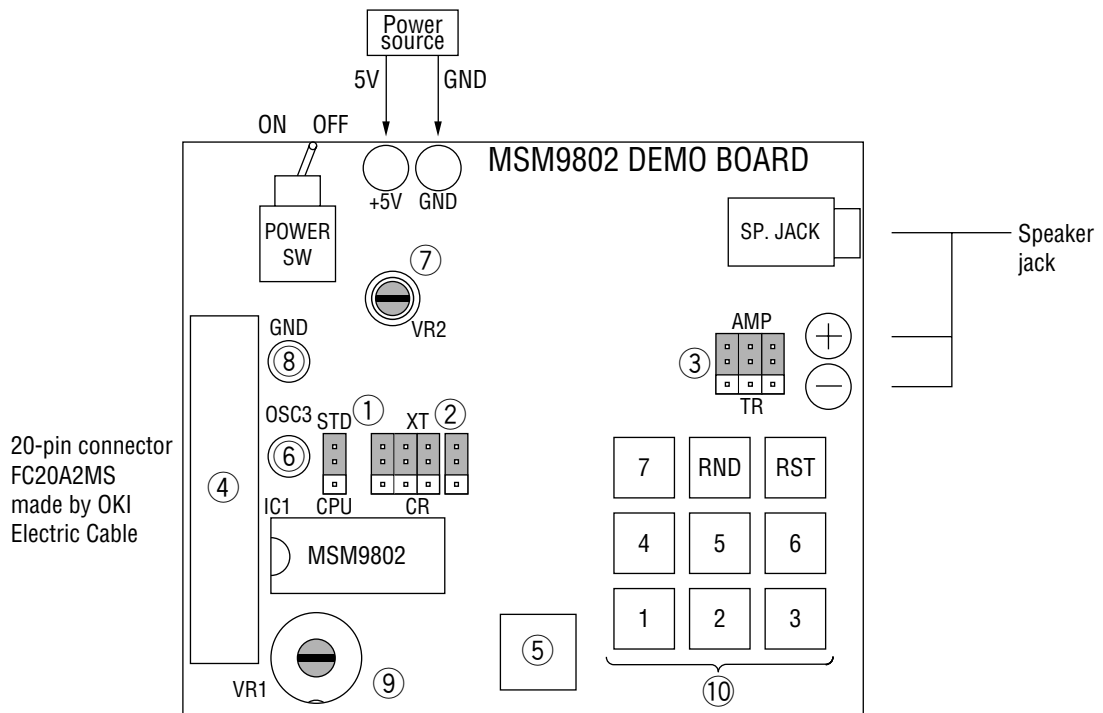**OKI** Semiconductor

MSM9802 DEMO BOARD

MSM9802 DEMONSTRATION BOARD

BOARD OUTLINE

HOW TO USE BOARD

① Stand-alone/microcontroller interface selection jumper
The stand-alone/microcontroller selection jumper is used to select the operation in stand-alone mode or the operation by a microcontroller interface. For the stand-alone operation, set the jumper wire up (to STD). For the operation by a microcontroller interface, set the jumper wire down (to CPU).

② Ceramic oscillation/RC oscillation selection jumper
The ceramic oscillation/RC oscillation selection jumper is used to select the operation by ceramic oscillation or by RC oscillation. For the operation by ceramic oscillation, set four jumper wires up (to XT). For the operation by RC oscillation, set four jumper wires down (to RC).

③ AMP/TR selection jumper
To amplify the analog signal output from AOUT by the amplifier IC (MSC1157) on the board, set three jumpers up (to AMP). To amplify by the transistor, set three jumpers down (to TR).

④ 20-pin connector
Signals necessary for operation using the microcontroller are connected to the 20-pin connector. Connector pin assignment is as follows:

Connector pin No.	Signal	Connector pin No.	Signal
1	V_{DD}	11	I5/A2
2	V_{DD}	12	XT/$\overline{CR}$
3	V_{DD}	13	NC
4	CPU/$\overline{STD}$	14	$\overline{RESET}$
5	NC	15	$\overline{ST}$/RND
6	I0/SW0	16	OSC3
7	I1/SW1	17	NAR/$\overline{BUSY}$
8	I2/SW2	18	GND
9	I3/A0	19	GND
10	I4/A1	20	GND

⑤ Address setting switch
When used in stand-alone mode, select a playback word using this HEX switch. 0-7 in this HEX switch correspond to A0-A2 in binary data. When a microcontroller is used, set the HEX switch to 0.

⑥ Frequency check pin (OSC3)
This pin is used to monitor the oscillation frequency of RC oscillation.

⑦ Variable resistor (VR2) for adjusting the frequency of RC oscillation.
This variable resistor can change the frequency of RC oscillation. When the resistor is turned clockwise, the frequency decreases. When the resistor is turned counterclockwise, the frequency increases. The frequency can be monitored by the check pin of ⑥. Adjust the oscillation frequency to 256 kHz normally.
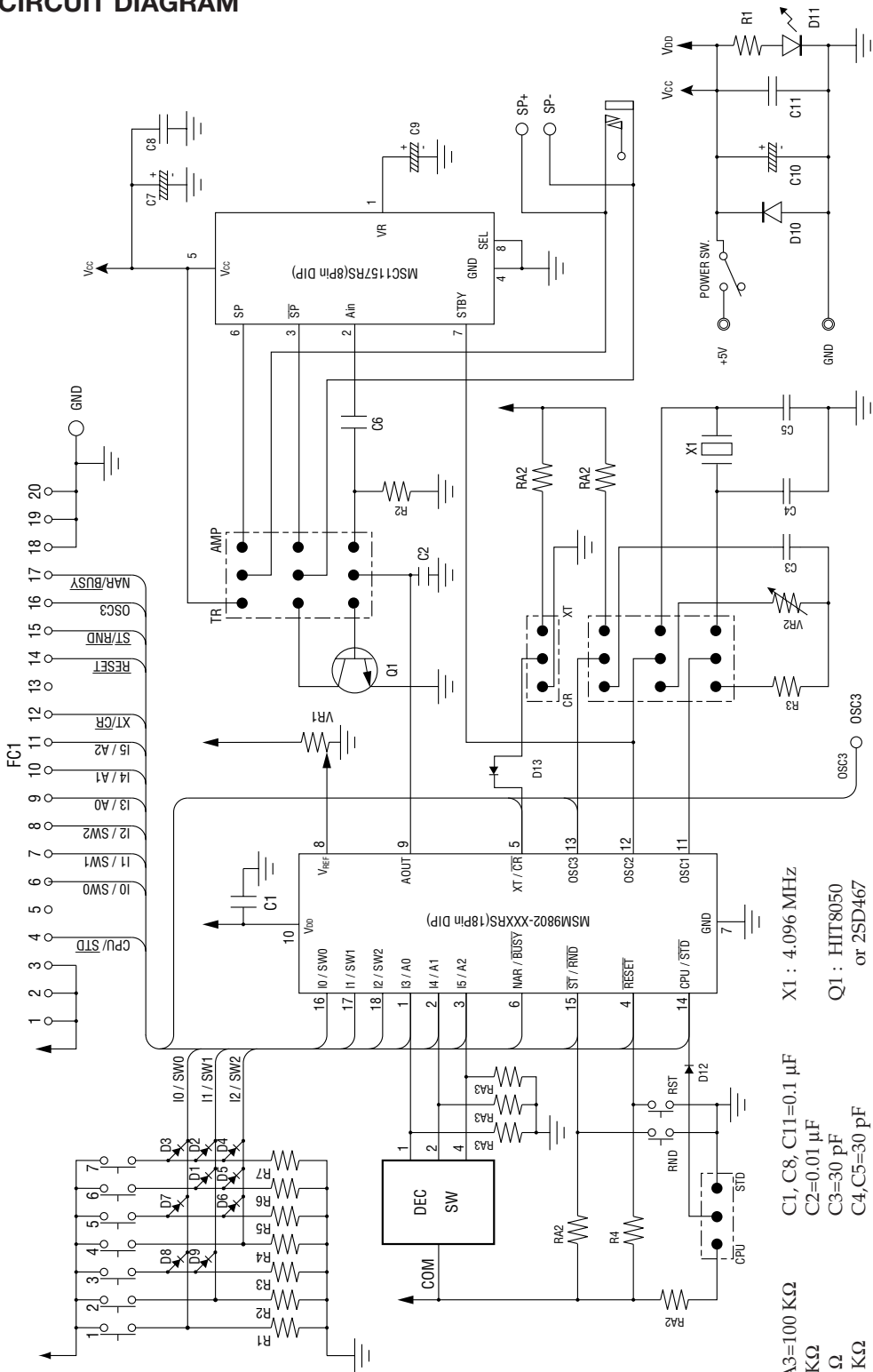
⑧ GND pin

⑨ Speaker output volume (VR1 used on a common base by AMP/TR)
This volume is used to adjust the sound level. When the VR is turned counterclockwise, the sound turns down. The V_{REF} pin is used for sound volume adjustment. For the maximum sound volume, the GND level is input to the V_{REF} pin. For the minimum sound volume, the V_{DD} level is input.

⑩ Playback SW input interface
When the stand-alone mode is used, press the 1-7 switches to playback voices corresponding to 1-7 of SW2-SW0. Press the RND switch on the center (random voice playback switch) to playback a voice randomly selected from 15 phrases corresponding to A0, SW2-SW0.
If the RND switch is pressed immediately after power on or RESET signal input, the voice of the first phrase is played back first, then a random phrase is generated from the second time onward.
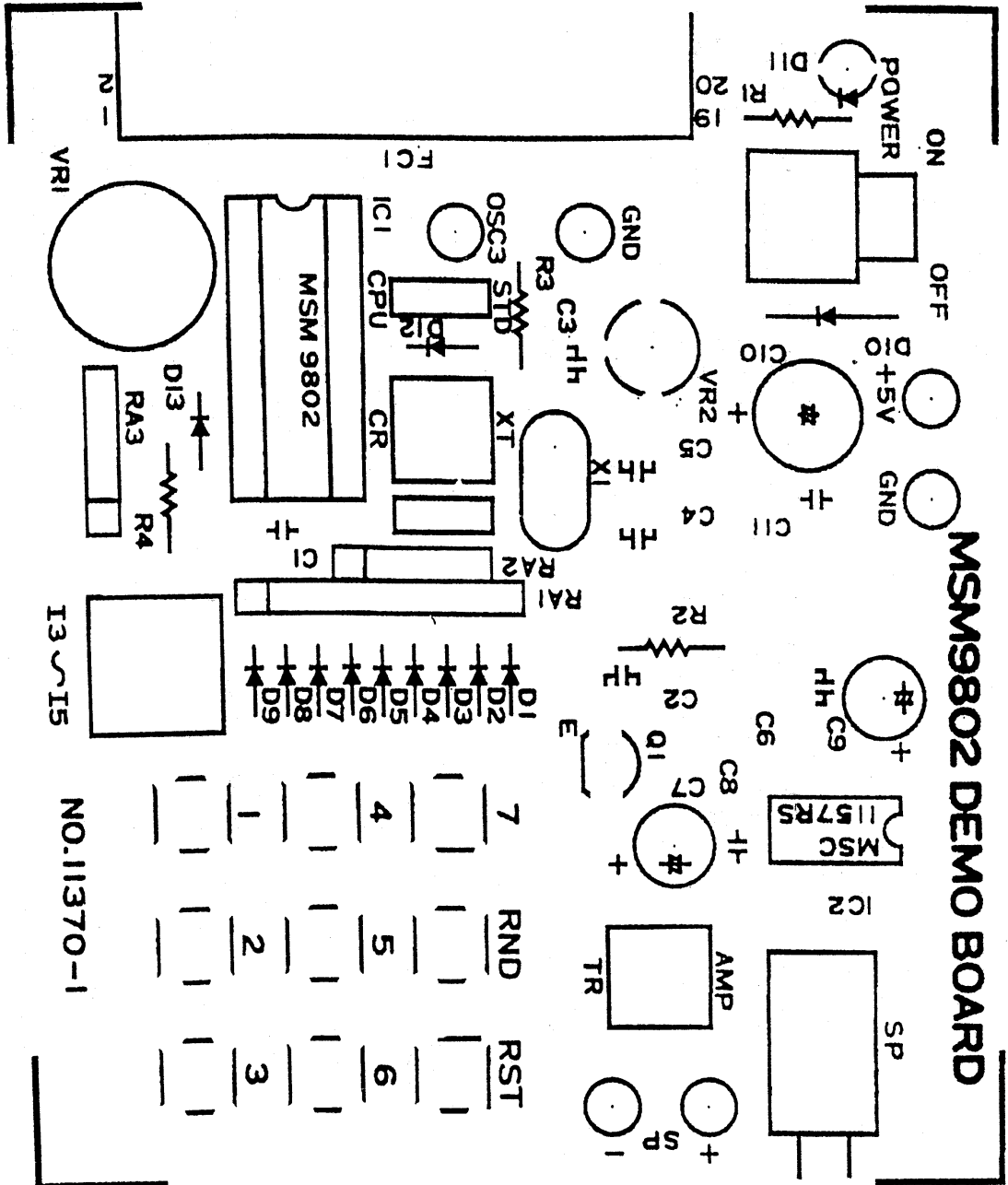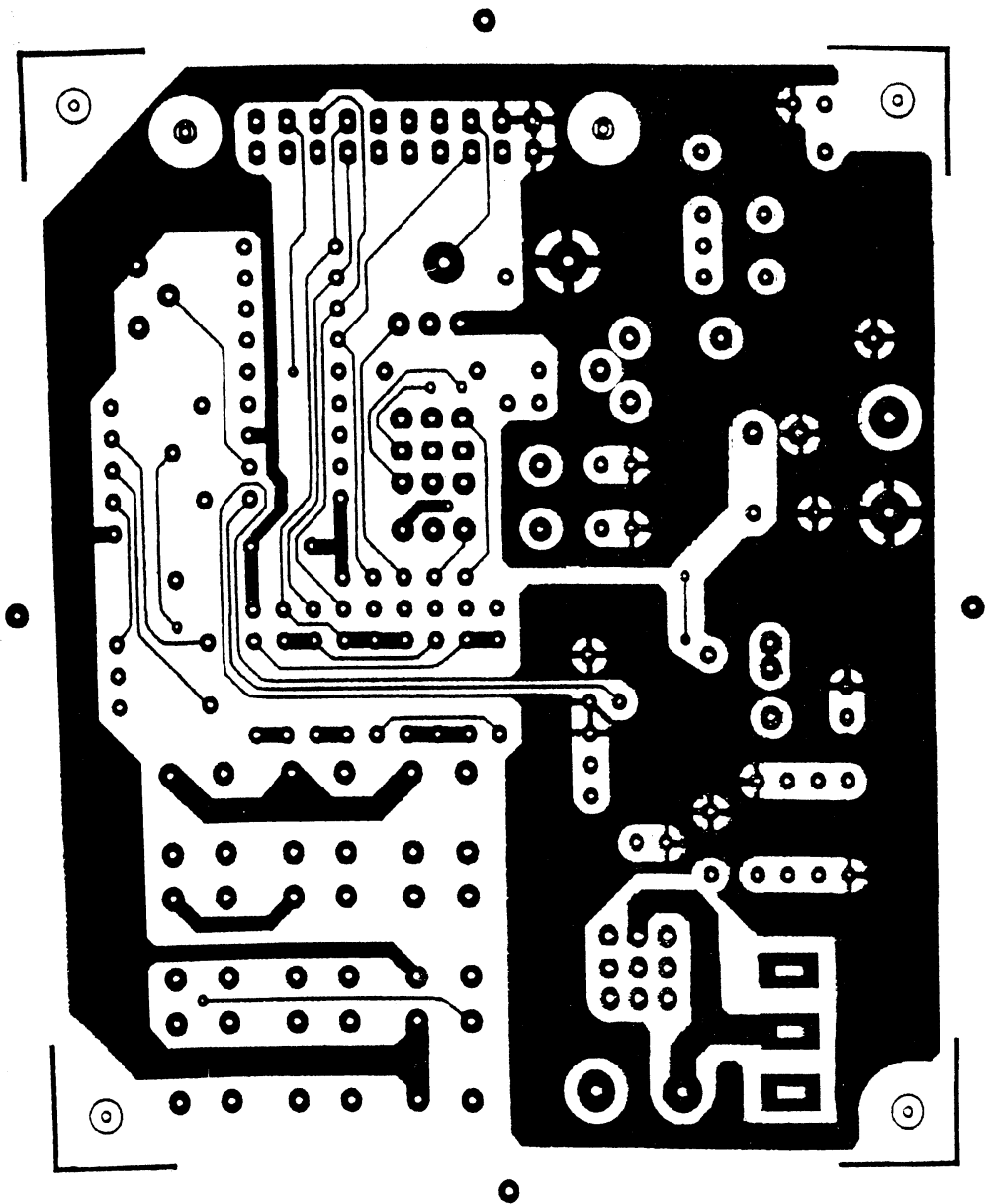
CIRCUIT DIAGRAM

X1 : 4.096 MHz

Q1 : HIT8050
    or 2SD467

D10 : 10D1

C1, C8, C11=0.1 µF
C2=0.01 µF
C3=30 pF
C4,C5=30 pF
C6=47 nF
C7=10 µF
C9=4.7 µF
C10=220 µF

RA1–RA3=100 KΩ
R1=5.1 KΩ
R2=240 Ω
R3=150 KΩ
R4=100 KΩ
VR1, VR2=100 KΩ

DEMONSTRATION BOARD LAYOUT

Silk Drawing

Component side

Solder Side