

SiT9005A-71-0001

Description

This datasheet addendum defines the configuration of custom part number SiT9005A-71-0001, which is a configuration-specific version of the SiTime base SiT9005 datasheet. Please refer to the SiT9005 datasheet and related collateral for further information about this device. You can search for and download the base SiT9005 datasheet from the SiTime website. Go to <https://www.sitime.com/datasheet/sit9005> for more information.

Configuration Information

Custom Part Number: SiT9005A-71-0001

Base Part Number: SiT9005

Silicon Revision: A

Frequency (MHz): 25.000000

Frequency Stability (PPM): ± 20

Supply Voltage (V): 1.8

Output Drive Strength: Default

Temperature Range (°C): -40 to 85

Package Size (mm): 2.0x1.6

Feature Pin: ST

Spread Type and Profile: Down spread & Triangular

Spread Option (%): -0.50

Packaging Options (Append to the end of the custom part number when ordering. For example, order SiT9005A-71-0001D for a 8mm Tape & Reel, 3ku Reel):

- "D": 8 mm Tape & Reel, 3ku Reel
- "E": 8 mm Tape & Reel, 1ku Reel
- "": (blank) Bulk for sampling only

Table 1. Electrical Characteristics

All Min and Max limits are specified over temperature and rated operating voltage with 15 pF output load unless otherwise stated. Typical values are at 25°C and 3.3 V supply voltage.

Parameters	Symbol	Min.	Typ.	Max.	Unit	Condition
Frequency Range						
Output Frequency Range	f	1	–	141	MHz	
Frequency Stability and Aging						
Frequency Stability	F_stab	-20	–	+20	ppm	Inclusive of initial tolerance at 25°C, 1st year aging at 25°C, and variations over operating temperature, rated power supply voltage. Spread = Off.
		-25	–	+25	ppm	
		-50	–	+50	ppm	
Operating Temperature Range						
Operating Temperature Range	T_use	-20	–	+70	°C	Extended Commercial
		-40	–	+85	°C	Industrial
Supply Voltage and Current Consumption						
Supply Voltage	Vdd	1.62	1.8	1.98	V	
		2.25	2.5	2.75	V	
		2.52	2.8	3.08	V	
		2.7	3.0	3.3	V	
		2.97	3.3	3.63	V	
		2.25	–	3.63	V	
Current Consumption	Idd	–	5.6	6.5	mA	No load condition, f = 40 MHz, Vdd = 2.5 V to 3.3 V
		–	5.0	5.2	mA	No load condition, f = 40 MHz, Vdd = 1.8 V
OE Disable Current	I_OD	–	5.0	6.5	mA	f = 40 MHz, Vdd = 2.5 V to 3.3 V, OE = GND, Output in high-Z state
		–	4.6	5.2	mA	f = 40 MHz, Vdd = 1.8 V, OE = GND, Output in high-Z state
Standby Current	I_std	–	2.1	4.3	μA	\overline{ST} = GND, Vdd = 2.5 V to 3.3 V, Output is weakly pulled down
		–	0.4	1.5	μA	\overline{ST} = GND, Vdd = 1.8 V, Output is weakly pulled down
LVCMS Output Characteristics						
Duty Cycle	DC	45	–	55	%	
Rise/Fall Time	Tr, Tf	–	1	2	ns	Vdd = 2.5 V, 2.8 V, 3.0 V or 3.3 V, 20% - 80%, default derive strength
		–	1.3	2.5	ns	Vdd = 1.8 V, 20% - 80%, default derive strength
		–	–	2	ns	Vdd = 2.25 V - 3.63 V, 20% - 80%, default derive strength
Output High Voltage	VOH	90%	–	–	Vdd	IOH = -4 mA (Vdd = 3.0 V or 3.3 V) IOH = -3 mA (Vdd = 2.8 V and Vdd = 2.5 V) IOH = -2 mA (Vdd = 1.8 V)
Output Low Voltage	VOL	–	–	10%	Vdd	IOL = 4 mA (Vdd = 3.0 V or 3.3 V) IOL = 3 mA (Vdd = 2.8 V and Vdd = 2.5 V) IOL = 2 mA (Vdd = 1.8 V)
Input Characteristics						
Input High Voltage	VIH	70%	–	–	Vdd	Pin 1, OE or \overline{ST}
Input Low Voltage	VIL	–	–	30%	Vdd	Pin 1, OE or \overline{ST}
Input Pull-up Impedance	Z_in	50	87	150	kΩ	Pin 1, OE logic high or logic low, or \overline{ST} logic high
		2	–	–	MΩ	Pin 1, \overline{ST} logic low
Startup and Resume Timing						
Startup Time	T_start	–	–	5	ms	Measured from the time Vdd reaches its rated minimum value
Enable/Disable Time	T_oe	–	–	180	ns	f = 40 MHz. For other frequencies, T_oe = 100 ns + 3 * cycles
Resume Time	T_resume	–	–	5	ms	Measured from the time ST pin crosses 50% threshold
Spread Enable Time	T_sde	–	–	4	μs	Measured from the time SD pin crosses 50% threshold
Spread Disable Time	T_sdde	–	–	50	μs	Measured from the time SD pin crosses 50% threshold
Jitter						
Cycle-to-cycle jitter	T_ccj	–	10.5	15	ps	f = 40 MHz, Vdd = 2.5 to 3.3V, Spread = ON(or OFF)
		–	8.5	12	ps	f = 40 MHz, Vdd = 3.3V, Spread = ON(or OFF)
		–	12.5	22	ps	f = 40 MHz, Vdd = 1.8V, Spread = ON(or OFF)

Revision History

Revision: 1

- Revision Date: 04/01/2021
- Initial Release

Corporate Headquarters

SiTime Corporation
5451 Patrick Henry Drive
Santa Clara, CA 95054, USA

Contact Information

For further information on a product, technology, document, or to locate your nearest sales office, please visit:

<https://www.sitime.com>

Phone: +1-408-328-4400

FAX: +1-408-328-4439

Notice

© SiTime Corporation 2021. The information contained herein is subject to change at any time without notice. SiTime assumes no responsibility or liability for any loss, damage or defect of a Product which is caused in whole or in part by (i) use of any circuitry other than circuitry embodied in a SiTime product, (ii) misuse or abuse including static discharge, neglect or accident, (iii) unauthorized modification or repairs which have been soldered or altered during assembly and are not capable of being tested by SiTime under its normal test conditions, or (iv) improper installation, storage, handling, warehousing or transportation, or (v) being subjected to unusual physical, thermal, or electrical stress.

Disclaimer: SiTime makes no warranty of any kind, express or implied, with regard to this material, and specifically disclaims any and all express or implied warranties, either in fact or by operation of law, statutory or otherwise, including the implied warranties of merchantability and fitness for use or a particular purpose, and any implied warranty arising from course of dealing or usage of trade, as well as any common-law duties relating to accuracy or lack of negligence, with respect to this material, any SiTime product and any product documentation. Products sold by SiTime are not suitable or intended to be used in a life support application or component, to operate nuclear facilities, or in other mission critical applications where human life may be involved or at stake. All sales are made conditioned upon compliance with the critical uses policy set forth below.

CRITICAL USE EXCLUSION POLICY

BUYER AGREES NOT TO USE SITIME'S PRODUCTS FOR ANY APPLICATION OR IN ANY COMPONENTS USED IN LIFE SUPPORT DEVICES OR TO OPERATE NUCLEAR FACILITIES OR FOR USE IN OTHER MISSION-CRITICAL APPLICATIONS OR COMPONENTS WHERE HUMAN LIFE OR PROPERTY MAY BE AT STAKE.

SiTime owns all rights, title and interest to the intellectual property related to SiTime's products, including any software, firmware, copyright, patent, or trademark. The sale of SiTime products does not convey or imply any license under patent or other rights. SiTime retains the copyright and trademark rights in all documents, catalogs and plans supplied pursuant to or ancillary to the sale of products or services by SiTime. Unless otherwise agreed to in writing by SiTime, any reproduction, modification, translation, compilation, or representation of this material shall be strictly prohibited.