Field Programmable Oscillator

Features

- Instant programming of 1 MHz to 625 MHz frequencies
- Low power single-ended field programmable oscillators
  - SiT8008FP (supports SiT1602FP)
- Ultra performance field programmable oscillators
  - Single-Ended: SiT8208FP, SiT8209FP
  - Differential: SiT9121FP (supports SiT9120FP), SiT9122FP
- Voltage controlled field programmable oscillators (VCXO)
  - Single-Ended: SiT3808FP, SiT3809FP, SiT3807FP
  - Differential: SiT3821FP, SiT3822FP
- Spread spectrum field programmable oscillators
  - Single-Ended: SiT9001FP, SiT9003FP (low power)
  - Differential: SiT9002FP
- Programming kit
  - Time Machine II (SiT6100DK)

Benefits

- Generating samples in seconds
- Custom frequencies for improving system performance
- Fast time to market
- Fast prototype builds
- Frequency margining
- Short lead time
- 40X more reliable than quartz solutions

EXPRESS SAMPLES   GREEN SOLUTIONS   QUARTZ FREE

Description

SiTime offers a wide range of programmable timing solutions such as, oscillators, VCXO, TCXO, clock generators and spread spectrum MEMS Oscillators. SiTime offers Field Programmable (FP) devices that enable engineers to configure SiTime's Oscillators by using a field programmable kit, SiT6100DK, for fast prototyping or generating any custom frequencies in seconds. This document summarizes all the field programmable devices that SiTime has to offer. For any devices that are not covered here contact your SiTime representative.

Figure 1 shows a simple setup required for programming SiTime FP devices using SiT6100DK.

Please refer to SiT6100DK quick start guide for more information (http://www.sitime.com/time-machine).

For production volume, SiTime offers factory programming of its entire portfolio with the shortest lead time available in the industry.

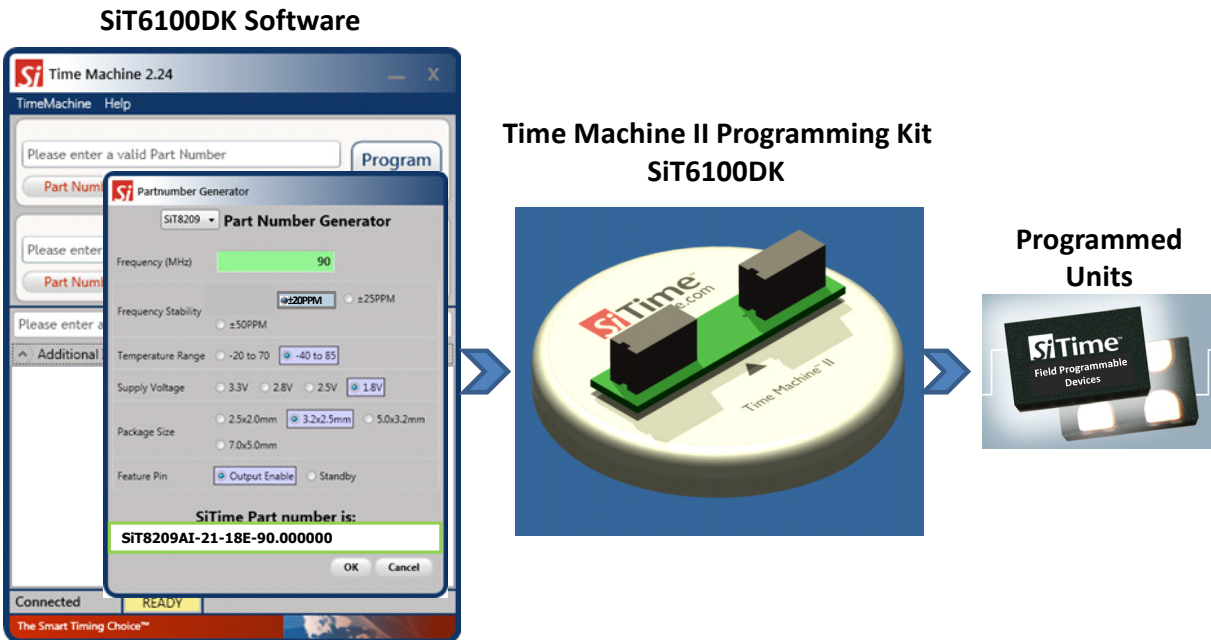**SiT6100DK Software**

Time Machine II Programming Kit
SiT6100DK

Programmed Units

Figure 1. Field Programmable Devices Software and Hardware

Ordering Information

Field Programmable Oscillators

In this family of products SiTime offers low power, high performance field programmable devices with single-ended and differential outputs.

For example, The filed programmable single-ended oscillator, SiT8008AI-11-XXX-000.FP000, allows user to program any frequency between 1 to 110 MHz with any stability of ±20, ±25, or ±50 PPM over industrial or extended commercial temperature range and any voltage supply of 1.8V, 2.5V, 2.8V, 3.3V, in a 2.5 x 2.0 (mmxmm) standard 4-pin oscillator package.

Oscillator Product Family	Field Programmable (FP) Part Number	Package Size (mm x mm)	Frequency Range (MHz)	Frequency Stability (PPM)	Temp Range (°C)	Voltage (V)	Other Supported Devices/Features
Low Power Single-Ended Oscillator SiT8008FP	SiT8008AI-71-XXX-000.FP000	2.0 x 1.6	1 to 110	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT1602
	SiT8008AI-11-XXX-000.FP000	2.5 x 2.0	1 to 110	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT1602
	SiT8008AI-21-XXX-000.FP000	3.2 x 2.5	1 to 110	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT1602
	SiT8008AI-31-XXX-000.FP000	5.0 x 3.2	1 to 110	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT1602
	SiT8008AI-81-XXX-000.FP000	7.0 x 5.0	1 to 110	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT1602
Ultra Performance Single-Ended Oscillator SiT8208FP SiT8209FP	SiT8208AI-G1-XXX-000.FP000	2.5 x 2.0	1 to 80	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT8208AI-21-XXX-000.FP000	3.2 x 2.5	1 to 80	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT8208AI-31-XXX-000.FP000	5.0 x 3.2	1 to 80	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT8208AI-81-XXX-000.FP000	7.0 x 5.0	1 to 80	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT8209AI-G1-XXX-000.FP000	2.5 x 2.0	80 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT8209AI-21-XXX-000.FP000	3.2 x 2.5	80 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT8209AI-31-XXX-000.FP000	5.0 x 3.2	80 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT8209AI-81-XXX-000.FP000	7.0 x 5.0	80 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
High Performance Differential Oscillator SiT9121FP SiT9122FP	SiT9121AI-1C1-XXX000.FP000	5.0 x 3.2	1 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	SiT9120 LVPECL
	SiT9121AI-1D1-XXX000.FP000	7.0 x 5.0	1 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	SiT9120 LVPECL
	SiT9121AI-2C1-XXX000.FP000	5.0 x 3.2	1 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	SiT9120 LVDS
	SiT9121AI-2D1-XXX000.FP000	7.0 x 5.0	1 to 220	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	SiT9120 LVDS
	SiT9122AI-1C1-XXX000.FP000	5.0 x 3.2	220 - 625	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVPECL
	SiT9122AI-1D1-XXX000.FP000	7.0 x 5.0	220 - 625	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVPECL
	SiT9122AI-2C1-XXX000.FP000	5.0 x 3.2	220 - 625	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVDS
	SiT9122AI-2D1-XXX000.FP000	7.0 x 5.0	220 - 625	±20, ±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVDS

Field Programmable Oscillator

Ordering Information (continued)

VCXO Field Programmable Devices

In this family of products SiTime offers high performance field programmable Voltage Controlled devices with single-ended and differential outputs.

VCXO Product Family	Field Programmable (FP) Part Number	Package Size (mm x mm)	Frequency Range (MHz)	Frequency Stability (PPM)	Temp Range (°C)	Voltage (V)	Other Supported Devices/Features
High Performance Single-Ended VCXO SiT3808FP SiT3809FP	SiT3808AI-G2-XXXX-000.FP000	2.5 x 2.0	1 to 80	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT3807
	SiT3808AI-22-XXXX-000.FP000	3.2 x 2.5	1 to 80	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT3807
	SiT3808AI-C2-XXXX-000.FP000	5.0 x 3.2	1 to 80	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT3807
	SiT3808AI-D2-XXXX-000.FP000	7.0 x 5.0	1 to 80	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	SiT3807
	SiT3809AI-G2-XXXX-000.FP000	2.5 x 2.0	80 to 220	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT3809AI-22-XXXX-000.FP000	3.2 x 2.5	80 to 220	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT3809AI-C2-XXXX-000.FP000	5.0 x 3.2	80 to 220	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
	SiT3809AI-D2-XXXX-000.FP000	7.0 x 5.0	80 to 220	±25, ±50	-40 to 85, -20 to 70	1.8V, 2.5-3.3V	NA
High Performance Differential VCXO SiT3821FP SiT3822FP	SiT3821AI-1C2-XXXX000.FP000	5.0 x 3.2	1 to 220	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVPECL
	SiT3821AI-1D2-XXXX000.FP000	7.0 x 5.0	1 to 220	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVPECL
	SiT3821AI-2C2-XXXX000.FP000	5.0 x 3.2	1 to 220	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVDS
	SiT3821AI-2D2-XXXX000.FP000	7.0 x 5.0	1 to 220	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVDS
	SiT3822AI-1C2-XXXX000.FP000	5.0 x 3.2	220 -625	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVPECL
	SiT3822AI-1D2-XXXX000.FP000	7.0 x 5.0	220 -625	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVPECL
	SiT3822A-2C2-XXXX000.FP000	5.0 x 3.2	220 -625	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVDS
	SiT3822AI-2D2-XXXX000.FP000	7.0 x 5.0	220 -625	±25, ±50	-40 to 85, -20 to 70	2.5V, 3.3V	LVDS

Spread Spectrum Field Programmable Oscillators

In this family of products SiTime offers field programmable spread spectrum devices with single-ended and differential outputs.

Spread Spectrum Product Family	Field Programmable (FP) Part Number	Package Size (mm x mm)	Frequency Range (MHz)	Frequency Stability (PPM)	Temp Range (°C)	Voltage (V)	Spread Percentage
Spread Spectrum Single-Ended Oscillator SiT9001FP SiT9003FP	SiT9001AI-13-XXXX-000.FP000	2.5 x 2.0	1 to 220	±50, ±100	-40 to 85, -20 to 70	1.8V, 2.5V, 3.3V	±0.25% to -±1% -0.5% to -2%
	SiT9001AI-23-XXXX-000.FP000	3.2 x 2.5	1 to 220	±50, ±100	-40 to 85, -20 to 70	1.8V, 2.5V, 3.3V	
	SiT9001AI-33-XXXX-000.FP000	5.0 x 3.2	1 to 220	±50, ±100	-40 to 85, -20 to 70	1.8V, 2.5V, 3.3V	
	SiT9001AI-83-XXXX-000.FP000	7.0 x 5.0	1 to 220	±50, ±100	-40 to 85, -20 to 70	1.8V, 2.5V, 3.3V	
	SiT9003AI-13-33XX-000.FP000	2.5 x 2.0	1 to 110	±50, ±100	-40 to 85, -20 to 70	2.5V, 3.3V	±0.25% to -±0.5% -0.5% to -1%
	SiT9003AI-23-33XX-000.FP000	3.2 x 2.5	1 to 110	±50, ±100	-40 to 85, -20 to 70	2.5V, 3.3V	
	SiT9003AI-33-33XX-000.FP000	5.0 x 3.2	1 to 110	±50, ±100	-40 to 85, -20 to 70	2.5V, 3.3V	
	SiT9003AI-83-33XX-000.FP000	7.0 x 5.0	1 to 110	±50, ±100	-40 to 85, -20 to 70	2.5V, 3.3V	
	SiT9003AI-13-18XX-000.FP000	2.5 x 2.0	1 to 110	±50, ±100	-40 to 85, -20 to 70	1.8V	
	SiT9003AI-23-18XX-000.FP000	3.2 x 2.5	1 to 110	±50, ±100	-40 to 85, -20 to 70	1.8V	
	SiT9003AI-33-18XX-000.FP000	5.0 x 3.2	1 to 110	±50, ±100	-40 to 85, -20 to 70	1.8V	
	SiT9003AI-83-18XX-000.FP000	7.0 x 5.0	1 to 110	±50, ±100	-40 to 85, -20 to 70	1.8V	
Spread Spectrum Differential Oscillator SiT9002FP	SiT9002AI-X32XXXXX000.FP000	5.0 x 3.2	1 to 220	±50, ±100	-40 to 85, -20 to 70	1.8V, 2.5V, 3.3V	±0.25% to -±2% -0.5% to -4%
	SiT9002AI-X82XXXXX000.FP000	7.0 x 5.0	1 to 220	±50, ±100	-40 to 85, -20 to 70	1.8V, 2.5V, 3.3V	

Programmer Kit Ordering Information

Device Name	Part Number	Description
Time Machine II Programming Kit	SiT6100DK	Supported Devices: SiT1602, SiT8008, SiT8208, SiT8209, SiT3807, SiT3808, SiT3809, SiT9120, SiT9121, SiT9122, SiT3821, SiT3822, SiT9001, SiT9003
Programmer Base	SiT6150DK	The base programmer with no sockets
Socket Card	SiT6161DK	**2.0x1.6 and 2.5x2.0** packages programming sockets to program all 6-in and 4-pin filed programmable devices
Socket Card	SiT6162DK	**2.7x2.4** (2.5x2.0 compatible, "G" code in part #) **and 3.2x2.5** packages programming sockets to program all filed programmable 4-pin devices
Socket Card	SiT6160DK	**5.0x3.2 and 7.0x5.0** packages programming sockets to program all 6-in and 4-pin field programmable devices

How to Select the Right Socket

Package Size (mm x mm)	2.0 x 1.6 (4-pin)	2.5 x 2.0 (4-pin)	2.7 x 2.4 (4-pin) (2.5x2.0 compatible)	3.2 x 2.5 (4-pin)	5.0 x 3.2 (4-pin & 6-pin)	7.0 x 5.0 (4-pin & 6-pin)
Socket to use	SiT6161DK	SiT6161DK	SiT6162DK	SiT6162DK	SiT6160DK	SiT6160DK
Supported Field Programmable Devices	SiT8008	SiT8008, SiT9001, SiT9003	SiT8208, SiT8209, SiT3807, SiT3808, SiT3809	SiT8008, SiT8208, SiT8209, SiT3807, SiT3808, SiT3809, SiT9001, SiT9003	SiT8008, SiT8208, SiT8209, SiT3807, SiT3808, SiT3809, SiT9120, SiT9121, SiT9122, SiT3821, SiT3822, SiT9001, SiT9003	SiT8008, SiT8208, SiT8209, SiT3807, SiT3808, SiT3809, SiT9120, SiT9121, SiT9122, SiT3821, SiT3822, SiT9001, SiT9003

Tape and Reel Options (Last Chracter of the Part Number)

Package Size (mm x mm)	2.0 x 1.6		2.5 x 2.0		3.2 x 2.5		5.0 x 3.2		7.0 x 5.0	
Tape size	8 mm		8 mm		8 mm		12 mm		16 mm	
Parts per Reel	250 pcs	1000 pcs	250 pcs	1000 pcs	250 pcs	1000 pcs	250 pcs	1000 pcs	250 pcs	1000 pcs
SiT8008FP	G	E	G	E	G	E	X	Y	X	Y

Package Size (mm x mm)	2.5 x 2.0		3.2 x 2.5		5.0 x 3.2		7.0 x 5.0	
Tape size	12 mm		12 mm		12 mm		16 mm	
Parts per Reel	250 pcs	1000 pcs	250 pcs	1000 pcs	250 pcs	1000 pcs	250 pcs	1000 pcs
SiT8208FP, SiT8209FP SiT3808FP, SiT3809FP SiT9001FP, SiT9003FP	X	Y	X	Y	X	Y	X	Y
SiT9121FP, SiT9122FP SiT3821FP, SiT3822FP SiT9002FP	-	-	-	-	X	Y	X	Y

Exapmple: The SiT8008AI-71-XXX-000.FP000G ordering code indicates 250 pcs of SiT8008FP device in an 8 mm tape.

Mouser Electronics

Authorized Distributor

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