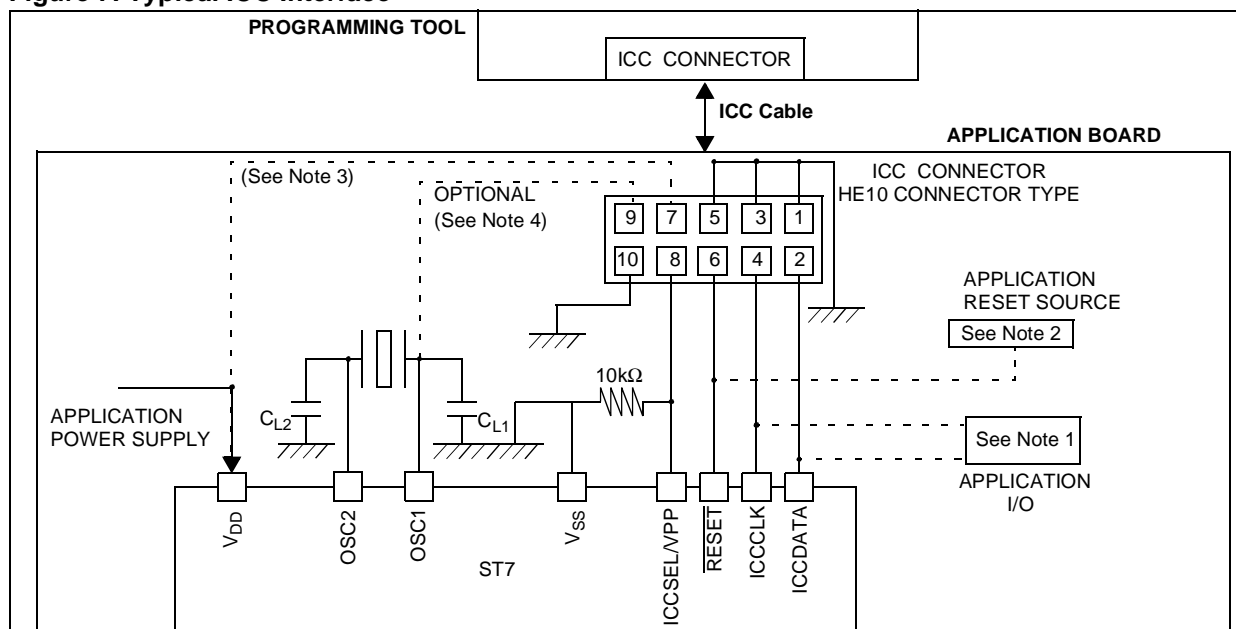


FLASH PROGRAM MEMORY (Cont'd)**4.4 ICC Interface**

ICC needs a minimum of 4 and up to 6 pins to be connected to the programming tool (see [Figure 7](#)). These pins are:

- $\overline{\text{RESET}}$: device reset
- V_{SS} : device power supply ground
- ICCCLK: ICC output serial clock pin
- ICCDATA: ICC input/output serial data pin
- ICCSEL/ V_{PP} : programming voltage
- OSC1(or OSCIN): main clock input for external source (optional)
- V_{DD} : application board power supply (optional, see [Figure 7](#), Note 3)

Figure 7. Typical ICC Interface**Notes:**

1. If the ICCCLK or ICCDATA pins are only used as outputs in the application, no signal isolation is necessary. As soon as the Programming Tool is plugged to the board, even if an ICC session is not in progress, the ICCCLK and ICCDATA pins are not available for the application. If they are used as inputs by the application, isolation such as a serial resistor has to be implemented in case another device forces the signal. Refer to the Programming Tool documentation for recommended resistor values.

2. During the ICC session, the programming tool must control the $\overline{\text{RESET}}$ pin. This can lead to conflicts between the programming tool and the application reset circuit if it drives more than 5mA at high level (push pull output or pull-up resistor < 1K). A schottky diode can be used to isolate the application RESET circuit in this case. When using a classical RC network with $R > 1K$ or a reset management IC with open drain output and pull-up re-

sistor > 1K, no additional components are needed. In all cases the user must ensure that no external reset is generated by the application during the ICC session.

3. The use of Pin 7 of the ICC connector depends on the Programming Tool architecture. This pin must be connected when using most ST Programming Tools (it is used to monitor the application power supply). Please refer to the Programming Tool manual.

4. Pin 9 has to be connected to the OSC1 or OSCIN pin of the ST7 when the clock is not available in the application or if the selected clock option is not programmed in the option byte. ST7 devices with multi-oscillator capability need to have OSC2 grounded in this case.