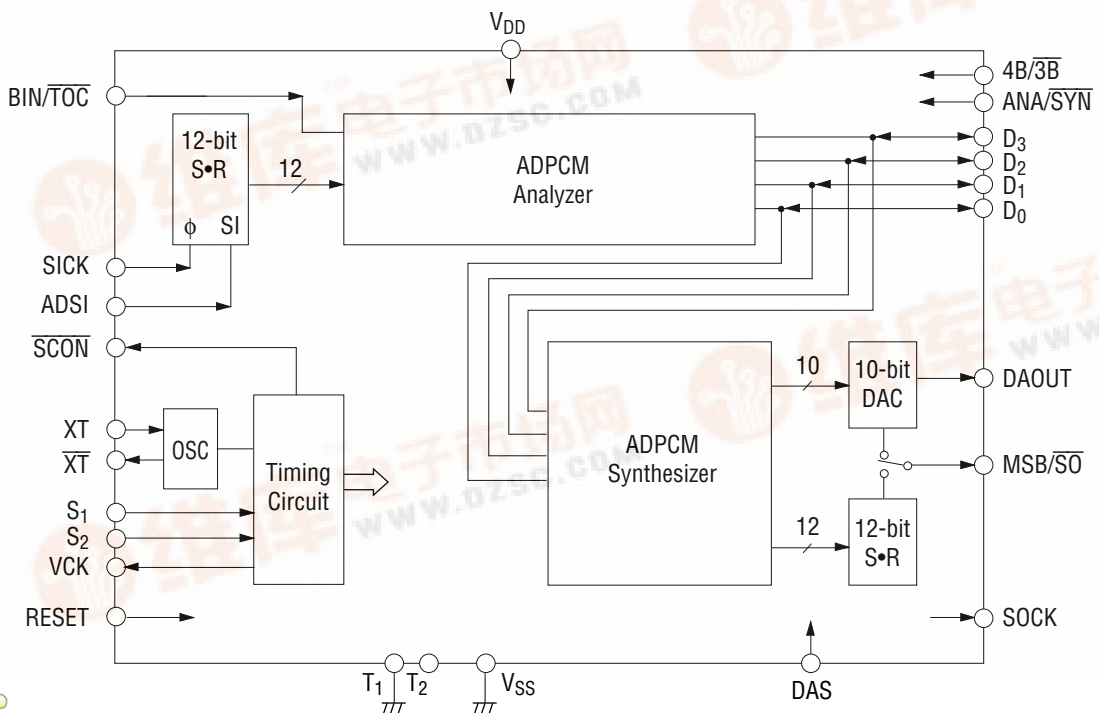
GENERAL DESCRIPTION

The MSM5218 is a complete voice analysis/synthesis IC featuring the Adaptive Differential Pulse Code Modulation (ADPCM) method of data compression. The MSM5218 contains an analysis stage where serial PCM data is compressed to 3- or 4-bit parallel ADPCM data. In addition, a synthesis stage synthesizes PCM data from ADPCM data.

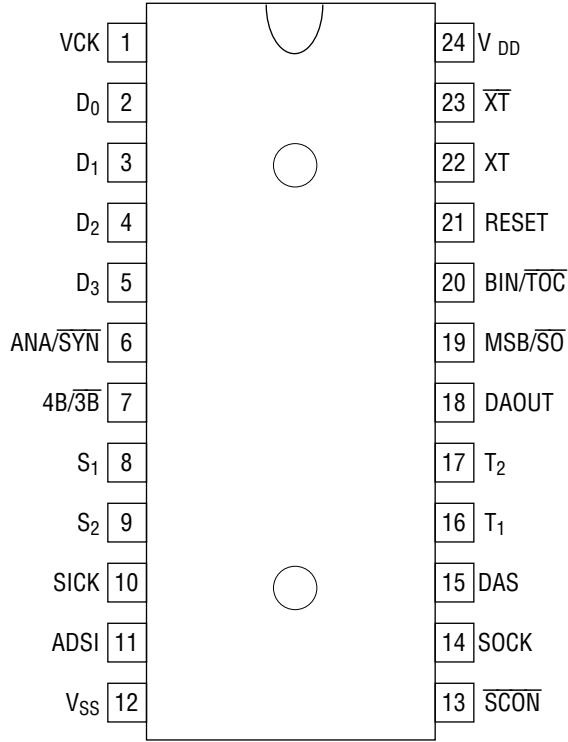
FEATURES

- ADPCM data compatible with OKI's synthesis IC MSM5205
- Analysis/synthesis switching pin provided
- Lower power consumption achieved by one-chip CMOS IC
- Built-in 10-bit D/A converter for analog output
- Variable sampling frequency (4 kHz, 6 kHz, 8 kHz)
- Master clock frequency: 384 kHz
- Package: 24-pin plastic DIP (DIP24-P-600) (Product name: MSM5218RS)

BLOCK DIAGRAM



PIN CONFIGURATION (TOP VIEW)



24-Pin Plastic DIP

Note: The product name actually printed on the product is "M5218".

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Rating	Unit
Power Supply Voltage	V_{DD}	$T_a = 25^\circ\text{C}$	-3.0 to +7.0	V
Input Voltage	V_{IN}	$T_a = 25^\circ\text{C}$	-3.0 to V_{DD}	V
Power Dissipation	P_D	$T_a = 25^\circ\text{C}$	200 max	mW
Storage Temperature	T_{STG}	—	-55 ~ +150	$^\circ\text{C}$

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Condition	Range	Unit
Power Supply Voltage	V_{DD}	—	+3 to +6	V
Operating Temperature	T_{OP}	—	-30 to +70	$^\circ\text{C}$
Oscillator Frequency	f_{OSC}	Specified Oscillator	386 to 768	kHz

ELECTRICAL CHARACTERISTICS**DC Characteristics**

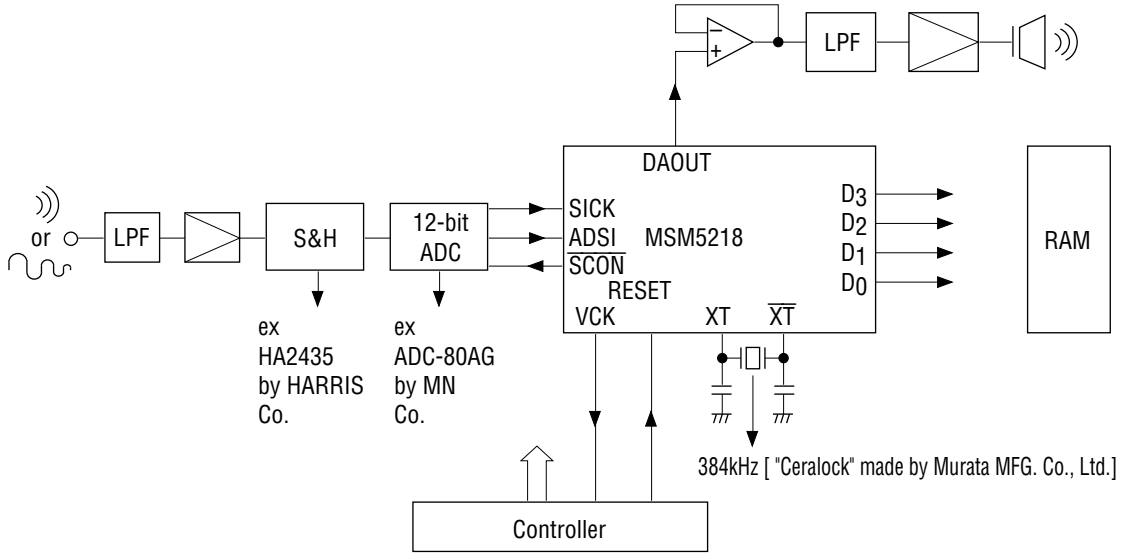
($V_{DD} = 5V \pm 5\%$, $T_a = -30^\circ\text{C}$ to $+70^\circ\text{C}$, $T_a = 25^\circ\text{C}$ typically)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input High Voltage	V_{IH}	All inputs except XT, T ₁ , T ₂	4.2	—	—	V
Input Low Voltage	V_{IL}	All inputs except XT, T ₁ , T ₂	—	—	0.8	V
Input High Current (1)	I_{IH}	$V_{IN} = V_{DD}$	—	—	1	μA
Input Low Current	I_{IL}	$V_{IN} = 0V$	—	—	-1	μA
Output High Current	I_{OH}	$\overline{\text{SCON}}$, VCK, SOCK, MSB/ $\overline{\text{SO}}$, D0 to D3 $V_O = 4.2V$	-50	—	—	μA
Output Low Current	I_{OL}	$\overline{\text{SCON}}$, VCK, SOCK, MSB/ $\overline{\text{SO}}$, D0 to D3 $V_O = 0.4V$	50	—	—	μA
Operating Current	I_{DD}	$f_{VCK} = 8\text{kHz}$	—	3	6	mA
DA. OUT Output Impedance	V_{OR}	—	—	100	—	$\text{k}\Omega$
D/A Accuracy (Internal 10-bit D/A)	V_E	Full Scale $V_{DD} = +5V$	—	± 4	—	LSB
SICK Clock Frequency	$f_{(SICK)}$	—	—	—	500	kHz
Input High Current (2)	I_{IH2}	$V_{IN} = V_{DD}$ (Note 1)	20	—	400	μA

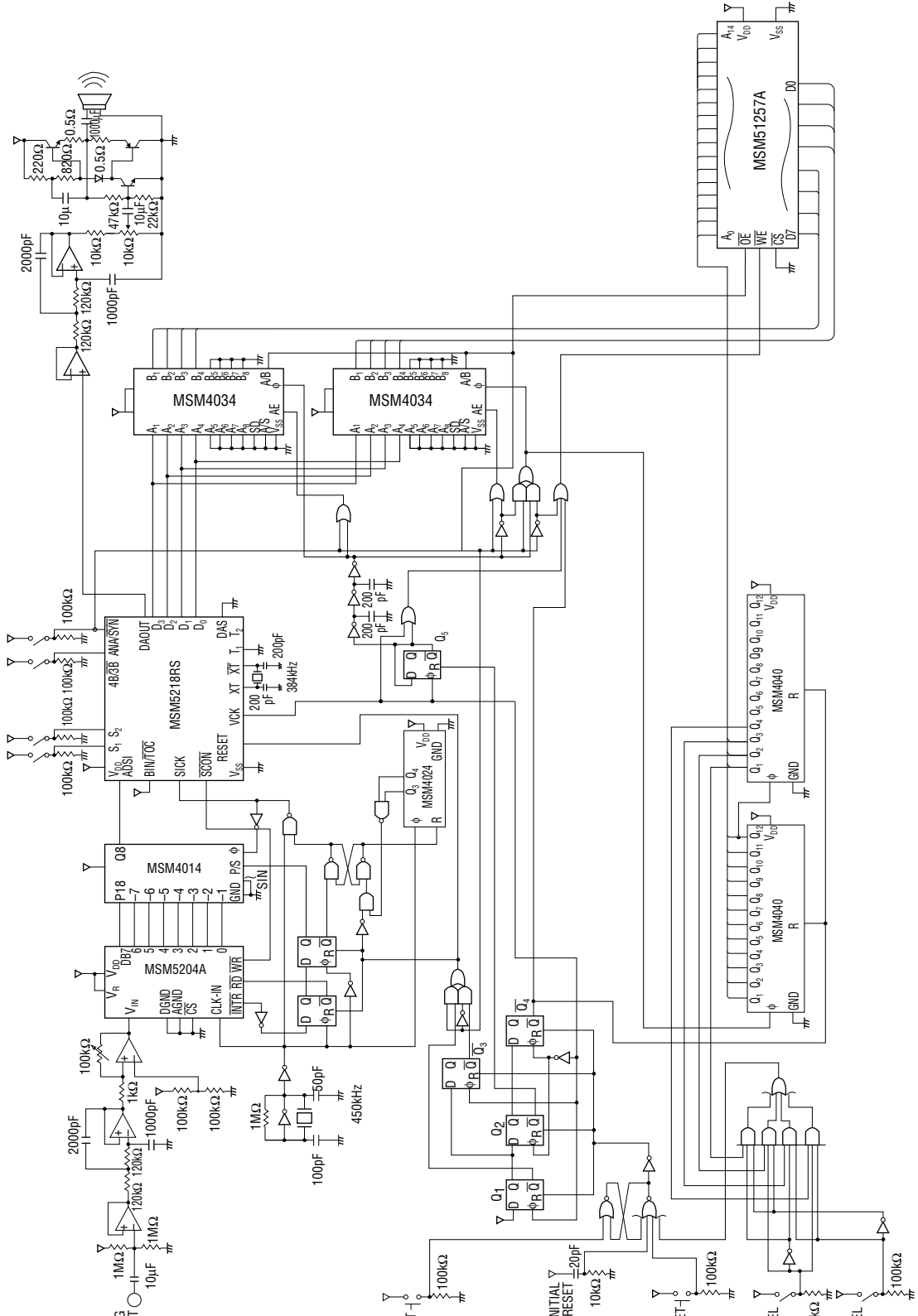
Note 1: Applicable for Reset.

APPLICATION CIRCUITS

Example where a 12-bit AD Converter is Connected



Voice Analysis/Synthesis Circuit Example (When MSM5204 is Used)



Voice Analysis/Synthesis Circuit Example (When ADC-80AG by MN Co. is Used)

3

