



DIGITALKER™ Speech Synthesis

DT1051/DT1054 DIGITALKER™ Speech Evaluation Kit

General Description

The DIGITALKER™ is a speech synthesis system consisting of several N-channel MOS integrated circuits. It contains a speech processor chip (SPC) and speech ROM and when used with external filter, amplifier, and speaker, produces a system which generates high quality speech including the natural inflection and emphasis of the original speech. Male, female, and children's voices can be synthesized.

The SPC communicates with the speech ROM, which contains the compressed speech data as well as the frequency and amplitude data required for speech output. Up to 128k bits of speech data can be directly accessed.

With the addition of an external resistor, on-chip debounce is provided for use with a switch interface.

An interrupt is generated at the end of each speech sequence so that several sequences or words can be cascaded to form different speech expressions.

The DT1051 is a standard DIGITALKER kit encoded with 18 separate and addressable phrases. The phrases lend themselves to a variety of products, but are primarily for demonstration purposes, portraying DIGITALKER's unique ability to produce high quality male, female, or child's voices.

The DT1051 demonstrates the effects of digitizing complete phrases as opposed to individual words at single

addresses. Complete phrases produce very natural and highest quality speech, much like a tape recording of a phrase or sentence.

Features

- COPS™ and MICROBUST™ compatible
- Designed to be easily interfaced to other popular microprocessors
- 18 addressable high quality phrases
- Natural inflection and emphasis of original speech
- Addresses 128k of ROM directly
- TTL compatible
- On-chip switch debounce for interfacing to manual switches independent of a microprocessor
- Interrupt capability for cascading words or phrases
- Crystal controlled or externally driven oscillator
- Available in complete kit (DT1051) or speech ROMs only (DT1054)

Applications

- Telecommunications
- Appliance
- Automotive
- Teaching aids
- Consumer products
- Clocks
- Language translation
- Annunciators

DT1051 Vocabulary*

Byte Address SW 8	SW 1	Message	Voice	Byte Address SW 8	SW 1	Message	Voice
00000000		BASSON MUSIC	N/A	00001001		CHECK OIL LEVEL	MALE
00000001		THIS IS NS DIGITALKER	FEMALE	00001010		CHECK COOLANT LEVEL	MALE
00000010		THE TIME IS 8:43 PM	FEMALE	00001011		CHECK FUEL LEVEL	MALE
00000011		EMERGENCY, CALL 911	FEMALE	00001100		DOOR OPEN	MALE
00000100		SELECT TEMPERATURE	FEMALE	00001101		DEFROST	MALE
00000101		SELECT COOKING TIME	FEMALE	00001110		GOING UP	MALE
00000110		THE NUMBER YOU REACHED HAS BEEN CHANGED, PLEASE CALL 408 737-5000	MALE	00001111		FIRST FLOOR	MALE
00000111		WARNING THE BRAKE FLUID IS LOW	MALE	00010000		PLEASE CALL YOUR OFFICE	MALE
00001000		PLEASE FASTEN YOUR SEATBELT	MALE	00010001		I'M CUTE, AREN'T I?	CHILD
						END OF VOCABULARY	

*DT1051 is a complete kit including MM54104 SPC; DT1054 is SSR3 and SSR4 speech ROMs only.

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Recommended Schematic Diagram

* LM346 or equivalent

The schematic diagram illustrates the internal circuitry of the MM54104, a 24-bit digital-to-analog converter. Key components and connections include:

- Power Supply:** A 7V-11V (REGULATED) input is connected to the V_{DD} pin (pin 48). A 0.1 μ F capacitor is connected between V_{DD} and GND.
- SV REGULATOR:** A 5V regulator is connected to the V_{DD} pin (pin 48) and the V_{CC} pin (pin 25). A 0.1 μ F capacitor is connected between V_{CC} and GND.
- VOLUME CONTROL:** A 5V regulator is connected to the V_{DD} pin (pin 48) and the V_{CC} pin (pin 25). A 0.1 μ F capacitor is connected between V_{CC} and GND.
- Input/Output Pins:** The diagram shows the internal circuitry of the MM54104, including the SV REGULATOR, VOLUME CONTROL, and various input/output pins. It includes a 7V-11V (REGULATED) input, a 5V regulator, and a 5V regulator.

Refer to MM54104 data sheet for complete specifications on electrical and timing characteristics.

DT1051/DT1054