

**INSTRUCTION MANUAL**

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**OKI**

**MSM7583 Evaluation Board**

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Oki Electric Industry Co., Ltd.

**FIRST EDITION**  
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## MSM7583 Evaluation Board

$\pi/4$  Shift QPSK MODEM

This board is used to evaluate an MSM7583 device ( $\pi/4$  shift QPSK modem LSI). The evaluation board is provided with peripherals needed to operate the LSI, having the capability to evaluate its characteristics easily.

For details of specifications and functions of the MSM7583, refer to data sheets.

### 1. Configuration of Evaluation Board

- Evaluation board ..... 1
- Attached power cord ..... 1
- Female connector components for the flat cable ..... 1 set

### 2. Circuit Diagrams of Evaluation Board

- Circuit diagram ..... See Figures 1.1 and 1.2.
- Board layout ..... See Figure 2.

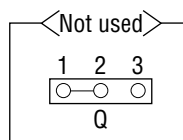
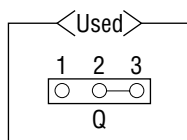
### 3. Information for Using Evaluation Board

#### (1) Power Supply

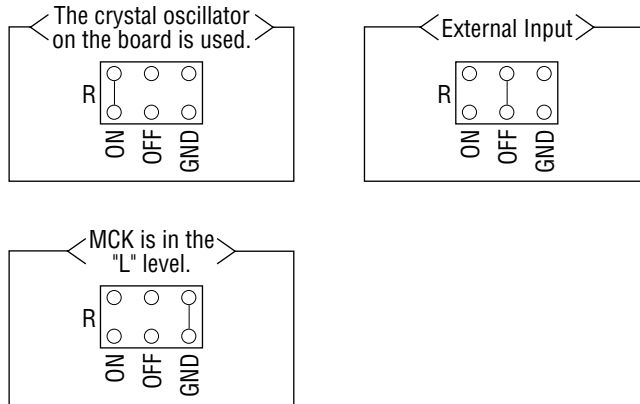
Supply power to the evaluation board via the attached power cord. Red and brown wires are for +5V, the black wire is to the ground, and the green wire is for -5V.

#### (2) Switches

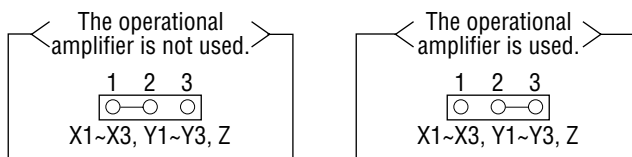
- ☆ Terminals A to N are used to open/close signals such as SLS11, SLS21, SLS12, SLS22, RXSEL, RCW1, AFC1, RPR1, RCW2, AFC2, RPR2, PDN2, PDN1, and PDN0 to the switches S1-S14. With terminals closed, the signal can be asserted or negated by control switches S1 to S14. With terminals open, control signals can be entered through pins 1 to 14 of the 40-pin flat cable connector.
- ☆ Terminal P is used to connect IFCK with X2 in MSM7583. During use, this terminal must be closed.
- ☆ Terminal Q is used to control input to X1 in MSM7583. Set this terminal as follows, depending on whether the oscillating circuit of MSM7583 is used.



- ☆ Terminal R is used to control the input of MCK (master clock) to MSM7583. Set this terminal as follows:



- ☆ Terminals T to W are used to open/close reset input and serial control register input for MSM7583. The MSM7583 mode can be set through appropriate closed terminals by peripherals on the board. With appropriate terminals open. Control signals can be entered through pins 30 to 33 of the 40-pin flat cable connector.
- ☆ Terminals X1 to X3, Y1 to Y3, and Z are used to output quadrature modulation output I and Q, and envelope ENV. Inserting the operational amplifiers into the 8-pin IC sockets marked with OPA allows buffering outputs of added differential quadrature modulation outputs and also of envelope output. Set these terminals as follows:



With the operational amplifier not used, I+, I-, Q+, Q- and ENV output signals of MSM7583 are given out directly at the BNC terminals on the board. With the operational amplifier used, the addition of I+ and I- is output at I+ of the BNC terminal, the addition of Q+ and Q- at Q+, and buffered ENV output at ENV of the BNC terminal.

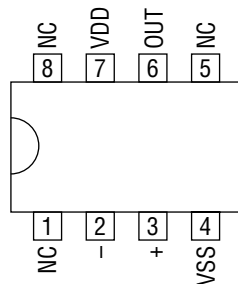
**(3) Crystal Oscillator**

MSM7583 uses a crystal oscillator depending on the input IF signal frequency. The following are frequencies used:

IF signal frequency	Frequency of crystal oscillator
1.2MHz/10.8MHz	Not used
10.7MHz	19.0222MHz
10.75MHz	19.1111MHz

**(4) Operational Amplifier**

The operational amplifier to be inserted into the 8-pin IC socket marked with OPA must have the following pin assignment.



**(5) Setting MSM7583 Serial Control Register**

Turning on the switch by the push button for the serial control register allows CS to load MSM7583 with data set by switches A0 to A2 and B0 to B7. For contents of the registers, see data sheets.

**(6) Other I/O Signals**

- ☆ IF signals (modulating wave inputs) are to be entered through BNC terminals IFIN1 and IFIN2 on the board.
- ☆ TXCI, TXD and TXW (send clock, send data and send data window) are to be entered through pins 27 to 29 of the 40-pin flat cable connector.
- ☆ External control signals can be entered and signals can be output through the 40-pin flat cable connector. For the relationships between signals and connector pins, see the separate circuit diagram.

