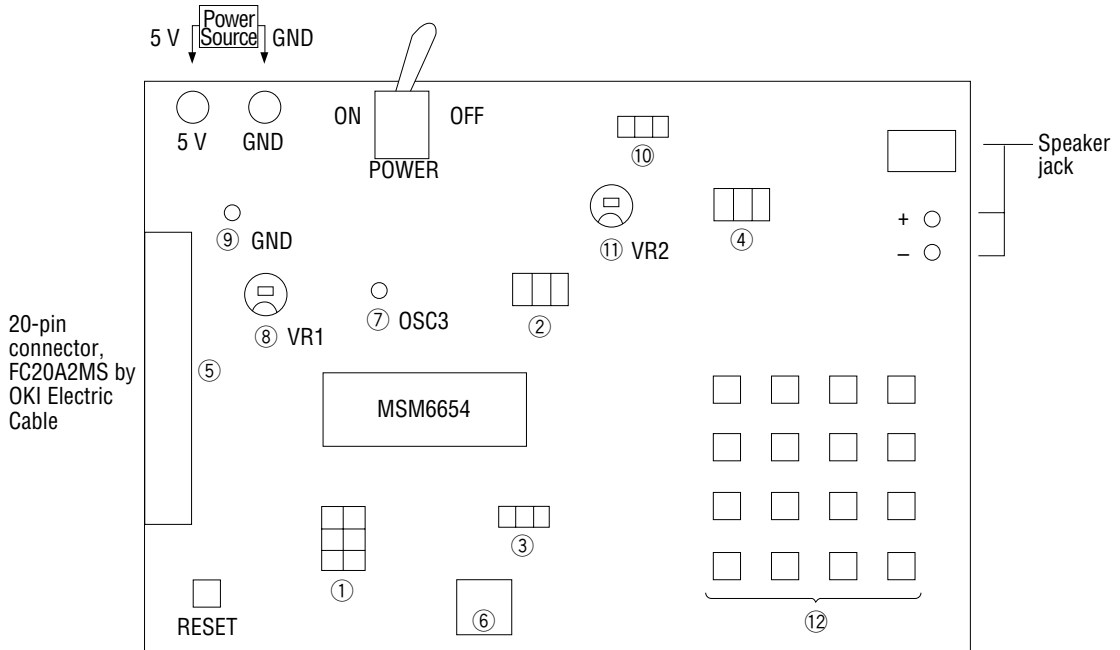


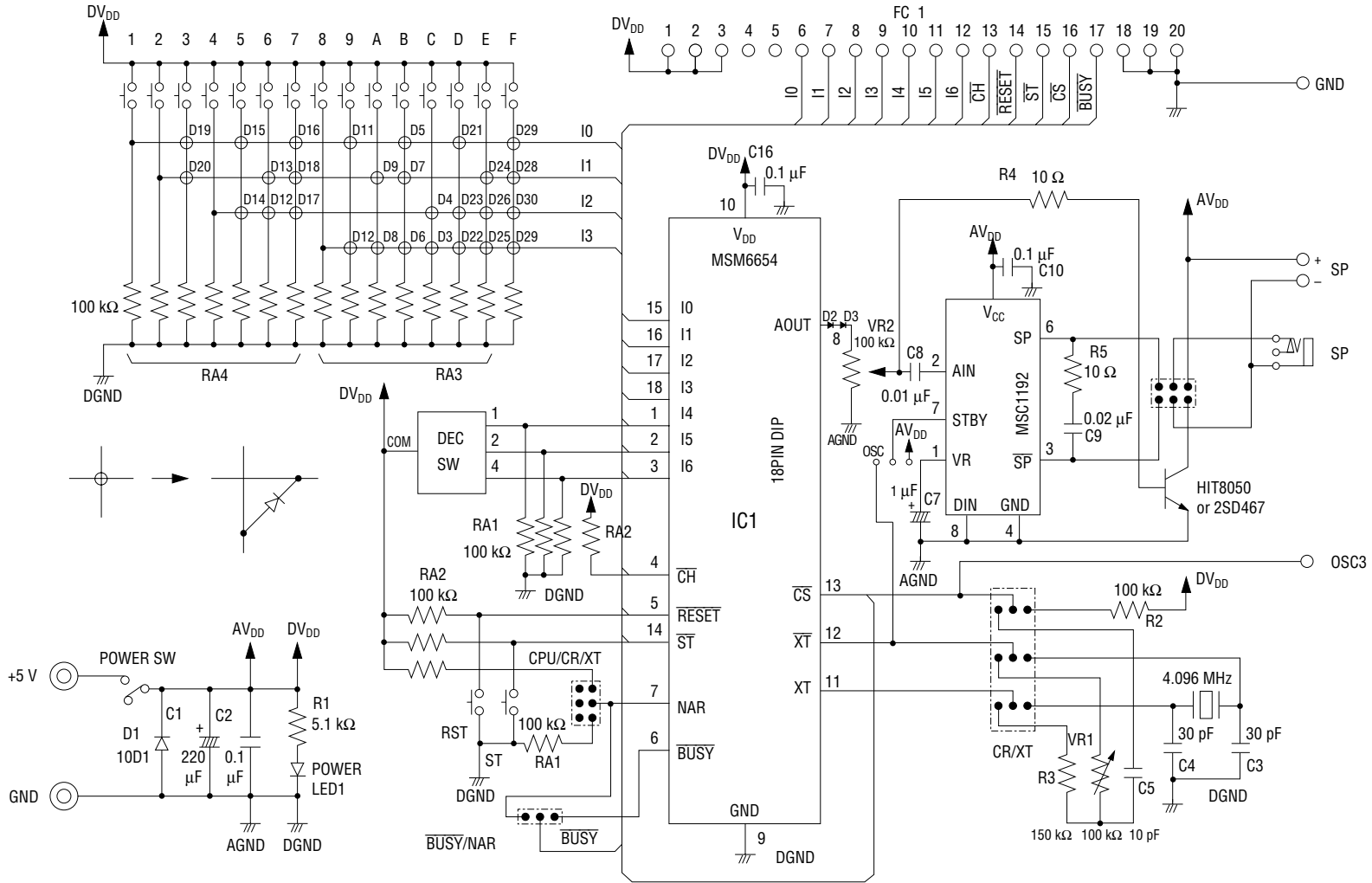
MSM6654 DEMO BOARD**MSM6654 Demonstration Board****BOARD DESIGN****BOARD FEATURES**

- ①, ② Standalone/microcontroller interface switching jumpers and XT/ $\overline{\text{CR}}$ switching jumpers
The jumpers in ① are used to select the operation in standalone mode or the operation in microcontroller interface mode. The jumpers in ② are used to select RC oscillation or crystal oscillation. When the standalone mode is used, for RC oscillation, set the jumpers in ① to the lower right side and set the three jumpers in ② to the lower side. For crystal oscillation, set the jumpers in ① to the upper right side and set the three jumpers in ② to the upper side. When a microcontroller is used, only RC oscillation is settable. Set the jumpers in ① to the upper left side and set the three jumpers in ② to the upper side.
- ③ $\overline{\text{BUSY}}$ /NAR switching jumper
When the jumper is turned to the right side, the $\overline{\text{BUSY}}$ signal is output from pin 17 of the 20-pin connector. When the jumper is turned to the left side, the NAR signal is output from the same pin. When a standalone computer is used, turn the jumper to the right side.
- ④ AMP/TR switching jumpers
To amplify an analog signal which is output from AOUT, with transistors, set the two jumpers to the right side. To amplify it with an amplifier, turn the two jumpers to the left.

- ⑤ 20-pin connector
All necessary signals are connected to the 20-pin connector when a microcontroller is used.
The connector pins are arranged as shown below.

Connector pin No.	Signal	Connector pin No.	Signal
1	DV _{DD}	11	I5
2	DV _{DD}	12	I6
3	DV _{DD}	13	\overline{CH}
4	NC	14	\overline{RESET}
5	NC	15	\overline{ST}
6	I0	16	\overline{CS}
7	I1	17	$\overline{BUSY/NAR}$
8	I2	18	GND
9	I3	19	GND
10	I4	20	GND

- ⑥ Address specification switch
When a standalone mode is used, select a word to be played by 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.
- ⑦ Frequency check pin (OSC3)
This pin monitors and checks the oscillation frequency.
- ⑧ Variable resistor (VR1) for adjusting the frequency of RC oscillation.
This variable resistor can change the frequency of RC oscillation. When the resistor is turned to the right, the frequency goes low. When the resistor is turned to the left, the frequency goes high. In this case, the frequency can be monitored by pin 7.
- ⑨ GND pin
- ⑩ OSC/V_{DD} switching jumper
Set the jumper to the left side.
- ⑪ Speaker amplifier volume (VR2 shared by AMP/TR)
Turn the volume switch to the right to increase the sound volume. Turn the volume switch to the left to reduce the sound volume.
- ⑫ Complete SW input interface
When a standalone computer is used, press the 1-F buttons to play voices corresponding to 1-F of SW3-SW0. Press the lower left ST button (random voice playback button) to play voices that are randomly selected from 31 types of phrases corresponding to A0 and SW3-SW0. But, when the ST switch is pressed while turning the power ON or during the input of \overline{RESET} , firstly voice playback is made starting from the 1st phrase and beyond secondly it is made randomly.

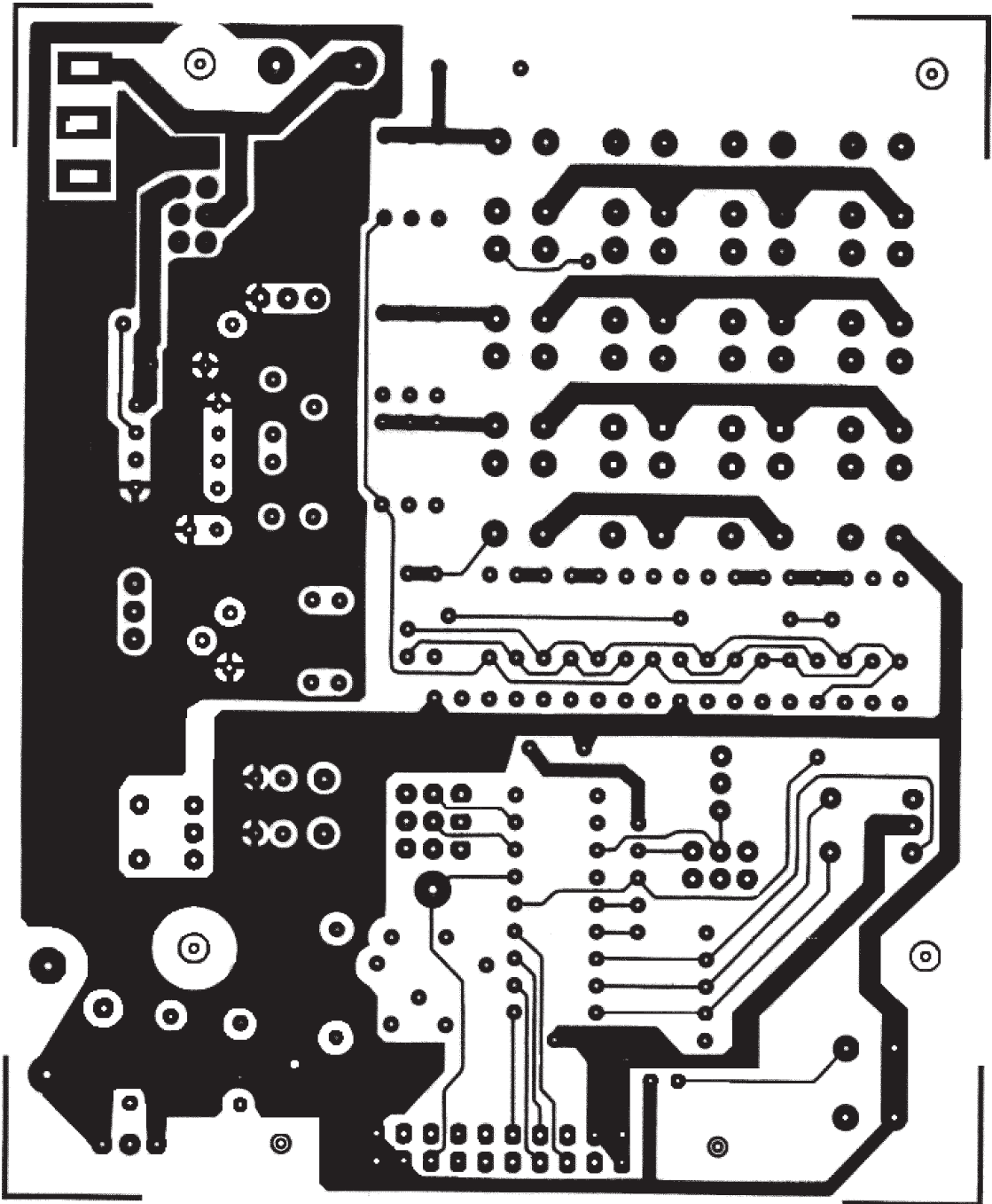


CIRCUIT DIAGRAM

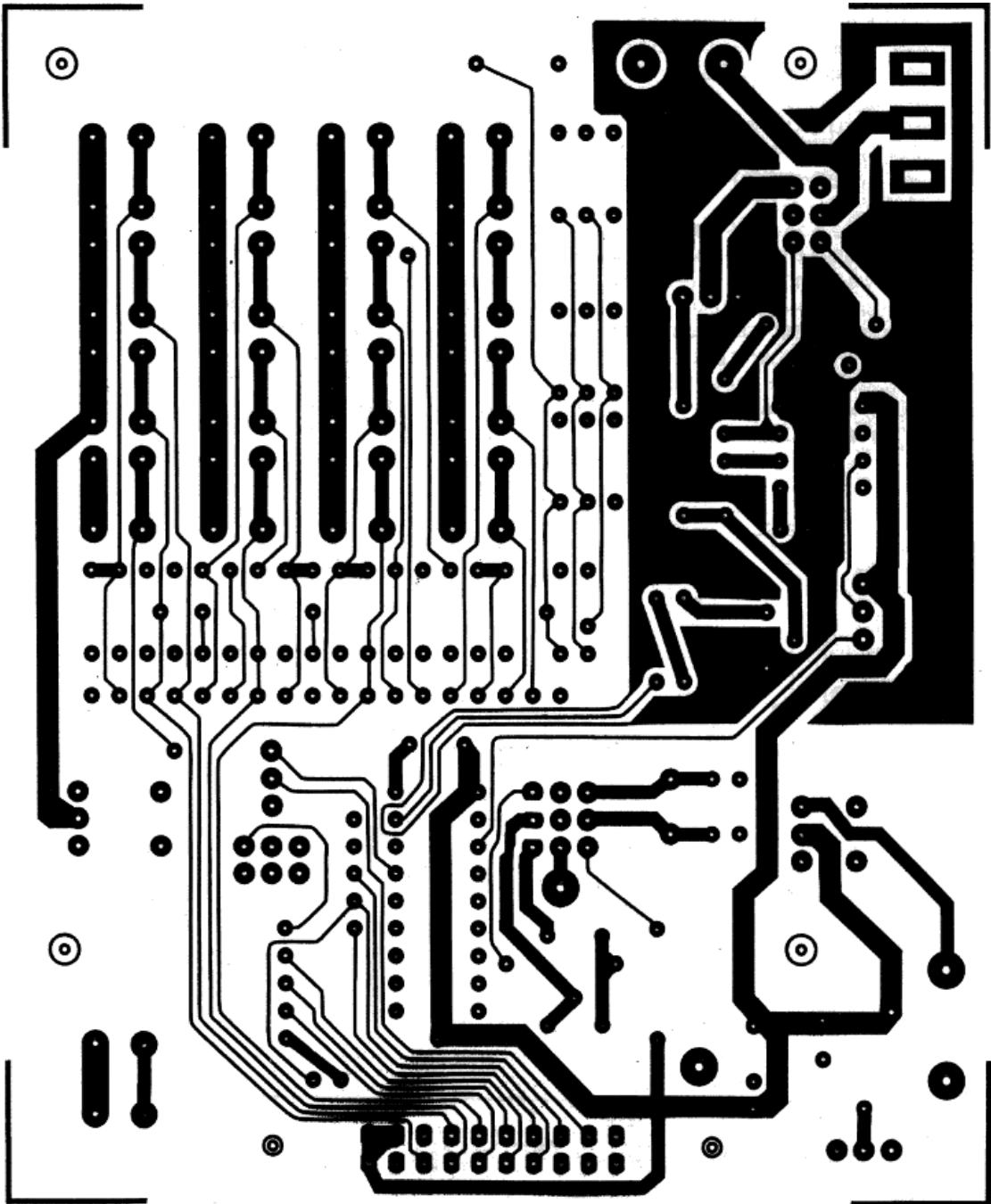
OKI Semiconductor

MSM6654 DEMO BOARD

Mounting Side



Solder Side



NOTICE

1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.
3. When designing your product, please use our product below the specified maximum ratings and within the specified operating ranges including, but not limited to, operating voltage, power dissipation, and operating temperature.
4. Oki assumes no responsibility or liability whatsoever for any failure or unusual or unexpected operation resulting from misuse, neglect, improper installation, repair, alteration or accident, improper handling, or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified operating range.
5. Neither indemnity against nor license of a third party's industrial and intellectual property right, etc. is granted by us in connection with the use of the product and/or the information and drawings contained herein. No responsibility is assumed by us for any infringement of a third party's right which may result from the use thereof.
6. The products listed in this document are intended for use in general electronics equipment for commercial applications (e.g., office automation, communication equipment, measurement equipment, consumer electronics, etc.). These products are not authorized for use in any system or application that requires special or enhanced quality and reliability characteristics nor in any system or application where the failure of such system or application may result in the loss or damage of property, or death or injury to humans. Such applications include, but are not limited to, traffic and automotive equipment, safety devices, aerospace equipment, nuclear power control, medical equipment, and life-support systems.
7. Certain products in this document may need government approval before they can be exported to particular countries. The purchaser assumes the responsibility of determining the legality of export of these products and will take appropriate and necessary steps at their own expense for these.
8. No part of the contents contained herein may be reprinted or reproduced without our prior permission.
9. MS-DOS is a registered trademark of Microsoft Corporation.

Copyright 1999 Oki Electric Industry Co., Ltd.
