FS781/2/4

LOW EMI SPECTRUM SPREAD CLOCK

Approved Product

Features

- Spread Spectrum Clock Generator (SSCG) with 1x, 2x and 4x Outputs

- 6 to 82 MHz operating frequency range.

- Modulates external clocks including crystals, crystal oscillators and ceramic resonators.

- Programmable modulation with simple R-C external loop filter (LF)

- Center Spread Modulation.

- 3 - 5 Volt power supply.

- TTL/CMOS compatible outputs.

- Low short term jitter.

- Low Power Dissipation;

    3.3 VDC = 37 mw - typical

    5.0 VDC = 115 mw - typical

- Available in 8 pin SOIC and TSSOP packages.

Applications

- Desktop/Notebook Computers

- Printers, Copiers and MFP

- Scanners and Fax

- LCD Displays and Monitors

- CD-ROM, VCD and DVD

- Automotive and Embedded Systems

- Networking, LAN/WAN

- Digital Cameras and Camcorders

- Modems

Benefits

- Programmable EMI Reduction

- Fast Time to Market

- Lower cost of compliance

- No degradation in Rise/Fall times

- Lower component and PCB layer count

Product Description

The IMI FS781/2/4 are Spread Spectrum Clock Generator ICs (SSCG) designed for the purpose of reducing Electro Magnetic Interference (EMI) found in today's high-speed digital systems.

The FS781/2/4 SSCG clocks use an IMI proprietary technology to modulate the input clock frequency, FS_{OUT} by modulating the frequency of the digital clock. By modulating the reference clock the measured EMI at the fundamental and harmonic frequencies of FSOUT is greatly reduced. This reduction in radiated energy can significantly reduce the cost of complying with regulatory requirements without degrading digital waveforms.

The IMI FS781/2/4 clocks are very simple and versatile devices to use. By programming the two range select lines, S0 and S1, any frequency from 6 to 82 MHz operating range can be selected. The FS781/2/4 are designed to operate over a very wide range of input frequencies and provides 1x, 2x and 4x modulated clock outputs.

The FS78x devices have a simple frequency selection table that allows operation from 6 MHz to 82 MHz in four separate ranges. The bandwidth of the frequency spread at FSOUT is determined by the values of the loop filter components. The modulation rate is determined internally by the input frequency and the selected input frequency range.

The Bandwidth of these products can be programmed from as little as 0.6% up to as much as 4.0% by selecting the proper loop filter value. Refer to the Loop Filter Selection chart on page 6 for recommended values. Due to a wide range of application requirements, an external loop filter (LF) is used on the FS78x products. The user can select the exact amount of frequency modulation suitable for the application. Using a fix internal loop filter would severely limit the use of a wide range of modulation bandwidths (Spread %) to a few discrete values.

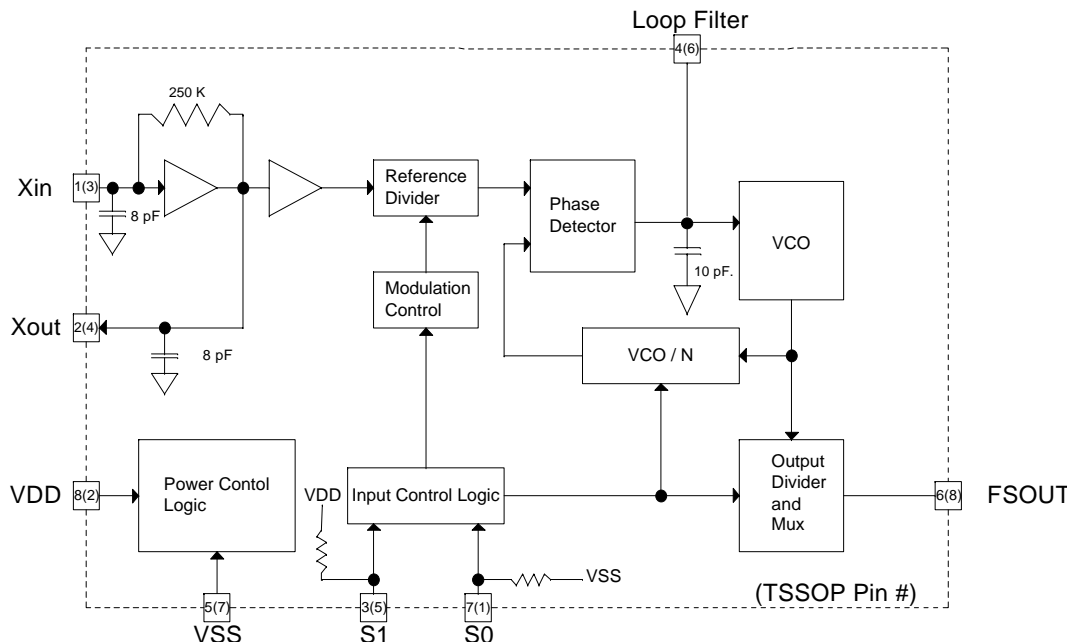Refer to FS791/2/4 products for applications requiring 80 to 140 MHz frequency range.

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...when timing is critical

Approved Product

Block Diagram

Figure 1. Block Diagram

Ordering Information

Product Number	FM-OUT Scaling	Package Type	Production Flow
FS781BZB	1xFin	8 Pin 150 mil SOIC	Commercial, 0 to 70°C
FS782BZB	2xFin	8 Pin 150 mil SOIC	Commercial, 0 to 70°C
FS784BZB	4xFin	8 Pin 150 mil SOIC	Commercial, 0 to 70°C
FS781BTB	1xFin	8 Pin 169 mil TSSOP	Commercial, 0 to 70°C
FS781BTB	2xFin	8 Pin 169 mil TSSOP	Commercial, 0 to 70°C
FS781BTB	4xFin	8 Pin 169 mil TSSOP	Commercial, 0 to 70°C

Marking Example: IMI Date Code
                        FS781BZ
                        Lot Number

IMIFS78xBZB

Flow
B = Commercial, 0°C to 70°C

Packages
Z = SOIC (150 Mil)
T = TSSOP (169 Mil)

Revisions

IMI Device Number