OKI Semiconductor

MSM5218

ADPCM Voice Analysis/Synthesis IC

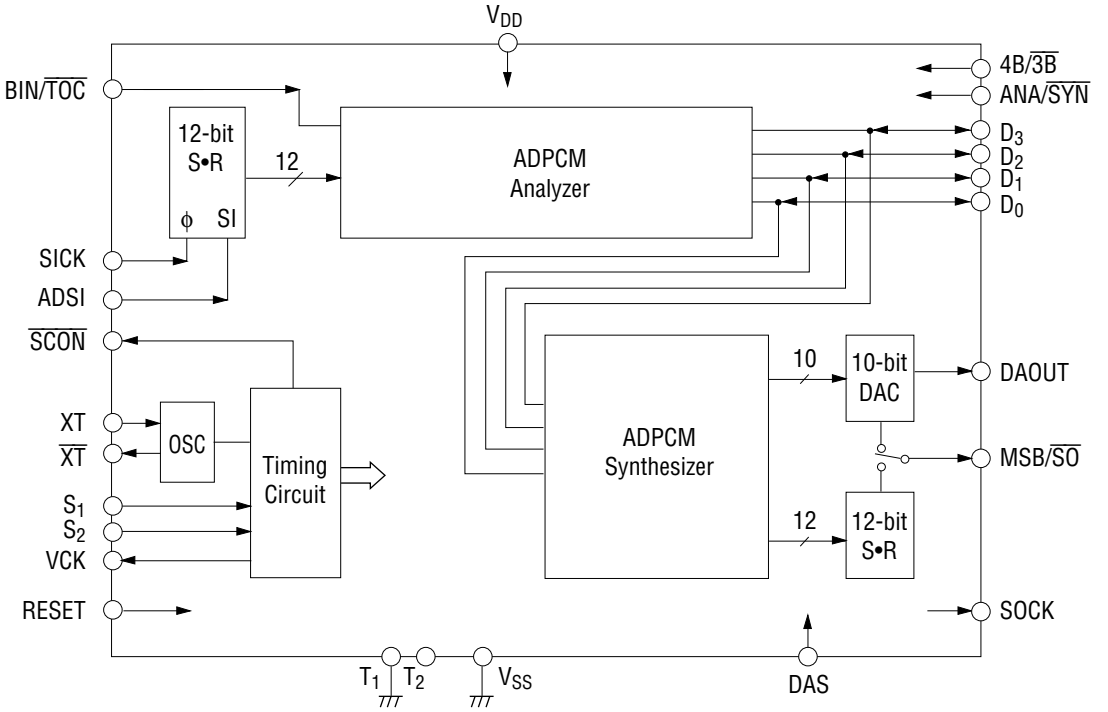
GENERAL DESCRIPTION

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.

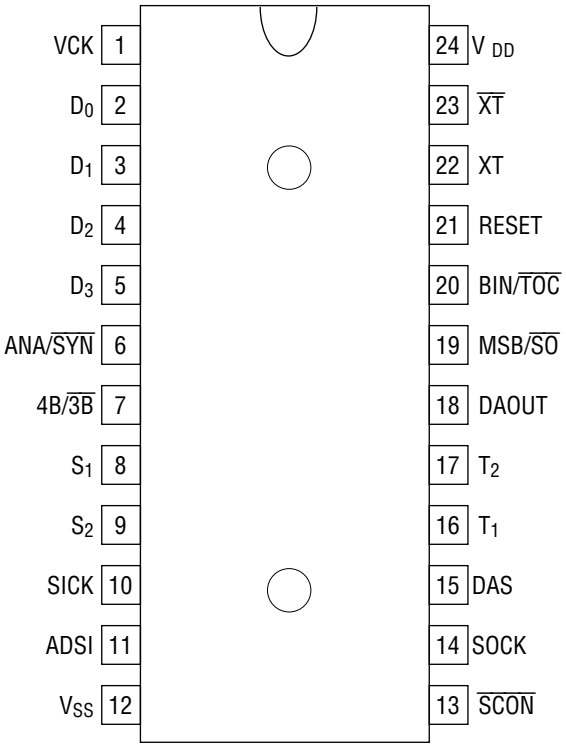
FEATURES

- 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}	Ta = 25°C	–3.0 to +7.0	V
Input Voltage	V_{IN}	Ta = 25°C	–3.0 to V_{DD}	V
Power Dissipation	P_D	Ta = 25°C	200 max	mW
Storage Temperature	T_{STG}	—	–55 ~ +150	°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	°C
Oscillator Frequency	f_{OSC}	Specified Oscillator	386 to 768	kHz

ELECTRICAL CHARACTERISTICS

DC Characteristics

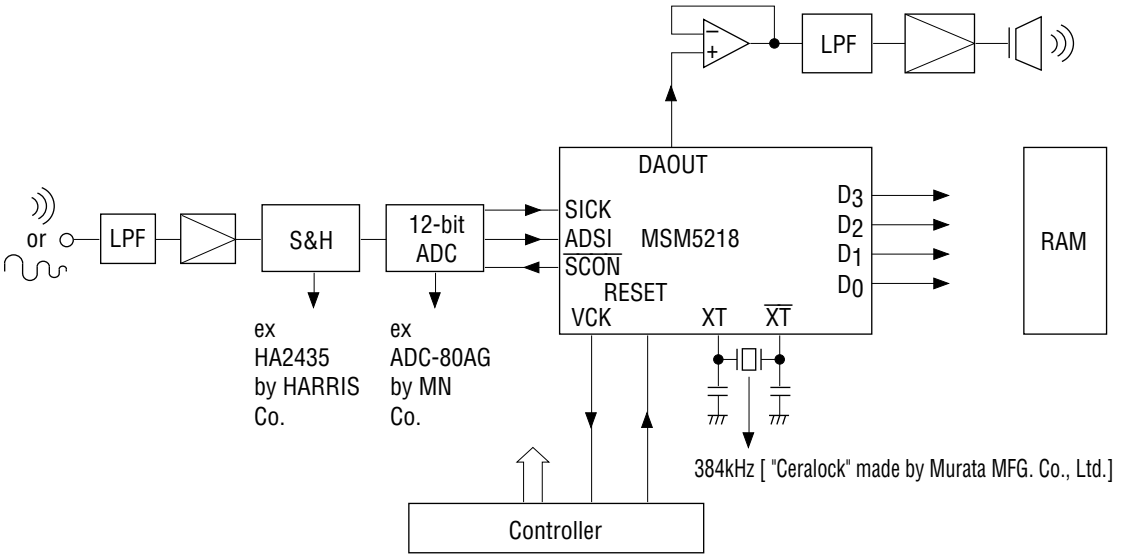
(V_{DD} = 5V±5%, Ta = –30°C to +70°C, Ta =25°C typically)

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}	$\overline{SCON}$, VCK, SOCK, MSB/$\overline{SO}$, D0 to D3 V_0 = 4.2V	–50	—	—	µA
Output Low Current	I_{OL}	$\overline{SCON}$, VCK, SOCK, MSB/$\overline{SO}$, D0 to D3 V_0 = 0.4V	50	—	—	µA
Operating Current	I_{DD}	f_{VCK} = 8kHz	—	3	6	mA
DA. OUT Output Impedance	V_{OR}	—	—	100	—	kΩ
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

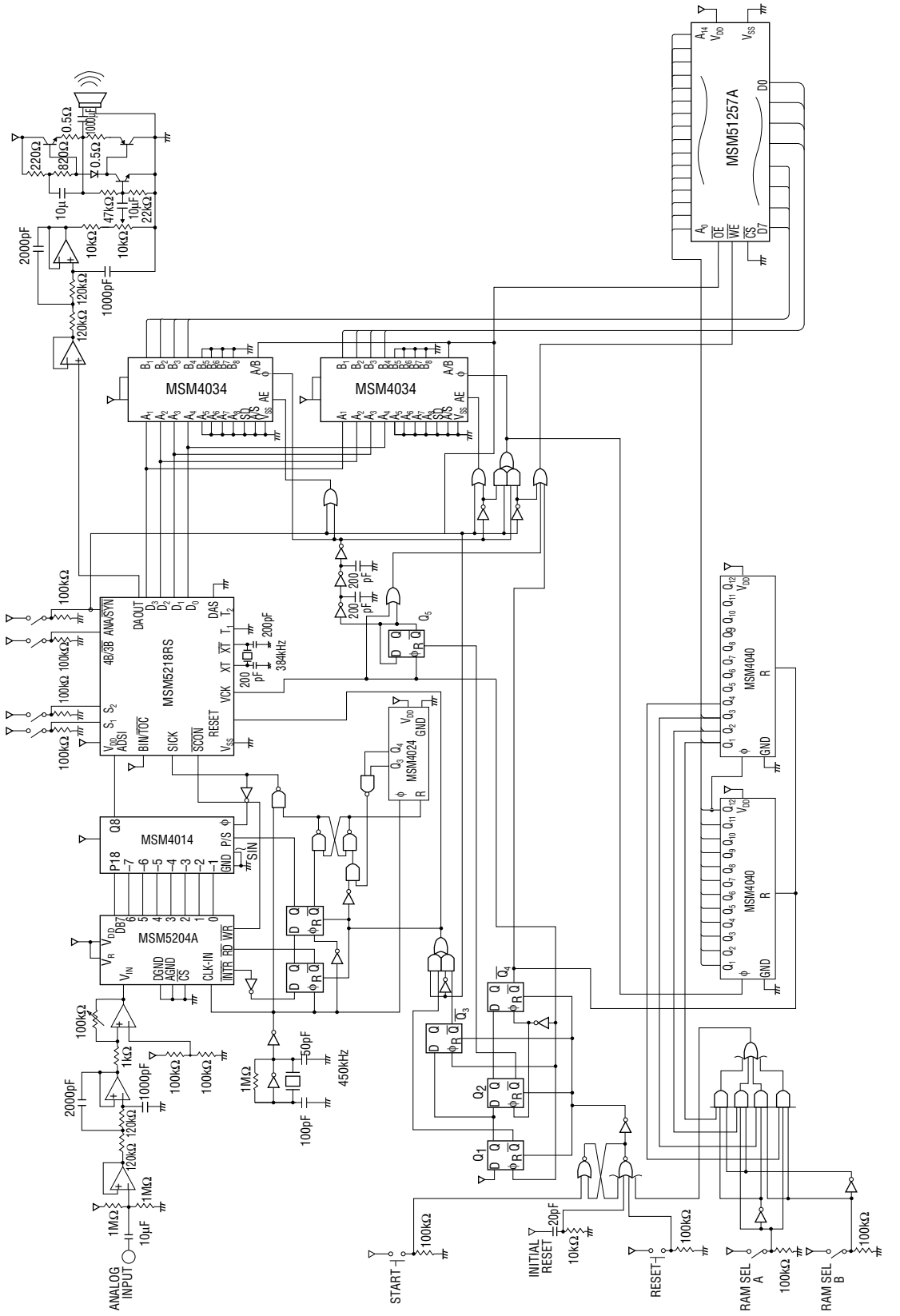
Note 1: Applicable for Reset.

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)