# SiT2024 Preliminary

## Automotive AEC-Q100, Single-Chip, One-Output Clock Generator

SiTime™ The Smart Timing Choice™

### Features

- AEC-Q100 with extended temperature range (-55°C to 125°C)
- Frequencies between 1 MHz and 110 MHz accurate to 6 decimal places
- Supply voltage of 1.8V or 2.25V to 3.63V
- Excellent total frequency stability as low as ±25 ppm
- Industry best G-sensitivity of 0.1 PPB/G
- Low power consumption of 3.8 mA typical at 1.8V
- LVCMOS/LVTTL compatible output
- 5-pin SOT23-5 package: 2.9 x 2.8 mm x mm
- RoHS and REACH compliant, Pb-free, Halogen-free and Antimony-free

### Applications

- Automotive, extreme temperature and other high-rel electronics
- Infotainment systems, collision detection devices, and in-vehicle networking
- Power train control


## Electrical Specifications

### Table 1. Electrical Characteristics[1, 2]

| Parameters | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| **Frequency Range** | | | | | | |
| **Output Frequency Range** | f | 1 | – | 110 | MHz | Refer to Table 13 and Table 14 for a list supported frequencies |
| **Frequency Stability and Aging** | | | | | | |
| **Frequency Stability** | F_stab | -25 | – | +25 | ppm | Inclusive of Initial tolerance at 25°C, 1st year aging at 25°C, and variations over operating temperature, rated power supply voltage and load (15 pF ± 10%). |
| | | -30 | – | +30 | ppm | |
| | | -50 | – | +50 | ppm | |
| **Operating Temperature Range** | | | | | | |
| **Operating Temperature Range (ambient)** | T_use | -40 | – | +105 | °C | Extended Industrial, AEC-Q100 Grade 2 |
| | | -40 | – | +125 | °C | Automotive, AEC-Q100 Grade 1 |
| | | -55 | – | +125 | °C | Extended Temperature, AEC-Q100 |
| **Supply Voltage and Current Consumption** | | | | | | |
| **Supply Voltage** | Vdd | 1.62 | 1.8 | 1.98 | V | All voltages between 2.25V and 3.63V including 2.5V, 2.8V, 3.0V and 3.3V are supported. |
| | | 2.25 | – | 3.63 | V | |
| **Current Consumption** | Idd | – | 4.0 | 4.8 | mA | No load condition, f = 20 MHz, Vdd = 2.25V to 3.63V |
| | | – | 3.8 | 4.5 | mA | No load condition, f = 20 MHz, Vdd = 1.8V |
| **LVCMOS Output Characteristics** | | | | | | |
| **Duty Cycle** | DC | 45 | – | 55 | % | All Vdds |
| **Rise/Fall Time** | Tr, Tf | – | 1.5 | 3 | ns | Vdd = 2.25V - 3.63V, 20% - 80% |
| | | – | 1.3 | 2.5 | ns | Vdd = 1.8V, 20% - 80% |
| **Output High Voltage** | VOH | 90% | – | – | Vdd | IOH = -4 mA (Vdd = 3.0V or 3.3V)<br>IOH = -3 mA (Vdd = 2.8V and Vdd = 2.5V)<br>IOH = -2 mA (Vdd = 1.8V) |
| **Output Low Voltage** | VOL | – | – | 10% | Vdd | IOL = 4 mA (Vdd = 3.0V or 3.3V)<br>IOL = 3 mA (Vdd = 2.8V and Vdd = 2.5V)<br>IOL = 2 mA (Vdd = 1.8V) |
| **Input Characteristics** | | | | | | |
| **Input High Voltage** | VIH | 70% | – | – | Vdd | Pin 1, OE |
| **Input Low Voltage** | VIL | – | – | 30% | Vdd | Pin 1, OE |
| **Input Pull-up Impedence** | Z_in | – | 100 | – | kΩ | Pin 1, OE logic high or logic low |
| **Startup and Resume Timing** | | | | | | |
| **Startup Time** | T_start | – | – | 10 | ms | Measured from the time Vdd reaches 90% of final value |
| **Enable/Disable Time** | T_oe | – | – | 130 | ns | f = 110 MHz. For other frequencies, T_oe = 100 ns + 3 * cycles |
| **Jitter** | | | | | | |
| **RMS Period Jitter** | T_jitt | – | 1.6 | 2.5 | ps | f = 75 MHz, 2.25V to 3.63V |
| | | – | 1.9 | 3.0 | ps | f = 75 MHz, 1.8V |
| **RMS Phase Jitter (random)** | T_phj | – | 0.5 | – | ps | f = 75 MHz, Integration bandwidth = 900 kHz to 7.5 MHz |
| | | – | 1.3 | – | ps | f = 75 MHz, Integration bandwidth = 12 kHz to 20 MHz |

**Notes:**

1. All electrical specifications in the above table are specified with 15 pF output load and for all Vdd(s) unless otherwise stated.
2. The typical value of any parameter in the Electrical Characteristics table is specified for the nominal value of the highest voltage option for that parameter and at 25 °C temperature.

## Table 2. Pin Description

| Pin | Symbol | Functionality | |
|---|---|---|---|
| 1 | GND | Power | Electrical ground[4] |
| 2 | NC | No Connect | No connect |
| 3 | OE/ NC | Output Enable | H[3]: specified frequency output<br>L: output is high impedance. Only output driver is disabled. |
| | | No Connect | Any voltage between 0 and Vdd or Open[3]: Specified frequency output. Pin 3 has no function. |
| 4 | VDD | Power | Power supply voltage[4] |
| 5 | OUT | Output | Oscillator output |

**Top View**

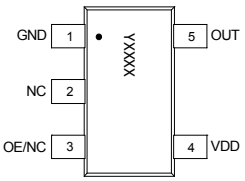



**Figure 1. Pin Assignments**

**Notes:**
3. In OE or ST mode, a pull-up resistor of 10 kΩ or less is recommended if pin 3 is not externally driven. If pin 3 needs to be left floating, use the NC option.
4. A capacitor of value 0.1 µF or higher between Vdd and GND is required.

## Table 3. Absolute Maximum Limits

Attempted operation outside the absolute maximum ratings may cause permanent damage to the part. Actual performance of the IC is only guaranteed within the operational specifications, not at absolute maximum ratings.

| Parameter | Min. | Max. | Unit |
|---|---|---|---|
| **Storage Temperature** | -65 | 150 | °C |
| **Vdd** | -0.5 | 4 | V |
| **Electrostatic Discharge** | – | 2000 | V |
| **Soldering Temperature (follow standard Pb free soldering guidelines)** | – | 260 | °C |
| **Junction Temperature[5]** | – | 150 | °C |

**Note:**
5. Exceeding this temperature for extended period of time may damage the device.

## Table 4. Thermal Consideration[6]

| Package | θJA, 4 Layer Board (°C/W) | θJC, Bottom (°C/W) |
|---|---|---|
| **SOT23-5** | 421 | 175 |

**Note:**
6. Refer to JESD51 for θJA and θJC definitions, and reference layout used to determine the θJA and θJC values in the above table.

## Table 5. Maximum Operating Junction Temperature[7]

| Max Operating Temperature (ambient) | Maximum Operating Junction Temperature |
|---|---|
| 105°C | 115°C |
| 125°C | 135°C |

**Note:**
7. Datasheet specifications are not guaranteed if junction temperature exceeds the maximum operating junction temperature.

## Table 6. Environmental Compliance

| Parameter | Condition/Test Method |
|---|---|
| **Mechanical Shock** | **MIL-STD-883F, Method 2002** |
| **Mechanical Vibration** | **MIL-STD-883F, Method 2007** |
| **Temperature Cycle** | **JESD22, Method A104** |
| **Solderability** | **MIL-STD-883F, Method 2003** |
| **Moisture Sensitivity Level** | **MSL1 @ 260°C** |

## Test Circuit and Waveform[8]

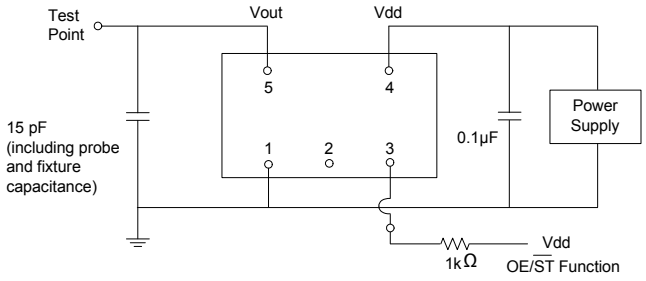



**Figure 2. Test Circuit**

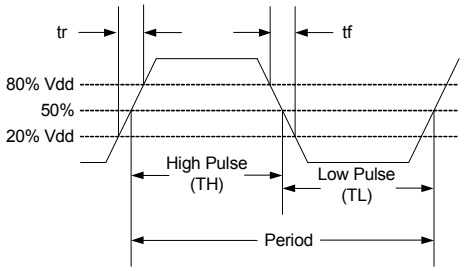
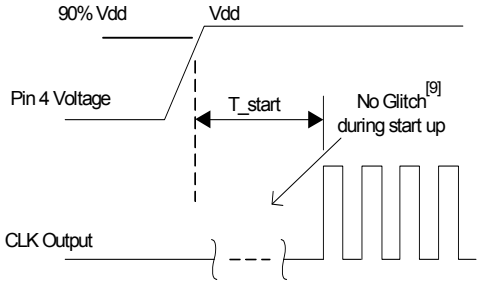



**Figure 3. Waveform**

**Note:**

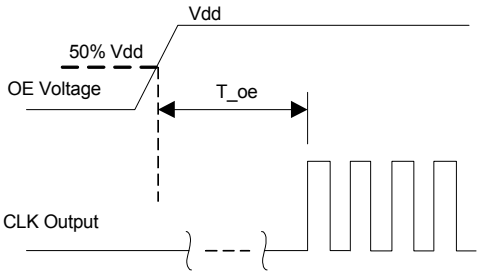
8. Duty Cycle is computed as Duty Cycle = TH/Period.

## Timing Diagrams



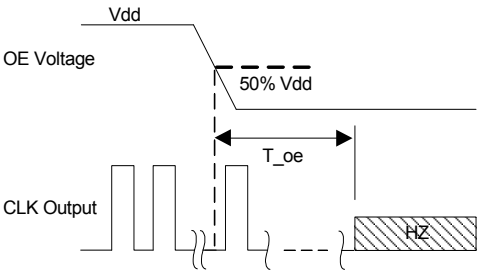

T_start: Time to start from power-off

**Figure 4. Startup Timing (OE Mode)**




T_oe: Time to re-enable the clock output

**Figure 5. OE Enable Timing (OE Mode Only)**




T_oe: Time to put the output in High Z mode

**Figure 6. OE Disable Timing (OE Mode Only)**

**Note:**

9. SiT2024 has “no runt” pulses and “no glitch” output during startup or resume.

## Performance Plots[10]

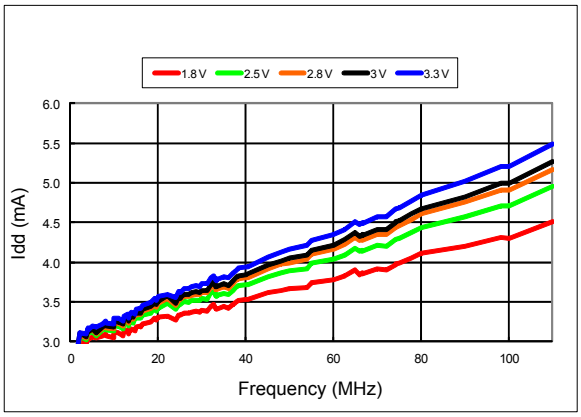



**Figure 7. Idd vs Frequency**

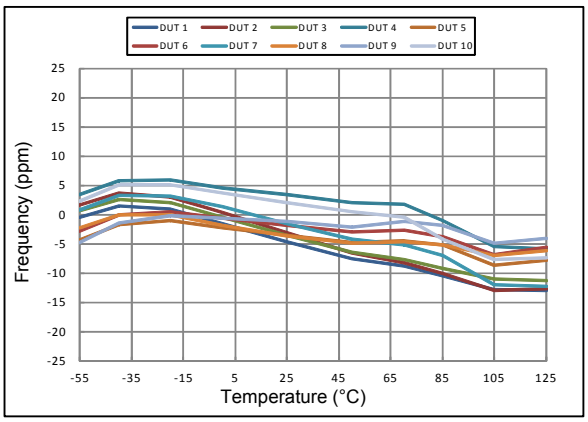



**Figure 8. Frequency vs Temperature**

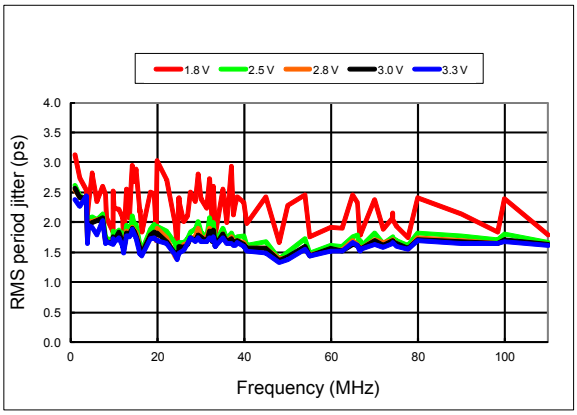



**Figure 9. RMS Period Jitter vs Frequency**

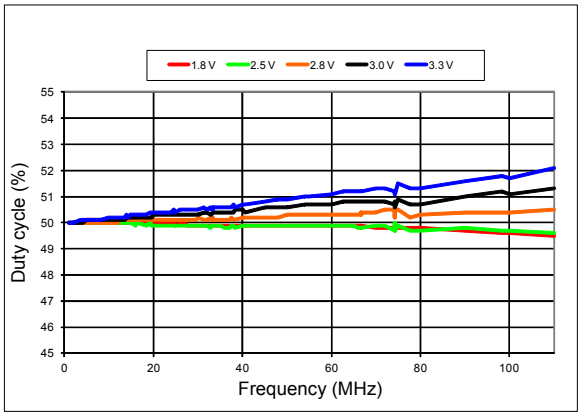



**Figure 10. Duty Cycle vs Frequency**

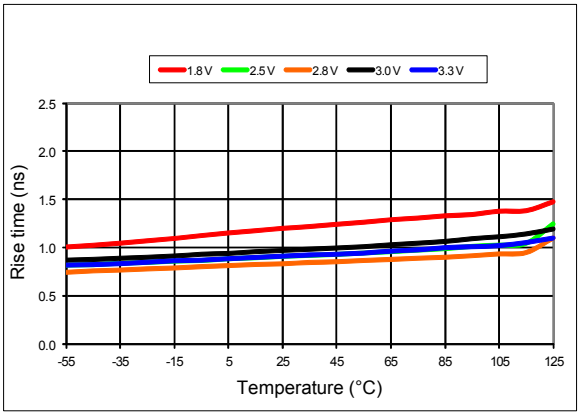



**Figure 11. 20%-80% Rise Time vs Temperature**

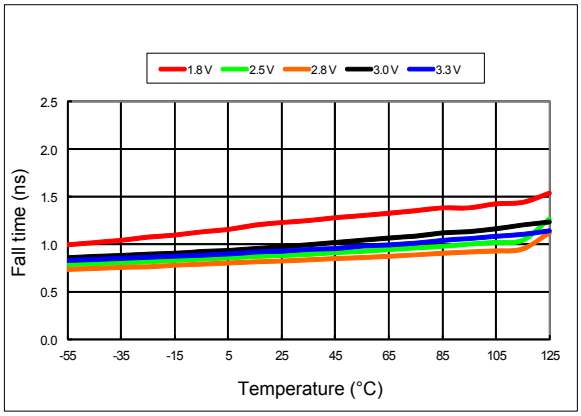



**Figure 12. 20%-80% Fall Time vs Temperature**

## Performance Plots[10]

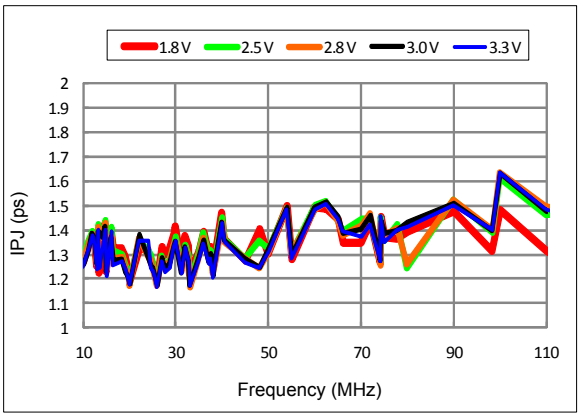



**Figure 14. RMS Integrated Phase Jitter Random (12 kHz to 20 MHz) vs Frequency[11]**

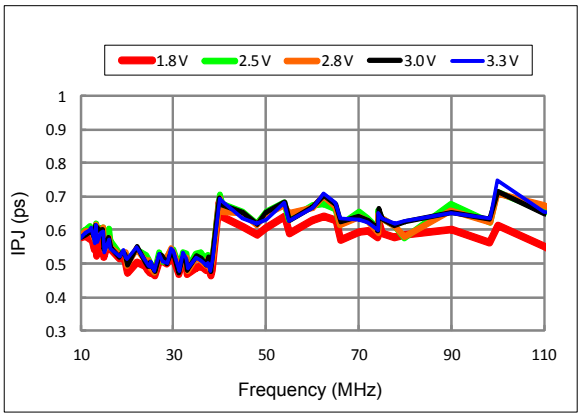



**Figure 15. RMS Integrated Phase Jitter Random (900 kHz to 7.5 MHz) vs Frequency[11]**

**Notes:**

10. All plots are measured with 15 pF load at room temperature, unless otherwise stated.
11. Phase noise plots are measured with Agilent E5052B signal source analyzer. Integration range is up to 5 MHz for carrier frequencies below 40 MHz.

## Programmable Drive Strength

The SiT2024 includes a programmable drive strength feature to provide a simple, flexible tool to optimize the clock rise/fall time for specific applications. Benefits from the programmable drive strength feature are:

- Improves system radiated electromagnetic interference (EMI) by slowing down the clock rise/fall time.
- Improves the downstream clock receiver's (RX) jitter by decreasing (speeding up) the clock rise/fall time.
- Ability to drive large capacitive loads while maintaining full swing with sharp edge rates.

For more detailed information about rise/fall time control and drive strength selection, see the SiTime Application Notes section; http://www.sitime.com/support/application-notes.

### EMI Reduction by Slowing Rise/Fall Time

Figure 16 shows the harmonic power reduction as the rise/fall times are increased (slowed down). The rise/fall times are expressed as a ratio of the clock period. For the ratio of 0.05, the signal is very close to a square wave. For the ratio of 0.45, the rise/fall times are very close to near-triangular waveform. These results, for example, show that the 11th clock harmonic can be reduced by 35 dB if the rise/fall edge is increased from 5% of the period to 45% of the period.

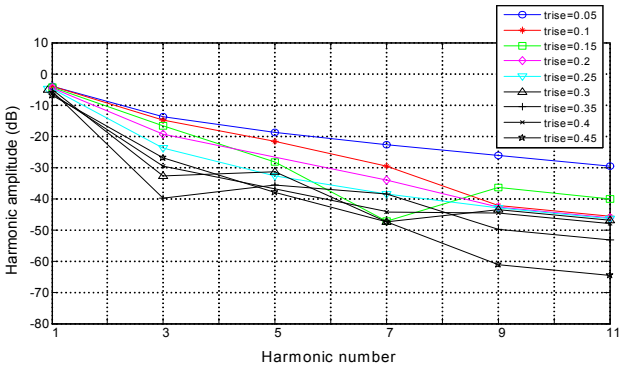



**Figure 16. Harmonic EMI reduction as a Function of Slower Rise/Fall Time**

### Jitter Reduction with Faster Rise/Fall Time

Power supply noise can be a source of jitter for the downstream chipset. One way to reduce this jitter is to speed up the rise/fall time of the input clock. Some chipsets may also require faster rise/fall time in order to reduce their sensitivity to this type of jitter. Refer to the Rise/Fall Time Tables (Table 7 to Table 11) to determine the proper drive strength.

### High Output Load Capability

The rise/fall time of the input clock varies as a function of the actual capacitive load the clock drives. At any given drive strength, the rise/fall time becomes slower as the output load increases. As an example, for a 3.3V SiT2024 device with default drive strength setting, the typical rise/fall time is 1 ns for 15 pF output load. The typical rise/fall time slows down to 2.6 ns when the output load increases to 45 pF. One can choose to speed up the rise/fall time to 1.83 ns by then increasing the drive strength setting on the SiT2024.

The SiT2024 can support up to 60 pF in maximum capacitive loads with drive strength settings. Refer to the Rise/Tall Time Tables (Table 7 to 11) to determine the proper drive strength for the desired combination of output load vs. rise/fall time.

### SiT2024 Drive Strength Selection

Tables 7 through 11 define the rise/fall time for a given capacitive load and supply voltage.

1. Select the table that matches the SiT2024 nominal supply voltage (1.8V, 2.5V, 2.8V, 3.0V, 3.3V).
2. Select the capacitive load column that matches the application requirement (5 pF to 60 pF)
3. Under the capacitive load column, select the desired rise/fall times.
4. The left-most column represents the part number code for the corresponding drive strength.
5. Add the drive strength code to the part number for ordering purposes.

### Calculating Maximum Frequency

Based on the rise and fall time data given in Tables 7 through 11, the maximum frequency the oscillator can operate with guaranteed full swing of the output voltage over temperature can be calculated as:

$$\text{Max Frequency} = \frac{1}{5 \times \text{Trf\_20/80}}$$

where Trf_20/80 is the typical value for 20%-80% rise/fall time.

***Example 1***

Calculate $f_{MAX}$ for the following condition:

- Vdd = 3.3V (Table 7)
- Capacitive Load: 30 pF
- Desired Tr/f time = 1.31 ns (rise/fall time part number code = F)

Part number for the above example:

SiT2024AA**E**S2-18E-66.666660

Drive strength code is inserted here. Default setting is "-"

## Rise/Fall Time (20% to 80%) vs $C_{LOAD}$ Tables

### Table 7. Vdd = 1.8V Rise/Fall Times for Specific $C_{LOAD}$

| Rise/Fall Time Typ (ns) | | | | | |
|---|---|---|---|---|---|
| Drive Strength \ $C_{LOAD}$ | 5 pF | 15 pF | 30 pF | 45 pF | 60 pF |
| L | 6.16 | 11.61 | 22.00 | 31.27 | 39.91 |
| A | 3.19 | 6.35 | 11.00 | 16.01 | 21.52 |
| R | 2.11 | 4.31 | 7.65 | 10.77 | 14.47 |
| B | 1.65 | 3.23 | 5.79 | 8.18 | 11.08 |
| T | 0.93 | 1.91 | 3.32 | 4.66 | 6.48 |
| E | 0.78 | 1.66 | 2.94 | 4.09 | 5.74 |
| U | 0.70 | 1.48 | 2.64 | 3.68 | 5.09 |
| F or "-": default | 0.65 | 1.30 | 2.40 | 3.35 | 4.56 |

### Table 8. Vdd = 2.5V Rise/Fall Times for Specific $C_{LOAD}$

| Rise/Fall Time Typ (ns) | | | | | |
|---|---|---|---|---|---|
| Drive Strength \ $C_{LOAD}$ | 5 pF | 15 pF | 30 pF | 45 pF | 60 pF |
| L | 4.13 | 8.25 | 12.82 | 21.45 | 27.79 |
| A | 2.11 | 4.27 | 7.64 | 11.20 | 14.49 |
| R | 1.45 | 2.81 | 5.16 | 7.65 | 9.88 |
| B | 1.09 | 2.20 | 3.88 | 5.86 | 7.57 |
| T | 0.62 | 1.28 | 2.27 | 3.51 | 4.45 |
| E or "-": default | 0.54 | 1.00 | 2.01 | 3.10 | 4.01 |
| U | 0.43 | 0.96 | 1.81 | 2.79 | 3.65 |
| F | 0.34 | 0.88 | 1.64 | 2.54 | 3.32 |

### Table 9. Vdd = 2.8V Rise/Fall Times for Specific $C_{LOAD}$

| Rise/Fall Time Typ (ns) | | | | | |
|---|---|---|---|---|---|
| Drive Strength \ $C_{LOAD}$ | 5 pF | 15 pF | 30 pF | 45 pF | 60 pF |
| L | 3.77 | 7.54 | 12.28 | 19.57 | 25.27 |
| A | 1.94 | 3.90 | 7.03 | 10.24 | 13.34 |
| R | 1.29 | 2.57 | 4.72 | 7.01 | 9.06 |
| B | 0.97 | 2.00 | 3.54 | 5.43 | 6.93 |
| T | 0.55 | 1.12 | 2.08 | 3.22 | 4.08 |
| E or "-": default | 0.44 | 1.00 | 1.83 | 2.82 | 3.67 |
| U | 0.34 | 0.88 | 1.64 | 2.52 | 3.30 |
| F | 0.29 | 0.81 | 1.48 | 2.29 | 2.99 |

### Table 10. Vdd = 3.0V Rise/Fall Times for Specific $C_{LOAD}$

| Rise/Fall Time Typ (ns) | | | | | |
|---|---|---|---|---|---|
| Drive Strength \ $C_{LOAD}$ | 5 pF | 15 pF | 30 pF | 45 pF | 60 pF |
| L | 3.60 | 7.21 | 11.97 | 18.74 | 24.30 |
| A | 1.84 | 3.71 | 6.72 | 9.86 | 12.68 |
| R | 1.22 | 2.46 | 4.54 | 6.76 | 8.62 |
| B | 0.89 | 1.92 | 3.39 | 5.20 | 6.64 |
| T or "-": default | 0.51 | 1.00 | 1.97 | 3.07 | 3.90 |
| E | 0.38 | 0.92 | 1.72 | 2.71 | 3.51 |
| U | 0.30 | 0.83 | 1.55 | 2.40 | 3.13 |
| F | 0.27 | 0.76 | 1.39 | 2.16 | 2.85 |

### Table 11. Vdd = 3.3V Rise/Fall Times for Specific $C_{LOAD}$

| Rise/Fall Time Typ (ns) | | | | | |
|---|---|---|---|---|---|
| Drive Strength \ $C_{LOAD}$ | 5 pF | 15 pF | 30 pF | 45 pF | 60 pF |
| L | 3.39 | 6.88 | 11.63 | 17.56 | 23.59 |
| A | 1.74 | 3.50 | 6.38 | 8.98 | 12.19 |
| R | 1.16 | 2.33 | 4.29 | 6.04 | 8.34 |
| B | 0.81 | 1.82 | 3.22 | 4.52 | 6.33 |
| T or "-": default | 0.46 | 1.00 | 1.86 | 2.60 | 3.84 |
| E | 0.33 | 0.87 | 1.64 | 2.30 | 3.35 |
| U | 0.28 | 0.79 | 1.46 | 2.05 | 2.93 |
| F | 0.25 | 0.72 | 1.31 | 1.83 | 2.61 |

## Pin 3 Configuration Options (OE or NC)

Pin 3 of the SiT2024 can be factory-programmed to support three modes: Output Enable (OE) or No Connect (NC).

### Output Enable (OE) Mode

In the OE mode, applying logic low to the OE pin only disables the output driver and puts it in Hi-Z mode. The core of the device continues to operate normally. Power consumption is reduced due to the inactivity of the output. When the OE pin is pulled High, the output is typically enabled in <1µs.

### No Connect (NC) Mode

In the NC mode, the device always operates in its normal mode and outputs the specified frequency regardless of the logic level on pin 3.

Table 12 below summarizes the key relevant parameters in the operation of the device in OE or NC mode.

**Table 12. OE vs. NC**

| | OE | NC |
|---|---|---|
| Active current 20 MHz (max, 1.8V) | 4.5 mA | 4.5 mA |
| OE disable current (max. 1.8V) | 3.8 mA | N/A |
| OE enable time at 110 MHz (max) | 130 ns | N/A |
| Output driver in OE disable | High Z | N/A |

## Output on Startup and Resume

The SiT2024 comes with gated output. Its clock output is accurate to the rated frequency stability within the first pulse from initial device startup.

In addition, the SiT2024 supports “no runt” pulses and “no glitch” output during startup or when the output driver is re-enabled from the OE disable mode as shown in the waveform captures in Figure 17 and Figure 18.

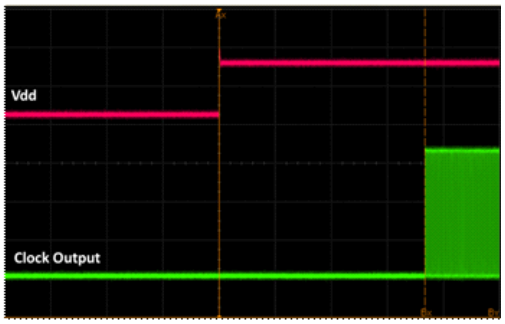



**Figure 17. Startup Waveform vs. Vdd**

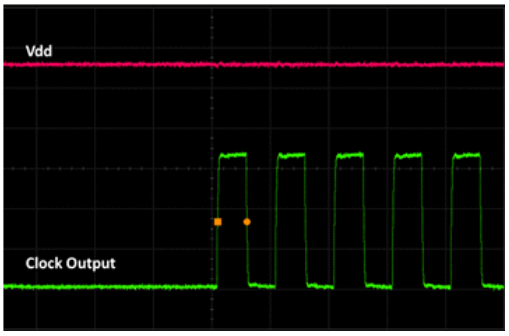
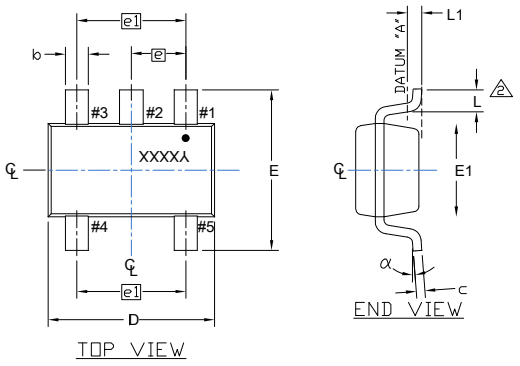
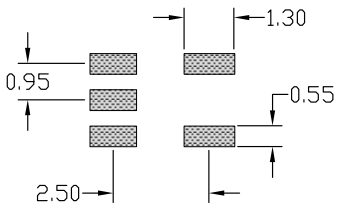



**Figure 18. Startup Waveform vs. Vdd (Zoomed-in View of Figure 17)**

## Dimensions and Patterns

| Package Size – Dimensions (Unit: mm)[12] | Recommended Land Pattern (Unit: mm)[13] |
|---|---|
| **2.9 x 2.8 x 1.27 mm**  |  |



**Notes:**

12. Top marking: Y denotes manufacturing origin and XXXX denotes manufacturing lot number. The value of "Y" will depend on the assembly location of the device.
13. A capacitor value of 0.1 µF between Vdd and GND is required

### Table 13. Dimension Table

| Symbol | Min. | Nom. | Max. |
|---|---|---|---|
| A | 0.90 | 1.27 | 1.45 |
| A1 | 0.00 | 0.07 | 0.15 |
| A2 | 0.90 | 1.2 | 1.30 |
| b | 0.30 | 0.35 | 0.50 |
| c | 0.14 | 0.153 | 0.20 |
| D | | 2.90 | |
| E | | 2.80 | |
| E1 | | 1.60 | |
| e | | 0.95 | |
| e1 | | 1.90 | |
| L | 0.30 | 0.38 | 0.55 |
| L1 | | 0.25 | |
| a | 0° | – | 8° |

## Ordering Information

**The Part No. Guide is for reference only. To customize and build an exact part number, use the SiTime Part Number Generator.**

SiT2024AM-S2-18E -25.000625D

**Part Family**
"SiT2024"

**Revision Letter**
"A" is the revision

**Temperature Range**
"E" Extended Industrial -40ºC to 105ºC
"A" Automotive -40ºC to 125ºC
"M" -55ºC to 125ºC

**Output Drive Strength**
"–" Default (datasheet limits)
*See Tables 7 to 11 for rise/fall times*

| | |
|---|---|
| "L" | "T" |
| "A" | "E" |
| "R" | "U" |
| "B" | "F" |

**Package Size**
"S" SOT23-5 (2.9 x 2.8 mm)

**Packing Method**
"D": 8 mm Tape & Reel, 3ku reel
"E": 8 mm Tape & Reel, 1ku reel
Blank for Bulk

**Frequency**
Refer to the Supported Frequencies Tables below

**Feature Pin**
"E" for Output Enable
"N" for No Connect

**Supply Voltage[14]**
"18" for 1.8V ±10%
"25" for 2.5V ±10%
"28" for 2.8V ±10%
"30" for 3.0V ±10%
"33" for 3.3V ±10%
"XX" for 2.25V to 3.63V

**Frequency Stability**
"2" for ±25 ppm
"8" for ±30 ppm
"3" for ±50 ppm

**Note:**

14. The voltage portion of the SiT2024 part number consists of two characters that denote the specific supply voltage of the device. The SiT2024 supports either 1.8V ±10% or any voltage between 2.25V and 3.62V. In the 1.8V mode, one can simply insert 18 in the part number. In the 2.5V to 3.3V mode, two digits such as 18, 25 or 33 can be used in the part number to reflect the desired voltage. Alternatively, "XX" can be used to indicate the entire operating voltage range from 2.25V to 3.63V.

### Table 14. Supported Frequencies (-40°C to ±105°C or -40°C to ±125°C)[15, 16]

| Frequency Range | |
|---|---|
| Min. | Max. |
| 1.000000 MHz | 61.222999 MHz |
| 61.674001 MHz | 69.795999 MHz |
| 70.485001 MHz | 79.062999 MHz |
| 79.162001 MHz | 81.427999 MHz |
| 82.232001 MHz | 91.833999 MHz |
| 92.155001 MHz | 94.248999 MHz |
| 94.430001 MHz | 94.874999 MHz |
| 94.994001 MHz | 97.713999 MHz |
| 98.679001 MHz | 110.000000 MHz |

### Table 15. Supported Frequencies (-55°C to ±125°C)[15, 16]

| Frequency Range | |
|---|---|
| Min. | Max. |
| 1.000000 MHz | 61.222999 MHz |
| 61.674001 MHz | 69.239999 MHz |
| 70.827001 MHz | 78.714999 MHz |
| 79.561001 MHz | 80.159999 MHz |
| 80.174001 MHz | 80.779999 MHz |
| 82.632001 MHz | 91.833999 MHz |
| 95.474001 MHz | 96.191999 MHz |
| 96.209001 MHz | 96.935999 MHz |
| 99.158001 MHz | 110.000000 MHz |

**Notes:**

15. Any frequency within the min and max values in the above table are supported with 6 decimal places of accuracy.
16. Please contact SiTime for frequencies that are not listed in the tables above.

### Table 16. Additional Information

| Document | Description | Download Link |
|---|---|---|
| **Time Machine II** | MEMS oscillator programmer | http://www.sitime.com/support/time-machine-oscillator-programmer |
| **Field Programmable Oscillators** | Devices that can be programmable in the field by Time Machine II | http://www.sitime.com/products/field-programmable-oscillators |
| **Manufacturing Notes** | Tape & Reel dimension, reflow profile and other manufac-turing related info | http://www.sitime.com/component/docman/doc_download/85-manufacturing-notes-for-sitime-oscillators |
| **Qualification Reports** | RoHS report, reliability reports, composition reports | http://www.sitime.com/support/quality-and-reliability |
| **Performance Reports** | Additional performance data such as phase noise, current consumption and jitter for selected frequencies | http://www.sitime.com/support/performance-measurement-report |
| **Termination Techniques** | Termination design recommendations | http://www.sitime.com/support/application-notes |
| **Layout Techniques** | Layout recommendations | http://www.sitime.com/support/application-notes |

## Revision History

### Table 17. Datasheet Version and Change Log

| Version | Release Date | Change Summary |
|---|---|---|
| 0.95 | 1/29/14 | Preliminary |
| 0.96 | 2/5/14 | Added -55°C to 125°C support |