

Errata No. X42A-P-002-01

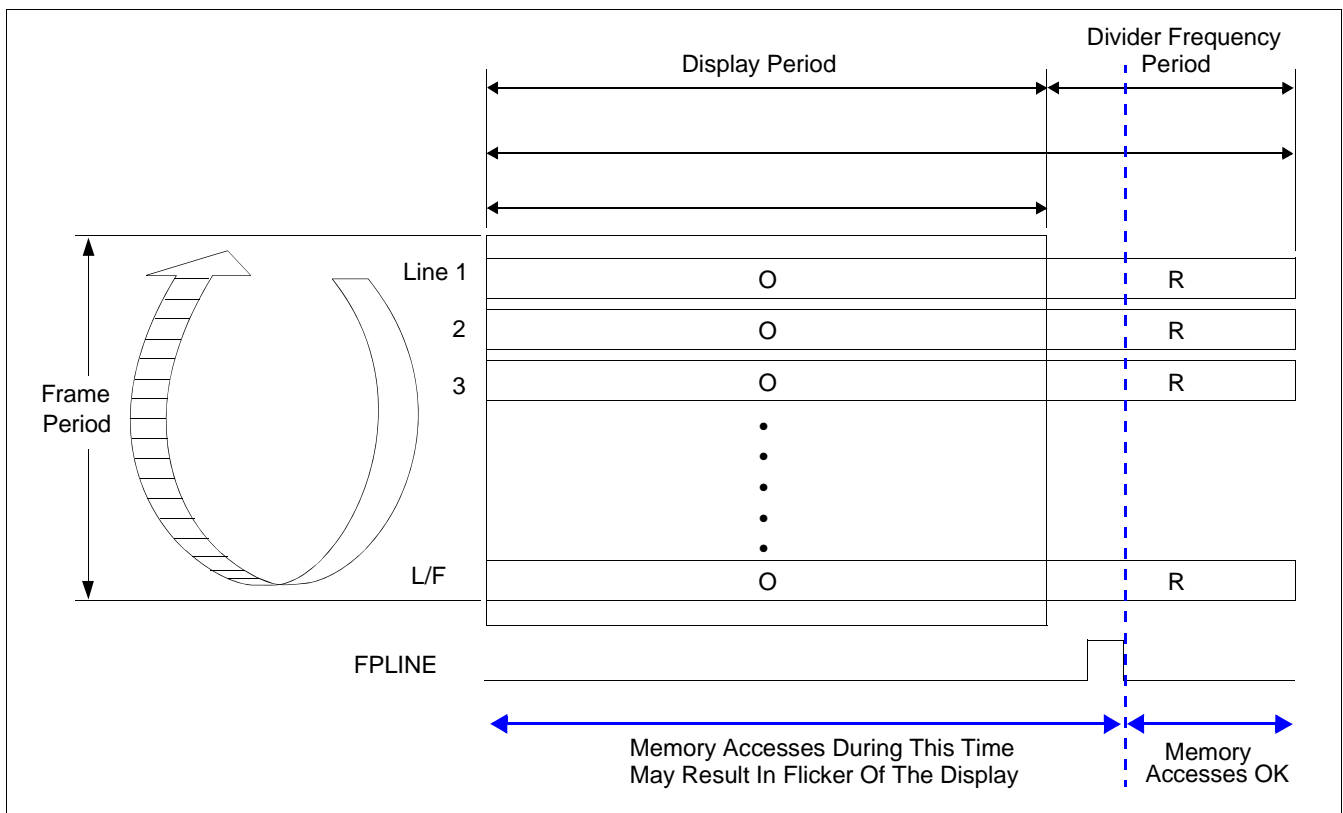
Device: S1D13700F01

Problem Description: Possible Flicker During Display Memory Accesses

When Text Mode is selected, the display may flicker during Host accesses to display memory. The problem does not occur when Graphics Mode is selected.

Problem

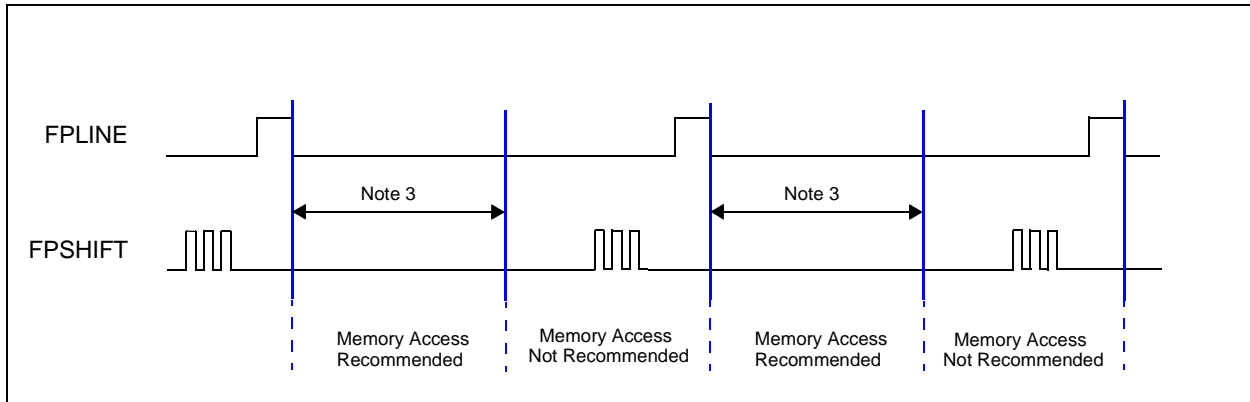
In text mode (when the CGROM or CGRAM is used), flickering may occur when the Host accesses the display memory during the Display Period or before the falling edge of FPLINE as shown in the following figure.



Work-around

To ensure that flicker does not occur, Host accesses to the display memory should be performed only during the pause at the end of each line. The following figure shows the recommended timing for Host accesses to the display memory when Text Mode is selected.

The falling edge of FPLINE can be used as the interrupt signal. Accessing the display memory at any time other than during the recommended period may result in flickering on the display.



1. $t_{OSC} = 1/f_{OSC}$
= 1 cycle of the oscillator or the CLKI input clock
2. DIV = 2 or 4 or 8
3. Accesses to the display memory are allowed during this time period. It begins from the falling edge of FPLINE and is defined by the following formulas depending on the selected color depth (1, 2, or 4 bpp).
For 1 bpp, use the following formula: $((TCR + 1) - (CR + 1) - 3) \times DIV \times 2 \times t_{OSC}$
For 2 bpp, use the following formula: $((TCR + 1) - (CR + 1) - 2) \times DIV \times 2 \times t_{OSC}$
For 4 bpp, use the following formula: $((TCR + 1) - (CR + 1) - 1) \times DIV \times 2 \times t_{OSC}$

Note

For further details on display memory access requirements when text mode is selected, see the *S1D13700F01 Hardware Functional Specification*, document number X42A-A-002-xx. For the latest revision of this document, please visit the Epson Research and Development website at www.erd.epson.com.