MOSEL

MSS2201

Speech Synthesizer (Voice ROM)

FEATURES

- Single power supply can operate at 2.4V through 6V.

- Directly drive buzzer and one current output could drive speaker.

- Up to 22 seconds voice duration that can be separated into 64 sections for µp mode, 8 sections for SA mode, 16 repetitive sections (8 non-repetitive sections) for both TT or RT mode.

- Duration of the 64(8) sections can be different and the total maximum duration is about 22 seconds.

- Mute is available for each section up to 48 seconds totally.

- Combined function that can extend the speech duration by 22 x N seconds with N pieces of MSS2201.

- Whatever status the device is, every trigger will reset the device and play from the beginning.

- Automatic power down function (selected by external input, pwr).
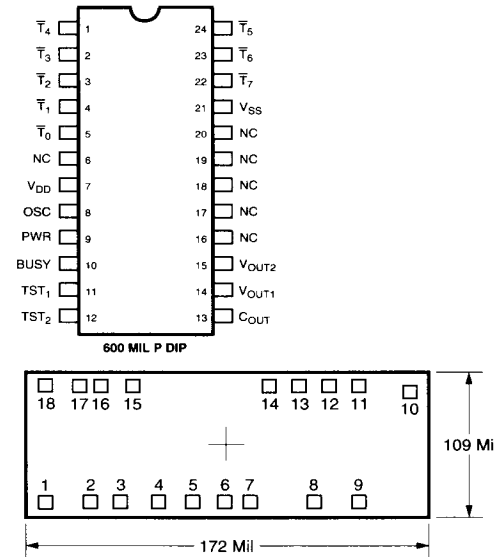
DESCRIPTION

The MSS2201 is a single-chip synthesizing CMOS VLSI that can synthesize voice up to 22 seconds using the PCM Qualified Coding method.

The chip contains most of the necessary circuit like oscillator, PLA, D/A converter, sequence control logic and interface circuit for key switch and microcomputers.

Therefore, it can apply to various voice systems with minimum external parts. Microprocessor (µp) mode, Stand-alone (SA) mode, Table trigger (TT) mode and Ring trigger (RT) mode are available and selected by mask option. Up to 64 sections of speech are available for µp mode, up to 8 sections are available for SA mode, and for up to 16 repetitive sections (8 non-repetitive sections) are available for both TT or RT mode.

Several devices can be combined to reach longer voice duration (longer than 22 seconds). Customer speech data will be edited and programmed into PLA by changing one mask during the device fabrication.

BONDING DIAGRAM

Pin. No.	Designation	X	Y
1	V_{DD}	-1962.5	-1143.4
2	OSC	-1435.4	-1159.7
3	PWR	-1147.5	-1154.5
4	BUSY	-781.3	-1165.9
5	TST_1	-508.7	-1159.7
6	TST_2	-220.9	-1154.5
7	C_{OUT}	-13.6	-1154.5
8	V_{OUT1}	714.2	-1162.1
9	V_{OUT2}	1188.7	-1162.1
10	V_{SS}	1882.7	1140.2
11	$\overline{T}_7$	1054.9	1159.2
12	$\overline{T}_6$	767.1	1154.0
13	$\overline{T}_5$	560.1	1159.2
14	$\overline{T}_4$	272.3	1154.0
15	$\overline{T}_3$	-1088.7	1159.2
16	$\overline{T}_2$	-1376.5	1154.0
17	$\overline{T}_1$	-1609.8	1159.2
18	$\overline{T}_0$	-1897.6	1154.0

PIN CONFIGURATIONS

600 MIL P DIP

PID204

MSS2201

DC CHARACTERISTICS

SYMBOL	PARAMETER		MIN.	TYP.	MAX.	UNIT	CONDITION
V_{DD}	Operating Voltage		2.4	4.5	6	V	
I_{SB}	Supply Current	Stand by	–	–	1	µA	V_{DD} = 4.5V, I/O Open
I_{OP}		Operating	–	–	200		
V_{IH}	Input Voltage ($\overline{T_0}$-$\overline{T_7}$, E_1, $\overline{E_2}$, PWR)		4	4.5	5	V	V_{DD} = 4.5V
V_{IL}			-0.3	0	0.3		
I_{IH}	Input Current ($\overline{T_0}$-$\overline{T_7}$)		–	–	-5	µA	V_{DD} = 4.5V
I_{IL}			–	0	–		
I_{IH}	Input Current for PWR		–	–	20	µA	V_{DD} = 4.5V
I_{IL}			–	0	–		
I_{OH}	O/P Current V_{OUT1}, V_{OUT2}	Drive	–	-13	–	mA	V_{DD} = 4.5V, $V_{O/P}$ = 0V
I_{OL}		Sink	–	13	–		V_{DD} = 4.5V, $V_{O/P}$ = 4.5V
I_{OH}	Output Current (BUSY)		–	-2	–	mA	V_{DD} = 4.5V, $V_{O/P}$ = 0V
I_{OL}			–	4	–		V_{DD} = 4.5V, $V_{O/P}$ = 4.5V
I_{CO}	Output Current (C_{OUT})		–	-3	–	mA	V_{DD} = 4.5V
$\Delta F/F$	Frequency Stability		-5	–	5	%	$\dfrac{F_{OSC}(4.5V) - F_{OSC}(4V)}{F_{OSC}(4.5V)}$
$\Delta F/F$	Frequency Variation		-10	–	10	%	V_{DD} = 4.5V, R_{OSC} = 1.2MΩ

BLOCK DIAGRAM
The same as those of MSS1503, see MSS1503 information.

ABSOLUTE MAXIMUM RATING
The same as those of MSS1503, see MSS1503 information.

PAD DESCRIPTION
The same as those of MSS1503, see MSS1503 information.

AC CHARACTERISTICS
The same as those of MSS1503, see MSS1503 information.

TIMING DIAGRAM
The same as those of MSS1503, see MSS1503 information.

APPLICATION MODES
The same as those of MSS1503, see MSS1503 information.

APPLICATION CIRCUIT
The same as those of MSS1503, see MSS1503 information.