INTRODUCTION

SN66030 is a 30 seconds single chip 4-channel voice synthesizer IC which contains I/O pins and a tiny controller. By programming through the tiny controller, user's applications including section combination, trigger modes, output status, high performance melody, multiple voices, and other logic functions can be implemented.

FEATURES

- Single power supply 2.4V – 5.1V
- Built in a tiny controller
- 30 seconds voice capacity are provided
- One 4-bit input port, two 4-bit I/O ports and one 4-bit output port are provided
- 128*4 bits RAM are provided
- Maximum 64k program ROM is provided
- Readable ROM code data
- Built in a high quality speech synthesizer
- Four independent voice channels
- Adaptive playing speed from 4k-40kHz is provided for all 4 channels individually
- Automatic repetition for every channel
- A 6-bit*8-bit Multiplier is embed to modulate the volume of synthesized voices
- Two digital mixers (with saturation control) are provided
- Two 8-bit current output DA converters (Channel 1 + Channel 2 $\rightarrow$ DA1, Channel 3 + Channel 4 $\rightarrow$ DA2)
- System clock: 2M Hz (R-type or Crystal Option)
- Low Voltage Reset

■ PIN ASSIGNMENT

Symbol	I/O	Function Description
P10	I	Bit0 of input port 1
P11	I	Bit1 of input port 1
P12	I	Bit2 of input port 1
P13	I	Bit3 of input port 1
P20	I/O	Bit0 of I/O port 2
P21	I/O	Bit1 of I/O port 2
P22	I/O	Bit2 of I/O port 2
P23	I/O	Bit3 of I/O port 2
P30	I/O	Bit0 of I/O port 3
P31	I/O	Bit1 of I/O port 3
P32	I/O	Bit2 of I/O port 3
P33	I/O	Bit3 of I/O port 3
P40	O	Bit0 of output port 4
P41	O	Bit1 of output port 4
P42	O	Bit2 of output port 4
P43	O	Bit3 of output port 4
V_{DD}	I	Positive power supply
GND	I	Negative power supply
OSC/XIN	I	Oscillator / Crystal In
XOUT	O	Crystal Out
CKSEL	I	Clock type select 'L' → R type (1M) 'H' → 2M Crystal Internal pull low.
VO1	O	D/A current output, for channel 1 and 2
VO2	O	D/A current output, for channel 3 and 4

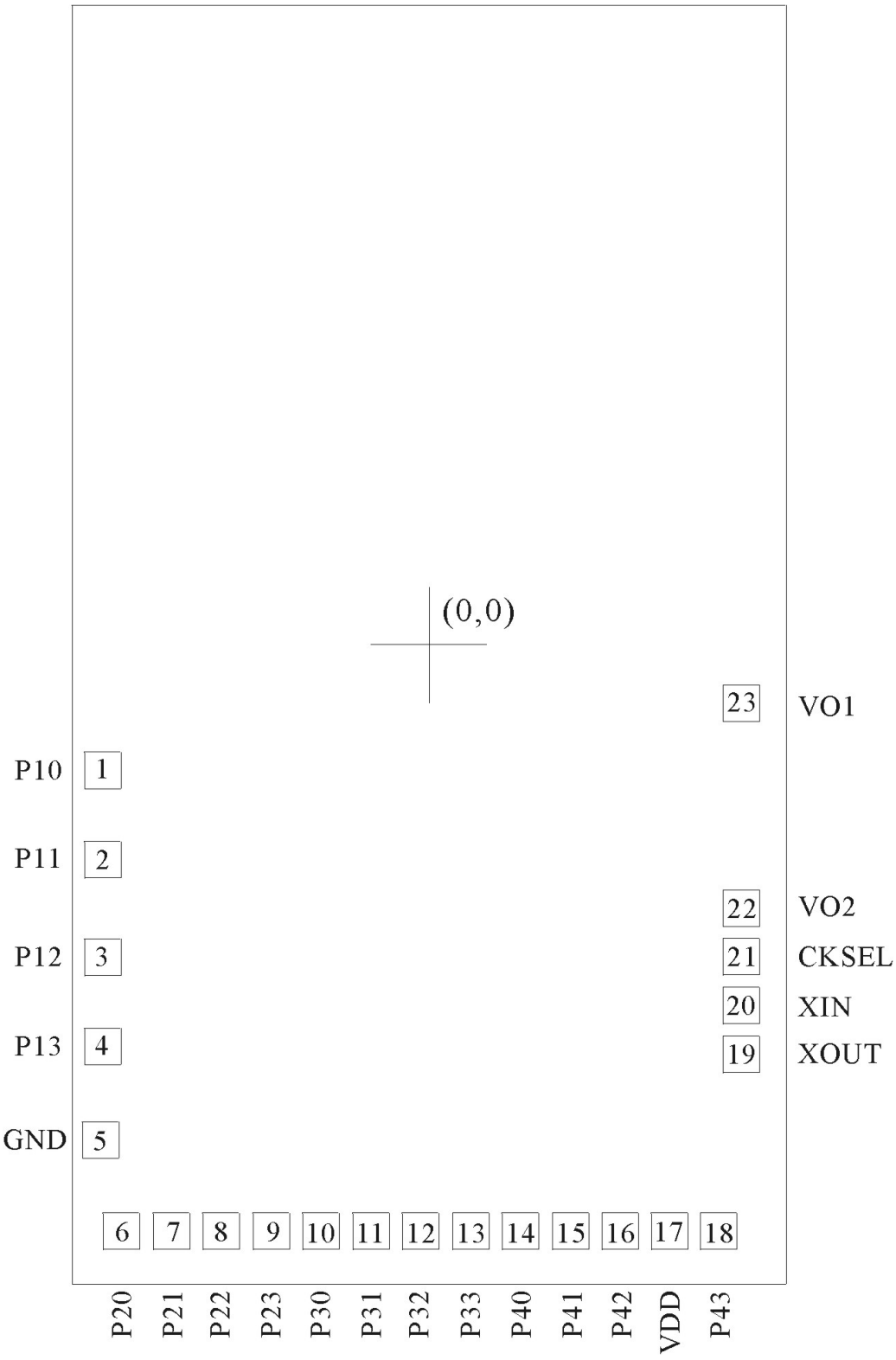
■ ABSOLUTE MAXIMUM RATING

Items	Symbol	Min	Max	Unit.
Supply Voltage	V_{DD}-V	-0.3	6.0	V
Input Voltage	V_{IN}	V_{SS}-0.3	V_{DD}+0.3	V
Operating Temperature	T_{OP}	-20.0	70.0	°C
Storage Temperature	T_{STG}	-55.0	125.0	°C

■ ELECTRICAL CHARACTERISTICS

Item	Sym.	Min.	Typ.	Max.	Unit	Condition
Operating Voltage	V_{DD}	2.4	3.0	5.1	V	
Standby Current	I_{SBY}	-	-	2.0	*u*A	V_{DD}=3V
Operating Current	I_{OPR}	-	-	350	*u*A	V_{DD}=3V, no load
Input Current of P1	I_{IH}	-	3.0	10.0	*u*A	V_{DD}=3V,V_{IN}=3V
Drive Current of P2, P3, P4	I_{OD}	1.5	2	-	*m*A	V_{DD}=3V,V_O=2.4V
Sink Current of P2,P3,P4	I_{OS}	2.0	3	-	*m*A	V_{DD}=3V,V_O=0.4V
VO1/VO2 Output Current	I_{VO}	2.0	3.0	4.0	*m*A	V_{DD}=3V,V_O=0.7V
Oscillation Freq.	F_{OSC}	-	2.0	-	MHz	V_{DD}=3V

■ BONDING PAD LOCATION



SN66030

Note: The substrate MUST be connected to Vss in PCB layout.

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