

Programmable Silicon Timing Solutions

SiTime offers a comprehensive suite of MEMS-based, all-silicon, programmable timing solutions, including oscillators and clock generators that are designed to replace quartz-based products. SiTime's semiconductor products offer significant benefits in performance, integration, robustness, reliability, size and cost of ownership over quartz. OEMs, ODMs and design services firms can use SiTime's solutions in a wide variety of products and applications, some of which are listed below.

Low Power, Fast Startup Oscillators

SiT8003, SiT8033,
SiT8003XT

Industry best 3.5 mA and 3 ms start-up time
1-110 MHz, thinnest (0.25 mm) package



High Stability, ± 10 PPM Oscillators

SiT9102, SiT8102

TCXO-like performance
Improves system timing reliability



High Performance Oscillators

SiT8103, SiT8102,
SiT8002

Frequencies up to 200 MHz
4 industry-standard packages



High Performance, Differential Oscillators

SiT9102

Frequencies up to 800 MHz
Supports LVPECL, LVDS, CML, HCSL



Spread Spectrum Oscillators

SiT9001, SiT9002,
SiT9003

Best jitter, smallest package, lowest power
Up to 12 dB EMI reduction



Multi-PLL, Multi-Output Clock Generators

SiT9103, SiT9104

Embedded MEMS, no external quartz
Best jitter for 3-PLL device



Voltage Controlled Oscillators

SiT3701

Smallest package (2.5 x 2.0 mm)
Supports 1-110 MHz



Automotive Oscillator

SiT8002AA

-40°C to +125°C operation
Indestructible, 50K G shock, 70 G vibration



Select SiTime Device by Application, Frequency

Device		High Performance Programmable Oscillators				Low Power Programmable Oscillators		Programmable Spread Spectrum Oscillators			Program-mable VCO	Programmable Clock Generators	
		SIT8102	SIT8103	SIT9102	SIT8002	SIT8003	SIT8033	SIT9001	SIT9002	SIT9003	SIT3701	SIT9103	SIT9104
Frequency Range (MHz)		1 - 200	1 - 110	1 - 800	1 - 125	1 - 110	1 - 110	1 - 200	1 - 800	1 - 110	1 - 110	1 - 800	1 - 220
Number of Outputs		1	1	1	1	1	1, selectable	1	1	1	1	3	6
Single-Ended Output		●	●		●	●	●	●		●	●		●
Differential Output				●					●			●	
Spread Spectrum							●	●	●			Contact SiTime	Contact SiTime
Frequency Tolerance (± PPM)		10 - 100	25 - 100	10 - 100	30 - 500	25 - 100	25 - 100	50 - 100	25 - 50	50 - 100	25 - 100	25 - 50	25 - 50
Typical IDD (mA)		< 25	< 8	40 - 70	< 20	< 3.5	< 3.5	< 25	40 - 70	< 3.5	< 8	40 - 70 per CLK	25 per CLK
Application	Key Frequencies (MHz)												
Serial I/O Standards													
1394B (FireWire, i.Link)	24.576	●	●			●	●						●
	49.152												
	98.304												
Ethernet (10/100)	25	●	●			●	●						●
	25, 50, 62.5	●	●	●		●	●					●	●
	125	●		●								●	●
Ethernet (1G)	250			●								●	
	161.1328	●		●								●	●
	322.2656			●								●	
Ethernet (10GBase-R)	644.5313											●	
	156.25	●		●								●	●
	312.5			●								●	
Ethernet (10GBase-X)	625											●	
	133.33	●		●				●	●			●	●
	166.67												
FB-DIMM / AMB	200												
	21.25	●	●	●		●	●					●	●
	26.5625												
Fibre Channel	53.125	●	●	●		●	●					●	●
	106.25												
	159.375	●		●								●	●
HDMI	212.5			●								●	
	318.75											●	
	425												
Infiniband	637.5												
	13.513	●	●	●		●	●					●	●
	27.027												
PCI Express (PCI-E)	74.25	●		●								●	●
	148.5	●		●								●	●
	222.75			●								●	
RapidIO	297												
	340												
	125	●		●								●	●
SATA / SAS	100	●	●	●		●	●	●	●	●		●	●
	125, 200	●		●				●	●			●	●
	37.5, 75, 100	●	●	●		●	●	●	●	●		●	●
UART	120, 150	●		●				●	●			●	●
	300, 600			●					●			●	
	1.8432	●	●		●	●	●						●
USB1.1 / USB-InterChip	2.4576												
	3.6864												
	7.3728												
USB2.0	11.0592	●			●	●	●						
	12.288												
	14.7456												
USB3.0	18.432												
	29.4912												
	12, 24, 48	●	●		●	●	●						●
USB3.0	12, 24, 48	●	●			●	●						●
	125	●		●				●	●			●	●
	250			●					●			●	
USB3.0	500												

2 week lead time for production volumes. 500 Million Hours MTBF (2 FIT). 50,000G shock resistance and 70G vibration resistance. All products have an embedded resonator. Standby and Output Enable modes are available on most devices. Please contact SiTime for other custom variations. Subject to change without notice. Please refer to product data sheet for exact specifications.

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Device		High Performance Programmable Oscillators				Low Power Programmable Oscillators		Programmable Spread Spectrum Oscillators			Program- mable VCO	Programmable Clock Generators	
		SIT8102	SIT8103	SIT9102	SIT8002	SIT8003	SIT8033	SIT9001	SIT9002	SIT9003	SIT3701	SIT9103	SIT9104
Frequency Range (MHz)		1 - 200	1 - 110	1 - 800	1 - 125	1 - 110	1 - 110	1 - 200	1 - 800	1 - 110	1 - 110	1 - 800	1 - 220
Number of Outputs		1	1	1	1	1	1, selectable	1	1	1	1	3	6
Single-Ended Output		●	●		●	●	●	●		●	●		●
Differential Output				●					●			●	
Spread Spectrum								●	●	●		Contact SiTime	Contact SiTime
Frequency Tolerance (± PPM)		10 - 100	25 - 100	10 - 100	30 - 500	25 - 100	25 - 100	50 - 100	25 - 50	50 - 100	25 - 100	25 - 50	25 - 50
Typical IDD (mA)		< 25	< 8	40 - 70	< 20	< 3.5	< 3.5	< 25	40 - 70	< 3.5	< 8	40 - 70 per CLK	25 per CLK
Application	Key Frequencies (MHz)												
Processors / Memory													
DDR1, DDR2, DDR3	< 200	●		●				●	●	●		●	●
	> 200			●				●	●			●	
Microprocessor / Microcontroller / DSP / PCI / PCI-X	1 - 110 (e.g. 14.318, 33.333, 66.666, 100)	●	●	●	●	●	●	●	●	●		●	●
	110 - 200 (e.g. 133.33, 166.67, 200)	●		●				●	●			●	●
	200 - 800 (e.g. 266.66, 400, 533.33, 800)			●					●			●	
Audio /Video													
Audio (32kHz Standard)	2.048, 3.072, 4.096, 6.144, 8.192, 12.288, 16.384, 24.576, 32.768, 49.152, 65.536	●	●			●	●						●
	2.8224, 4.2336, 5.6448, 8.4672, 11.2896, 16.9344, 22.5792, 33.8688, 45.1584, 67.738, 90.317	●	●			●	●						●
Audio (48kHz standard)	3.072, 4.608, 6.144, 9.216, 12.288, 18.432, 24.576, 36.864, 49.152, 73.728, 98.304	●	●			●	●						●
Television (NTSC)	3.579545, 13.5, 14.31818, 27		●			●	●				●		
Television (PAL)	3.57611, 3.58205, 4.43367, 8.86724, 13.5, 13.875, 17.73447, 27		●			●	●				●		
Video, HDTV, 1080i, 720p	74.25	●	●	●		●	●				●	●	●
	74.17582418	●	●	●		●	●				●	●	●
Video, HDTV, 1080p	148.5	●		●								●	●
	148.3516484	●		●								●	●
Video, MPEG-2	13.5, 27, 27.027, 54, 54.054, 108, 108.108		●			●	●				●		
Communications													
ADSL, VDSL2	35.328, 70.656		Contact SiTime			Contact SiTime	Contact SiTime				Contact SiTime		
E1, E2, E3	2.048, 4.096, 8.192, 16.384, 32.768, 8.448, 34.368		●										
J1, J2, J3, J4	1.544, 6.312, 7.786, 32.064, 97.728		●										
T1, T2, T3	1.544, 3.088, 6.312, 44.736		●										

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Typical Applications for SiTime Timing Devices

SiT8103
SiT8102
SiT9001
SiT8002
SiT3701
SiT9104

DEVICES

Consumer

APPLICATIONS

1394B Bus (FireWire, i.Link)
Audio Cards (e.g. Sound Blaster)
Blu-Ray DVD Player / Recorder
Digital Video Recorder (DVR)
Display Panel
Document Camera
Fax Modem
Game Console
High Definition Media Interface (HDMI)
High Definition Television (HDTV)
Home Theatre
IP and Security Camera
Karaoke Electronics
Multimedia
Projector
Set Top Box (STB)
Television (NTSC, PAL, SECAM)
USB Card Reader / Flash Drive
Video Processor
Voice Conferencing Systems
Voice Over IP (VOIP) Phone

SiT8103
SiT8102
SiT9001
SiT9002
SiT9102

DEVICES

Computing and Peripherals

APPLICATIONS

CPU Bus and PCI Bus
Desktop and Server PC
DSP Clocking
Ethernet Gateway
Graphics Card
Hard Disk Drive (HDD)
I/O Cards (SATA, SAS, PCI Express, Fibre Channel)
Memory Clocking (e.g. DDRx)
Multi Function Peripheral (MFP)
PC Sharing Box
Printer, Copier, Scanner
Server / Blade Server
Solid State Disk (SSD)

SiT9102
SiT9002
SiT9103
SiT8102
SiT8103
SiT3701

DEVICES

Networking and Communications

APPLICATIONS

10 Gigabit Ethernet (10G)
Base Station
Broadband Router
Cable Modem (DOCSIS)
Fiber To The Home (FTTH)
Gigabit Ethernet (1G)
Network Bridge
Network Router / Switch
Network Storage (e.g. NAS, SAN)
Optical Network Unit (ONU)
Passive Optical Network (PON)
PBX Controller
Power Over Ethernet (POE)
RAID Controller
WiMax Processor Clocking

SiT8003
SiT8033
SiT9003
SiT3701

DEVICES

Low Power and Portable

APPLICATIONS

Barcode Scanner
Camcorder
Digital Still Camera (DSC)
GPS Tracker
Handheld Gaming
Handheld Point Of Sale (POS)
Low Power DSP
Low Power Wireless Control (e.g. ZigBee)
Mobile Phone
Mobile TV Tuner
Mobile Video Projector
Notebook, Netbook and EEE PC
Portable Media Player (PMP, MP3)
Portable Navigation Device (PND)
Secure Token

SiT8102
SiT8103
SiT8002AA

DEVICES

Industrial, Medical and Automotive

APPLICATIONS

Car Infotainment
Car Navigation
Industrial Automation
Industrial PC
Instrumentation
Medical Imaging System
Point Of Sale (POS) Terminals
Pulse Oximeter
Rear View Camera
Ruggedized Equipment
Security / Surveillance Camera
Sensors and Actuators
Space, Satellite and Avionics
Test Equipment
Turbine Generator
White Goods

SiT8003XT
(0.25mm Height)

DEVICE

Miniaturized Electronics

APPLICATIONS

High Density SIM Card
Multi Chip Module (MCM)
Near Field Communication (NFC)
Secure Digital (SD) Card
Smart Card
System in Package (SiP)

There are many more electronic applications that can use SiTime solutions. Please contact SiTime for more information.

SiTime[™]
It's About Time