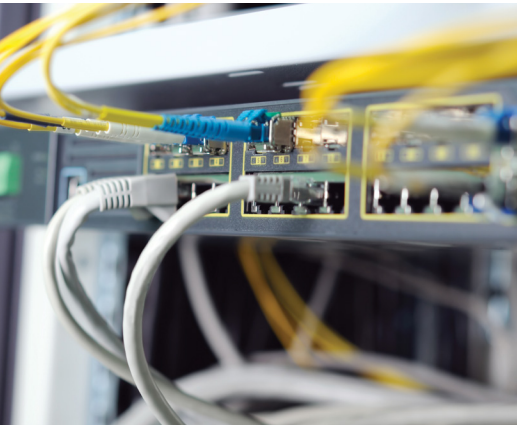




Silicon MEMS Timing Solutions

Product Selector 2018



NETWORKING, SERVER, STORAGE & TELECOM



MOBILE, WEARABLE & IOT



INDUSTRIAL & AUTOMOTIVE



CONSUMER

- More features
- Highest performance
- Smallest size
- Lowest power
- Best reliability



GREEN
SOLUTIONS



INSTANT
SAMPLES



LIFETIME
WARRANTY

μPower 32 kHz TCXO 1.2 mm²	μPower TCXO 1.2 mm²	Low Power Oscillators	High Temp Oscillators	AEC-Q100 Automotive Oscillators	Spread Spectrum Oscillators	Low Jitter Oscillators	VCXO	TCXO/ VCTCXO/ DCTCXO	DCXO In-System Programmable
SiT1552 ±10, 13, 22 ppm	SiT1576* ±5 ppm 1 Hz-2 MHz 2.5 ns Jitter**	SiT1602 3.75-77.76 MHz 3.1-4.9 mA	SiT1618 7.3728-48 MHz -40 to +125°C	SiT8924/5* 1-137 MHz -55 to +125°C	SiT9005* 17 dB Reduction 1-141 MHz	SiT8208/9* 1-220 MHz 0.5 ps Jitter*	SiT3807 1.5-45 MHz	SiT5358/9* Elite Platform 1-220 MHz ±0.05 ppm 0 to +70°C	SiT3907* 1-220 MHz
SiT1566/8 ±3, 5 ppm 2.5 ns Jitter**	μPower Oscillators 1.2 mm²	SiT8008/9* 1-137 MHz 3.1-5.9 mA	SiT8918/9* 1-137 MHz -40 to +125°C	SiT2024/5* 1-137 MHz -55 to +125°C SOT23-5	SiT9003* Low Power 1-110 MHz	SiT9120 25-212.5 MHz 0.6 ps Jitter**	SiT3808/9* 1-220 MHz	SiT5356/7* Elite Platform 1-220 MHz ±0.1 to 0.25 ppm -40 to +105°C	SiT3521/2* I2C/SPI 1-725 MHz 0.21 ps Jitter**
μPower 32 kHz Oscillators	SiT1569* 1 Hz-462.5 kHz ±50 ppm	SiT2001/2* 1-137 MHz SOT23-5	SiT8920/1* 1-137 MHz -55 to +125°C	SiT9025* 1-150 MHz 30 dB Reduction	SiT9002* 1-220 MHz	SiT9121/2* 1-625 MHz 0.6 ps Jitter**	SiT3372/3* Elite Platform 1-725 MHz ±10 to 50 ppm 0.21 ps Jitter**	SiT5155 Elite Platform 1-40 MHz ±0.5 ppm -40 to +105°C	
SiT1532/3 1508 & 2012	SiT1579* 1 Hz-2 MHz ±50 ppm		SiT2018/9* 1-137 MHz -40 to +125°C SOT23-5	SiT9386/7* Elite Platform 1-725 MHz -40 to +105°C		SiT9365 Elite Platform 25-325 MHz 0.21 ps Jitter**		SiT5156/7* Elite Platform 1-220 MHz ±0.5 to 2.5 ppm -40 to +105°C	
SiT1572 ±50 ppm 1508	SiT1534 1 Hz-32 kHz 2012 Option		SiT2020/1* 1-137 MHz -55 to +125°C SOT23-5			SiT9366/7* Elite Platform 1-725 MHz 0.21 ps Jitter**		SiT5021/2* 1-625 MHz ±5 ppm	
SiT1630 -40 to +105°C 2012, SOT23	SiT8021* 1-26 MHz 60-280 μA								

* Any frequency programmable within the frequency range with 6 decimals of accuracy
 ** Integrated rms phase jitter, see datasheet for integration range
 Elite Platform families use DualMEMS™ technology for best dynamic performance

	NanoDrive™ output for lowest power		Pin-to-pin compatible with quartz devices
	LVPECL, LVDS, HCSL output		Available as field programmable for use with Time Machine II Programmer
	LVC MOS output		

SiTime oscillators comprise a resonator and oscillator IC in one active device as shown in the middle diagram on the left. As a MEMS and analog company, SiTime has combined man-decades of MEMS expertise with analog CMOS circuit design, resulting in flexible products with the most features and highest performance.

MEMS Oscillator Product Selector



SiTime Base Part No.	Output Freq.	Frequency Stability (ppm)	Supply Volt. (V)	Supply Current (Typical)	Package	Output Logic	Target Applications	Features
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µPower 32 kHz Oscillators & TCXOs | Replace XTAL, XO, TCXO | Smallest size | Drive two or more loads | Best accuracy (stability) | Best reliability

SiT1532/33	32.768 kHz	75, 100, 250 over temp (10, 20 room temp)	1.2 to 3.63	0.90 µA	1508, 2012	NanoDrive, LVCMOS	• Smart meters • Health & wellness monitors • RTC reference clock • Industrial timekeeping & battery management • Multi-drop 32 kHz clock distribution • Bluetooth & WiFi modules • Internet of Things (IoT), cellular connectivity • Smart utility water, gas & electricity meters (AMR) • Connectivity modules	Smallest XO
SiT1572		±50	1.62 to 3.63	4.5 µA	1508	LVC MOS		Smallest XO
SiT1630		75, 100, 150 over temp (20 room temp)	1.5 to 3.63	1.0 µA	2012, SOT23-5	LVC MOS		-40 to +105°C
SiT1552 TCXO		±10, ±13, ±22, all-inclusive	1.5 to 3.63	0.99 µA	1508	NanoDrive, LVCMOS		Smallest TCXO
SiT1566 Super-TCXO		±3, ±5, all-inclusive	1.62 to 3.63	4.5 µA		LVC MOS		Smallest XO, 2.5 ns rms phase jitter
SiT1568 Super-TCXO		±5 all-inclusive (after overmold/underfill)	1.8					

µPower Oscillators & TCXOs | Smallest size | Lowest power | Lightest weight | Drive two or more loads | Best accuracy (stability) | Best reliability

SiT1534	1 Hz to 32.768 kHz	75, 100, 250 over temp (20 room temp)	1.2 to 3.63	0.90 μA	1508, 2012	NanoDrive, LVCMOS	• Health & wellness monitors • Industrial data loggers & sensor interface • IoT beacons • Smart pens	Smallest XO	
SiT1569	1 Hz to 462.5 kHz	±50	1.62 to 3.63	2.0 μA (100 kHz)	1508	LVCMOS		• Wearables & IoT • Portable audio • Industrial & medical sensors	Smallest XO, 2.5 ns rms phase jitter
SiT1576 Super-TCXO	1 Hz to 2.5 MHz	±5 all inclusive	1.62 to 3.63	8.0 μA (100 kHz)					
SiT1579	1 Hz to 2.5 MHz	±50	1.62 to 3.63	8.0 μA (100 kHz)					
SiT8021	1 MHz to 26 MHz	±100	1.8, 2.5 to 3.3	60 to 280 μA (0.7 μA stby)					

Low-Power Oscillators | Best reliability | Pin-compatible QFN or SOT-23 package for best solder-joint reliability

SiT1602	52 standard freq.	±20, ±25, ±50	1.8, 2.5 to 3.3	3.1 to 5.5 mA (0.6 - 1.0 µA stby)	2016, 2520, 3225, 5032, 7050	LVC MOS	• Consumer, industrial and audio video equipment • Networking, storage & servers • Industrial sensors, PLC & motor server • Microprocessor & FPGA clocking	FP*
SiT8008/09	1 MHz to 137 MHz							
SiT2001/02	1 MHz to 137 MHz					3.6 to 5.4 mA (1.0 µA stby)		

Low-Jitter Oscillators | 0.1 ppb/g (g-sensitivity, vibration immunity) | Best reliability

SiT9365**	32 standard freq.	±10, ±20, ±25, ±50	2.5 to 3.3	76 to 89 mA	3225, 5032, 7050	LVPECL, LVDS, HCSL	• Computing • Networking, storage, servers, & telecom • Optical modules • Industrial control • Instrumentation • FPGA clocking	0.21 ps rms phase jitter
SiT9366/67**	1 MHz to 725 MHz							2.5 to 3.3
SiT9120	31 standard freq.							
SiT9121/22	1 MHz to 625 MHz							
SiT8208/09	1 MHz to 220 MHz		1.8, 2.5 to 3.3	29 to 36 mA (10 µA stby)	2520, 3225, 5032, 7050	LVC MOS		

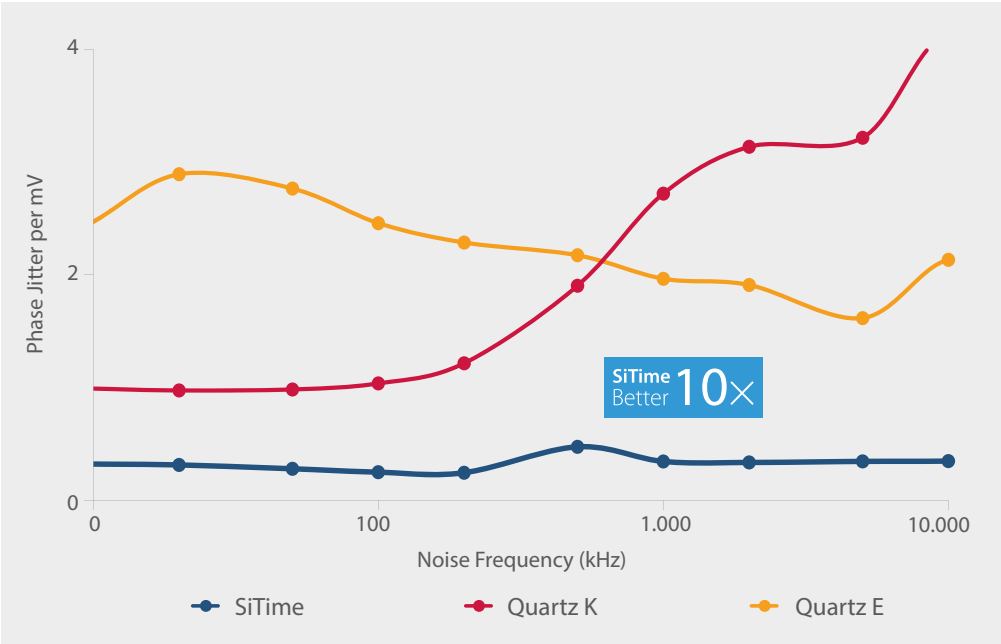
SiTime Base Part No.	Output Freq.	Frequency Stability (ppm)	Supply Volt. (V)	Supply Current (Typical)	Package	Output Logic	Target Applications	Features
High-Temperature and Automotive Oscillators 0.1 ppb/g (g-sensitivity, vibration immunity) Best reliability Pin-compatible QFN or SOT-23 package for best solder-joint reliability								
SiT1618	33 standard freq.	±20, ±25, ±30, ±50	1.8, 2.5 to 3.3	3.6 to 5.4 mA (1.0 µA stby)	2016, 2520, 3225, 5032, 7050	LVCMOS	- High-temp industrial equipment such as industrial control systems & industrial sensors - Servo motor, PLC & high-temp networking gears - Outdoor systems (medical & health monitoring) - Asset tracking systems	FP*, -40 to +125°C
SiT8918/19	1 MHz to 137 MHz				SOT23-5			
SiT2018/19								
SiT8920/21	1 MHz to 137 MHz				2016, 2520, 3225, 5032, 7050	LVCMOS		- Ruggedized applications in harsh environments - Applications in extreme temperature conditions - Avionics equipment
SiT2020/21				SOT23-5				
SiT8924/25	1 MHz to 137 MHz			2016, 2520, 3225, 5032, 7050	LVCMOS	- AEC-Q100 automotive applications - ADAS, camera modules, Radar & Lidar - Automotive Ethernet - Infotainment - LED headlights - ECUs (engine & transmission control units)		
SiT2024/25	1 MHz to 137 MHz			SOT23-5				
SiT9025	1 MHz to 150 MHz	±25, ±50	0.6 to 7.9 mA (0.7 to 2.6 µA stby)	2016, 2520, 3225	LVPECL, LVDS, HCSL		EMI reduction, -55 to +125°C	
SiT9386/87**	1 MHz to 725 MHz	±20, ±25, ±50		2.5, 2.8, 3.0, 3.3			70 to 89 mA	3225, 7050
VCXO (Voltage Controlled Oscillators) ±25 to ±3200 ppm pull range, <1% linearity 0.1 ppb/g (g-sensitivity, vibration immunity) Best reliability								
SiT3372/73**	1 MHz to 725 MHz	±15, ±25, ±30, ±50	2.5 to 3.3	76 to 92 mA	3225, 5032, 7050	LVPECL, LVDS, HCSL	- Audio/video - Wireless & telecom equipment - Instrumentation	0.21 ps rms phase jitter
SiT3807	31 standard freq.	±10, ±25, ±50	1.8, 2.5 to 3.3	29 to 34 mA (10 to 70 µA stby)	2520, 3225, 5032, 7050	LVCMOS		0.5 ps rms phase jitter, FP*
SiT3808/09	1 MHz to 220 MHz							
TCXO/VCTCXO/DCTCXO ±6.25 to ±3200 ppm pull range 5 ppt resolution frequency control 0.1 ppb/g (g-sensitivity, vibration immunity) Best reliability								
SiT5358/59 Super-TCXO**	1 MHz to 220 MHz	±0.05	2.5, 2.8, 3.0, 3.3	40 to 45 mA	5032	LVCMOS, Clipped Sinewave	- High-reliability telecom & networking - Broadband satellite, Industrial, test & instrumentation	I2C, 1 ppb/°C slope, 0 to +70°C
SiT5356/57 Super-TCXO**		±0.1, ±0.2, ±0.25						I2C programmable, 1 ppb/°C slope, -40 to +105°C
SiT5155 Super-TCXO**	13 standard freq.	±0.5, ±1, ±2.5					- High-reliability networking, server, storage, & telecom - Industrial/automotive/telecom GNSS	
SiT5156/57 Super-TCXO**	1 MHz to 220 MHz							
SiT5021/22	1 MHz to 625 MHz	±5	2.5, 3.3, 2.25 to 3.63	55 to 69 mA	3225, 5032, 7050	LVPECL, LVDS	- Instrumentation & networking - Embedded systems	0.6 ps rms phase jitter
DCXO (In-System Programmable) Digital pull for lowest noise Up to ±3200 ppm pull range, 5 ppt pull resolution, <1% linearity								
SiT3521/22**	1 MHz to 725 MHz	±20, ±25, ±50	2.5 to 3.3	70 to 82 mA	5032	LVPECL, LVDS, HCSL	- Communication & broadcasting - Test & measurement equipment	I2C programmable, 0.21 ps rms phase jitter
SiT3907	1 MHz to 220 MHz	±10, ±25, ±50	1.8, 2.5, 2.8, 3.3	32 mA	3225, 5032, 7050	LVCMOS	- Instrumentation & audio/video - Phase locked loops (PLL) & FPGA data recovery	0.5 ps rms phase jitter, FP*
SSXO (Spread Spectrum Oscillators) ±0.125 to ±2.0% center spread, -0.25% to -4.0% down spread, Lowest cycle-cycle jitter								
SiT9005	1 MHz to 141 MHz	±20, ±25, ±50	1.8, 2.5 to 3.3	4.0 to 5.6 mA	2016, 2520, 3225 (SiT9003 for 5032, 7050)	LVCMOS	- Printers & flat panels - IP cameras - PCI Express - Microprocessors	Smallest SSXO, FP*
SiT9002	1 MHz to 220 MHz	±25, ±50	1.8, 2.5, 3.3	48 to 75 mA	5032, 7050	LVPECL, CML LVDS, HCSL		FP*

All families have programmable frequency within the output frequency range with 6 decimals of accuracy, except 32.768 kHz products and those indicated as having standard frequencies. All families are available in -40 to +85°C unless otherwise noted.
 *Field programmable with Time Machine II Programmer
 **Elite Platform products with DualMEMS™ technology for best dynamic performance

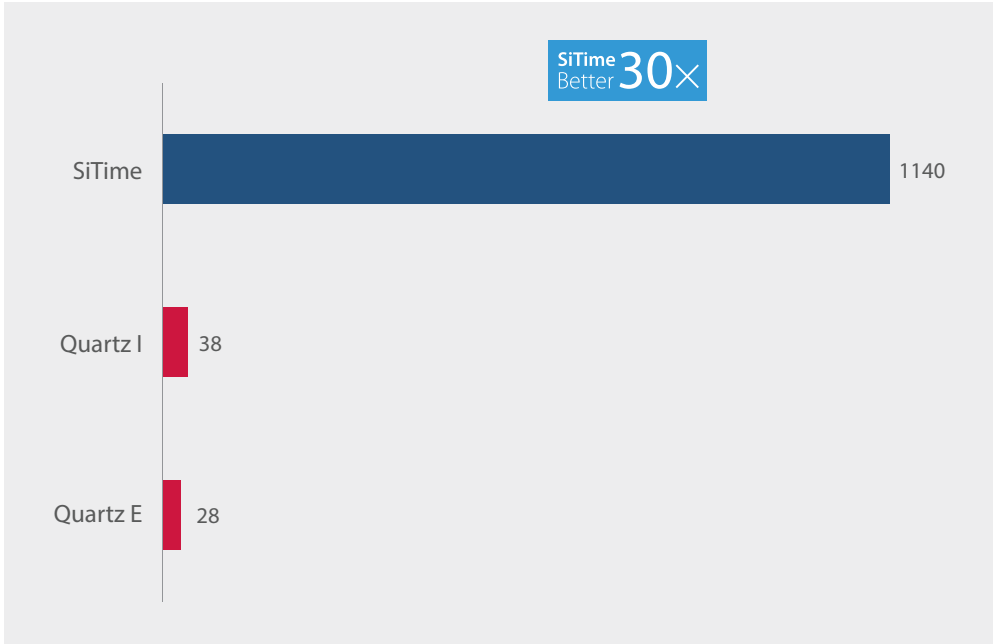
Application Examples and Benefits



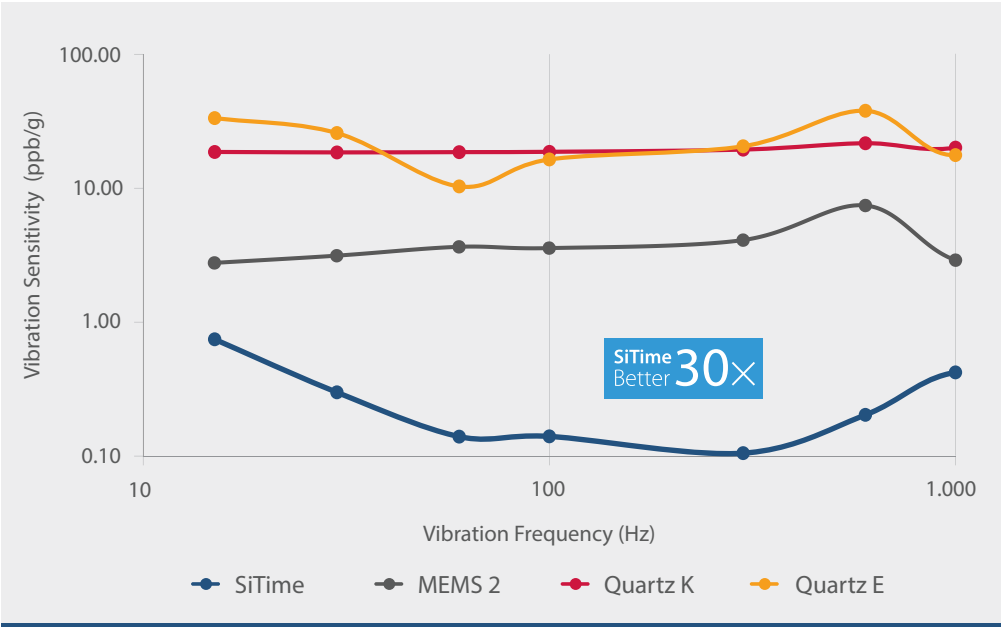
Segment	Application	SiTime Benefits	SiTime Oscillator Family
Networking, Servers, Storage & Telecom	4G/5G RRH, small cells, macro cells, microwave backhaul, other RF systems	Best dynamic stability 1ppb/°C, resistant to airflow and rapid thermal transients Most robust against shock/vibration, no activity dips	SiT5356/57/58/59, SiT5155/56/57
	Carrier-grade routers & switches, SyncE, IEEE 1588	Best dynamic stability 1ppb/°C, resistant to airflow and rapid thermal transients Best resilience (EMI susceptibility, PSRR), no activity dips	SiT5356/57/58/59, SiT9121/22, SiT9365/66/67
	Servers, storage, SATA, SAN, PCIe, Fibre channel	±10 to 25 ppm stability over industrial temperature Best resilience (EMI susceptibility, PSRR)	SiT9120, SiT9365/66/67, SiT8008
	100/200/400G ONT, SFP & optical modules	Smallest package (3.2 x 2.5 mm) for LVPECL/LVDS Best dynamic stability, no activity dips	SiT9365/66/67, SiT5356/57/58/59
	G.fast, DOCSIS 3.1, cable modems	High frequencies with 6 digits of accuracy Best PSRR, shock/vibration resistance	SiT5356/57/58/59, SiT3521/22, SiT9365/66/67
Automotive	ADAS and around view cameras	Smallest package (2.0 x 1.6 mm) EMI reduction up to 17 dB	SiT8924/25, SiT9025
	ADAS computer, connected car	Ultra-low jitter under harsh condition (0.215 ps) Best stability under high temperature (±20 ppm at 105°C)	SiT9386/87
	Infotainment	Reliable startup at -40°C EMI reduction up to 17 dB	SiT8924/25, SiT9025
	LED headlights	Best stability under high temperature Best EMI control	SiT8924/25
	Wireless charger	Programmability for short lead times, even for custom frequencies	SiT8924/25
	Post-solder optical inspection	SOT23 leaded (not QFN) package ensures easy post-solder optical inspection	SiT2024/25
Industrial	Precision GNSS	Best location accuracy under shock, vibration, rapid thermal transients, & EMI	SiT5155/56/57, SiT5356/57/58/59
	Multi-function printers	Reduce EMI in system Customizable frequencies with 6 digits of accuracy	SiT9002/03/05, SiT8008
	IP camera, security/CCTV system, VoIP camera	Smallest packages (2.0 x 1.6 mm, 2.5 x 2.0 mm) Best resilience (shock, vibration, EMS immunity) Customizable frequencies with 6 digits of accuracy	SiT8008, SiT1602
	FPGA subsystem	Customizable frequencies with 6 digits of accuracy	SiT8008/09, SiT9121/22
	Industrial computers, PLCs, motor control	Best stability under high temperature (+125°C) 30 times better reliability, best resilience	SiT2018/19/20, SiT8008
Mobile, Wearables, & IoT	Activity tracker, smartwatch	80% smaller than quartz Drive 2 to 3 loads with one chip	SiT1532, SiT1566/68/69, SiT1572
	Activity tracker, smartwatch	20 to 40% longer battery life Most accurate time reference	SiT1552, SiT1569, SiT1572
	Activity tracker, smartwatch, IoT	Up to 3 times faster startup than quartz (0.5s vs. 1.5s for quartz)	SiT1532/52, SiT1569, SiT1579
	Bluetooth headset	Best resilience (shock, vibration, EMS immunity)	SiT1532/52, SiT1566/68/69
	Medical electronics	Most accurate 32 kHz for time-stamping 80% smaller than quartz	SiT1552, SiT1566/68/69
Consumer	DSC, DVR, DSLR, IP camera, 100M to 10G Ethernet	Smallest package (2.0 x 1.6 mm) ±20 ppm stability over industrial temperature	SiT8008, SiT1602
	Wearables, health monitors, mobile phones, ultra-small notebook PCs	Drive 32 kHz to multiple loads with one chip	SiT1532/33, SiT1566/68/69, SiT1572/76/79



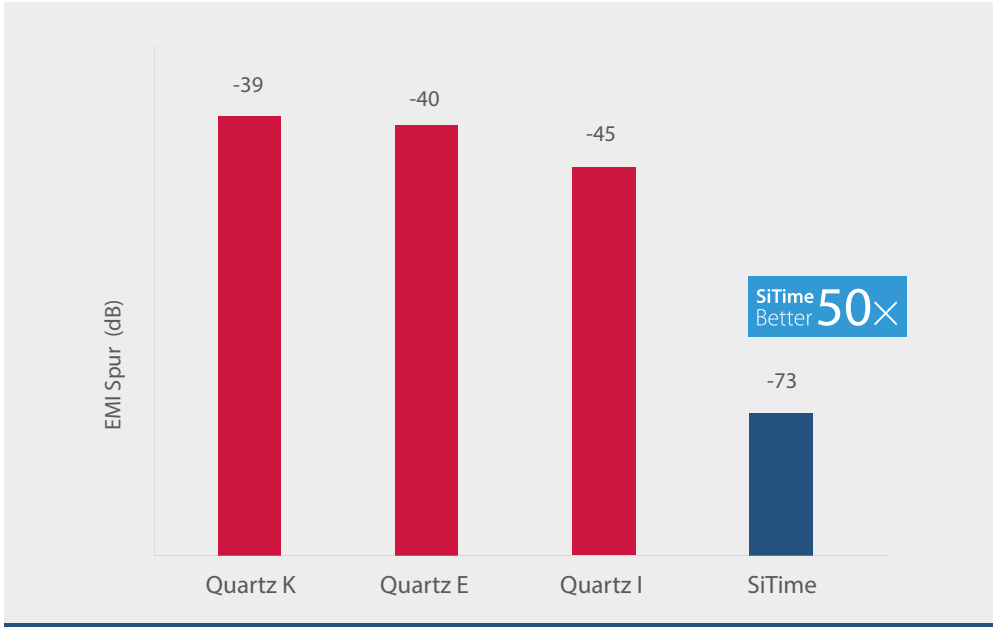
Performance in Presence of Board Noise



Reliability (Million Hours)



Performance in Presence of Vibration



Performance in Presence of EMI



Silicon MEMS Timing Solutions

Field Programmable Oscillators and
Time Machine II Programmer

Instant Oscillators



Any Frequency



Any Voltage



Any Stability

Complete easy-to-use
programming kit for SiTime's
field programmable oscillators

Programmable Features

Customizable Frequency	1 to 625 MHz, 6 decimals of accuracy
Frequency Stability	± 20 to ± 50 PPM
Supply Voltage	1.8V, 2.5 to 3.3V
Pull Range	± 25 to ± 1600 ppm in VCXO and DCXO
Drive Strength Control	25 to 40 ns rise/fall time for low to high output drive
Spread Spectrum	± 0.125 to $\pm 2.0\%$ center spread and -0.25 to -4.0% down spread

Additional Options

Packages	QFN: 2016, 2520, 3225, 5032, 7050; SOT23-5: 2928
Temperature Range	-20 to +70°C, -40 to +85°C, -40 to +105°C, -40 to +125°C, or -55 to +125°C
Output Signaling	Differential: LVPECL, LVDS or HCSL, Single-ended: LVCMOS



Don't waste time searching and waiting for oscillators

- Reduce design time with always-in-stock field programmable oscillators
- Optimize system performance with custom frequencies
- Reduce EMI with programmable drive strength