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Renesas Electronics Corporation

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M32180T2-PTC

Converter for In-circuit Connection (for M32180F8xFP)

Instruction Manual

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Safety Symbol and Meaning



CAUTION

If the requirements shown in the "CAUTION" sentences are ignored, the equipment may cause personal injury or damage to the products.

1. Outline

The M32180T2-PTC is a converter for featuring the debugging function such as real-time tracing when using emulators M32170T-SDI, M32100T-SDI-E or M32100T2-SDI-E with the M32180F8xFP.

2. Package Components

- (1) M32180T2-PTC converter
- (2) YQPACK240SD (made by Tokyo Eletech Corporation)
- (3) NQPACK240SD (made by Tokyo Eletech Corporation)
- (4) YQ-GUIDE x4 (made by Tokyo Eletech Corporation)
- (5) Screwdriver (made by Tokyo Eletech Corporation)
- (6) M32180T2-PTC Instruction Manual (This manual)

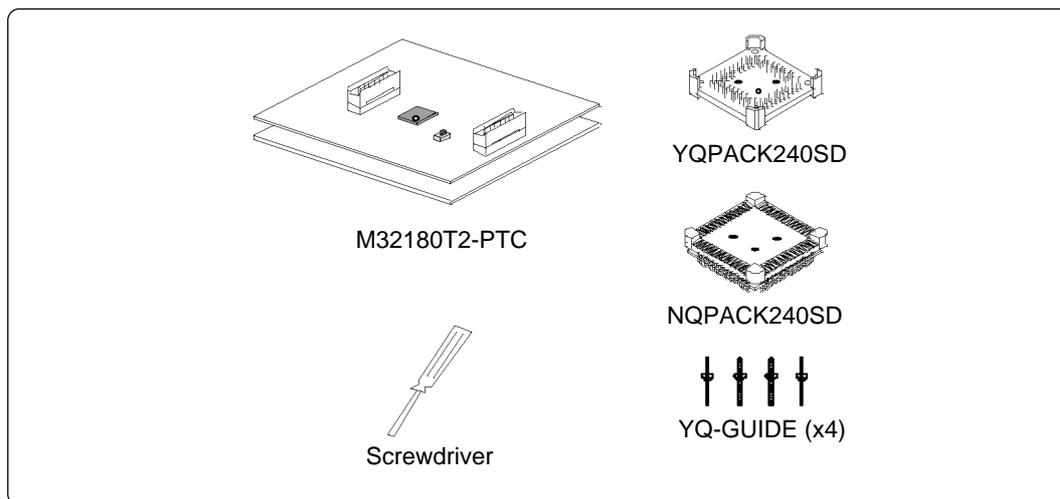


Figure 1 Package components of the M32180T2-PTC

3. Specifications

Table 1 Specifications

Applicable package	240P6Y-A (240-pin 0.5-mm-pitch QFP)
Supported MCU	M32180F8xFP
Supported emulator	M32170T-SDI, M32100T-SDI-E or M32100T2-SDI-E With the M32170T-SDI or M32100T-SDI-E, separately available M3T-PTC-CNV is required.
Mounted MCU	M32180F8VWG
Clock	10 MHz
Power supply	Supplied from the target board

4. Usage

The M32180T2-PTC can be used for debugging and board mounted evaluation in common by mounting the NQPACK240SD on the target board.

(1) For debugging

Mount the NQPACK240SD (included with the M32180T2-PTC) on the 240QFP foot pattern of the target board. Then connect the M32180T2-PTC via the YQPACK240SD. As the M32180F8VWG is mounted on the M32180T2-PTC, all functions of the emulator such as real-time tracing can be used.

Before using the M32180T2-PTC, be sure to read "8. Precautions" on page 7.

(2) For board-mounted evaluation

Mount the M32180F8xFP and the HQPACK240SD (separately available) in that order on the NQPACK240SD on the target system.

5. Connection Procedure

The procedure for connecting the M32180T2-PTC is shown according to applications. See Figures 2 to 4.

5.1 For the M32100T2-SDI-E

- (1) Mount the NQPACK240SD.
- (2) Mount the YQPACK240SD on the NQPACK240SD.
- (3) Secure the four corners of the YQPACK240SD with the YQ-GUIDE's.
- (4) Set the clock select switch.
- (5) Mount the M32180T2-PTC on the YQPACK240SD.
- (6) Connect the emulator probe to the M32180T2-PTC.

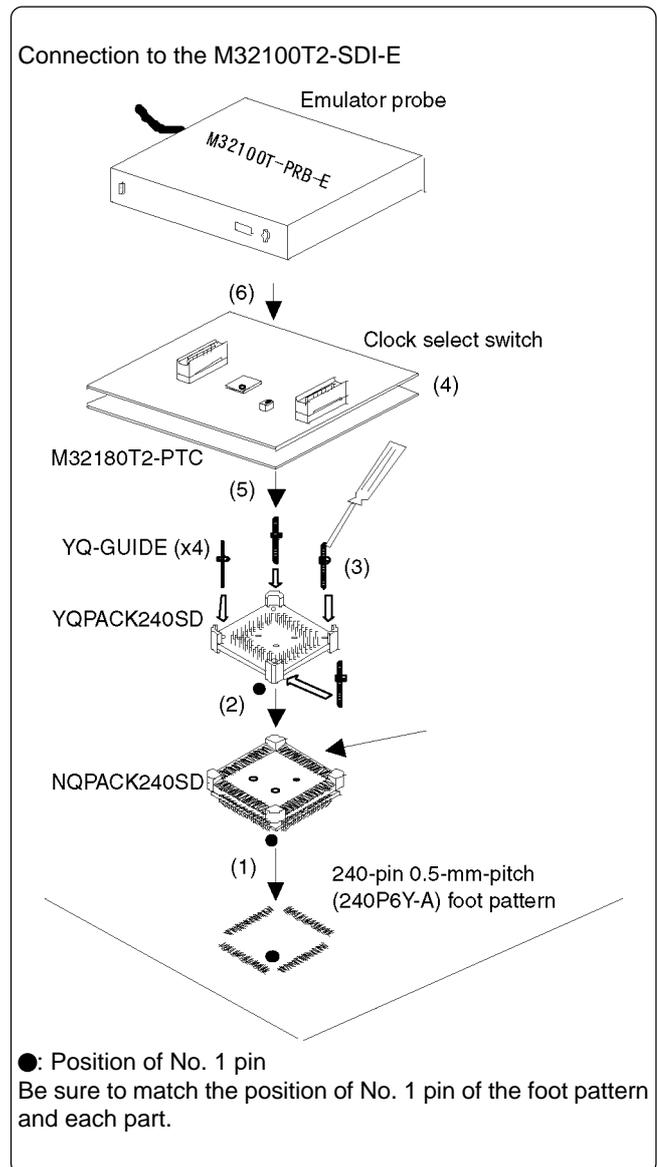


Figure 2 Connection to the M32100T2-SDI-E

5.2 For the M32100T-SDI-E and M32170T-SDI

- (1) Mount the NQPACK240SD.
- (2) Mount the YQPACK240SD on the NQPACK240SD.
- (3) Secure the four corners of the YQPACK240SD with the YQ-GUIDE's.
- (4) Set the clock select switch.
- (5) Mount the M32180T2-PTC on the YQPACK240SD.
- (6) Mount the M3T-PTC-CNV on the M32180T2-PTC.
- (7) Connect the probe of the emulation pod and the M32180T2-PTC via the SDI MCU control interface cable and the SDI trace interface cable.

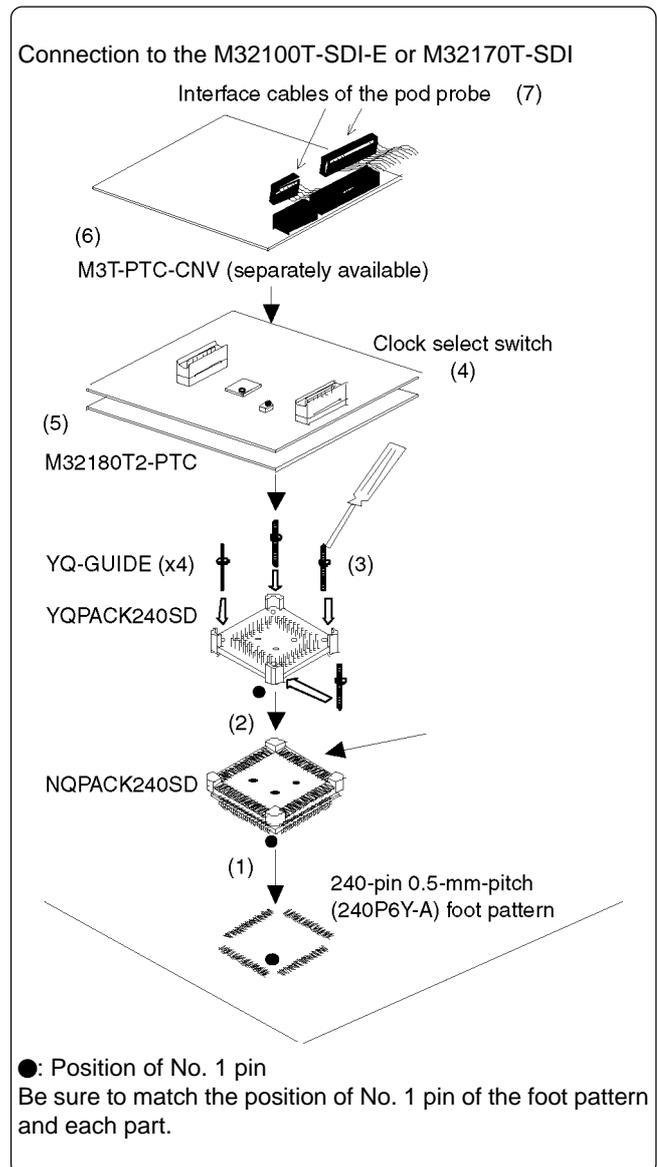


Figure 3 Connection to the M32100T-SDI-E or M32170T-SDI

5.3 For Board-mounted Evaluation

- (1) Mount the NQPACK240SD.
- (2) Mount the M32180F8xFP on the NQPACK240SD.
- (3) Mount the HQPACK240SD on the NQPACK240SD.

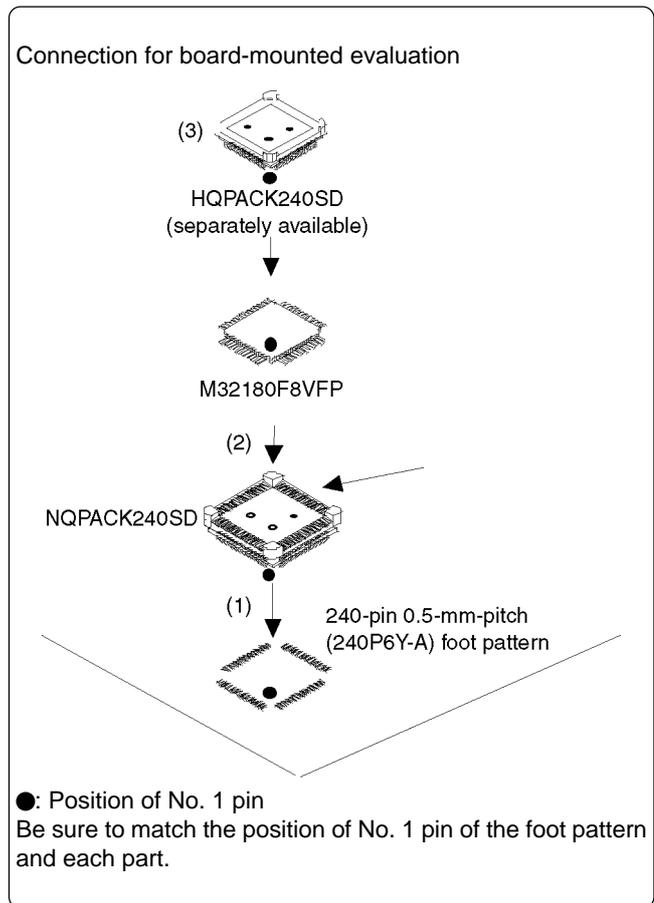


Figure 4 Connection for board-mounted evaluation

6. Selecting a Clock

With the M32180T2-PTC, it is possible to select a clock supply to the MCU by the clock select switch (SW1). Select a clock supply as shown below.

However, when used with the M32180T2-PTC, the clock cannot be supplied from the target system.

10 MHz: Supplies the clock (X1: 10 MHz) on the M32180T2-PTC board to the MCU.

SOCKET: Supplies the clock to the MCU from the socket (X2) for mounting the oscillator on the M32180T2-PTC board. By mounting the oscillator to the X2 socket of the MCU, it is possible to change the operating frequency.

For more details on the connecting the X2 socket and the MCU, see Figure 5 (right).

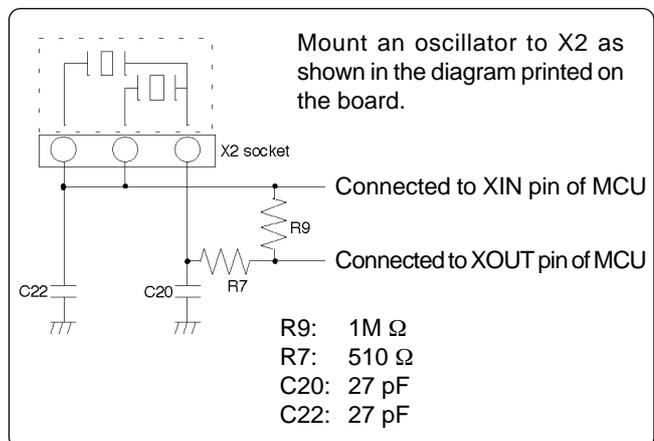


Figure 5 Connection diagram of X2 socket

7. External Dimensions and a Sample Foot Pattern of the M32180T2-PTC

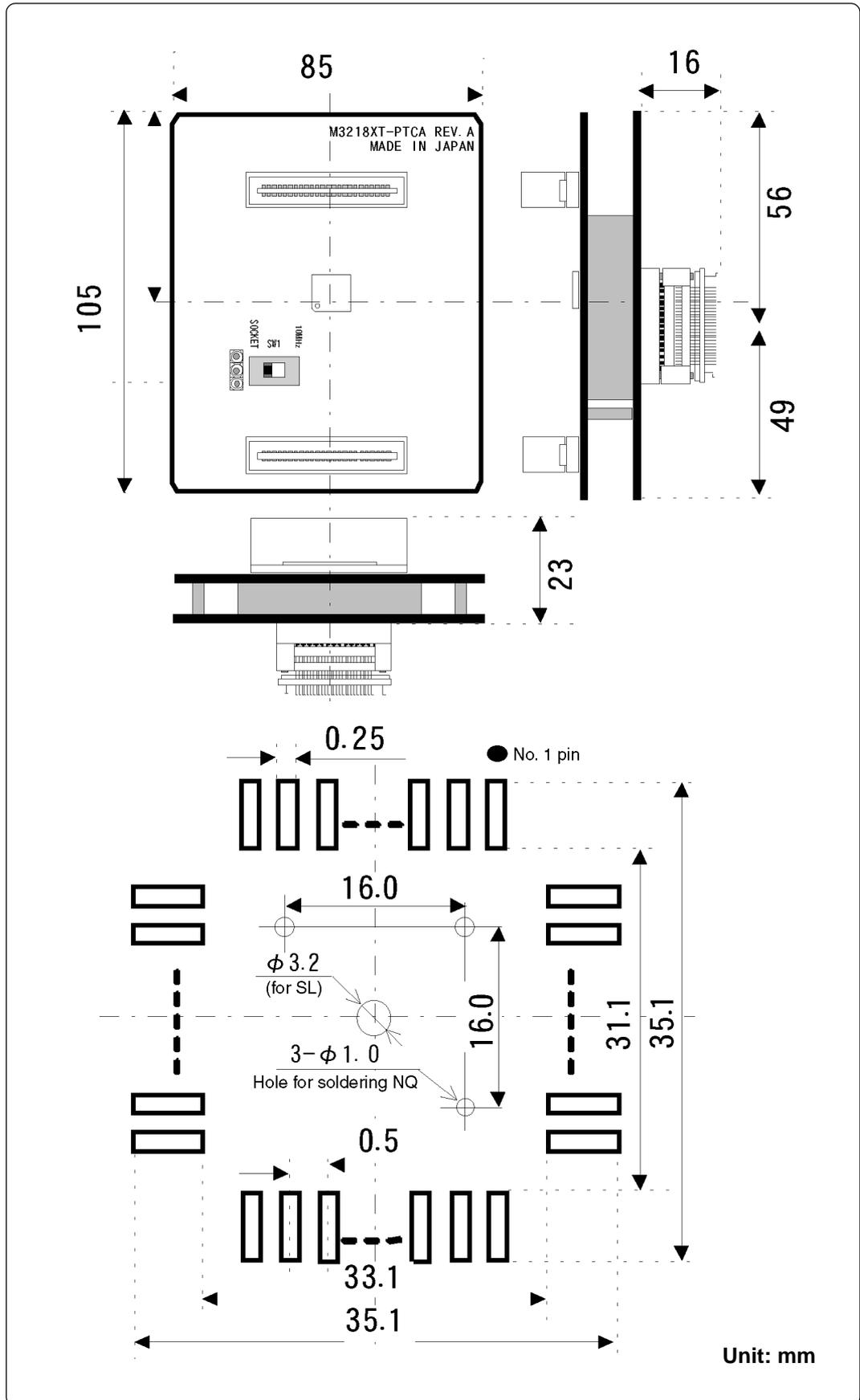


Figure 6 External dimensions and a sample foot pattern of the M32180T2-PTC

8. Precautions

CAUTION

Cautions to Be Taken for Emulator:



- For debugging, use this product in the combination with the M32170T-SDI, M32100T-SDI-E or M32100T2-SDI-E emulator.
- When using with the M32170T-SDI or M32100T-SDI-E, the following restriction is applied according to the MCU operating frequency.
 - More than 66 MHz:
Compared with the M32100T2-SDI-E, more loss of trace information occurs.
 - 66 MHz or less:
Same as the M32100T2-SDI-E.
- When using with the M32170T-SDI or M32100T-SDI-E, connect the both cables for connecting the emulator, the SDI MCU control interface cable (10-pin) and the SDI trace interface cable (20-pin).
- For the precautions for the combination of the emulator, refer to the user's manual of each emulator.

Cautions for Differences between MCUs and This Product:



- For debugging, as the M32180F8VWG (64KB internal SRAM) on the M32180T2-PTC is used, be careful about the difference of the SRAM size when using the M32180F8xFP.
- When the clock select switch is set to the "SOCKET" side, the oscillation occurs by itself, be careful about the difference of the resistance and the capacitor.
- The capacitive load of the all lines of the MCU will increase depending on wirings and connectors. Use the part whose timing is critical after checking it works properly.

Cautions to Be Taken for This Product:



- When connecting the YQPACK240SD, be sure to use the included YQ-GUIDE's.
- We cannot accept any request for repair.
- For purchasing the NQPACK240SD, YQPACK240SD and HQPACK240SD, contact the following:

~~Daimaru Kogyo Ltd.~~
~~http://www.daimarukogyo.co.jp/index_e.htm~~

Tokyo Eletech Corporation
http://www.tetc.co.jp/e_tet.htm

- For inquiries about the product or the contents of this manual, contact your local distributor.

Renesas Tool Homepage <http://www.renesas.com/en/tools>