

Features

- World's thinnest, 0.25 mm (typical) height
- World's lowest power programmable oscillator, <3.5 mA typical current consumption
- 1-80 MHz frequency range. Contact SiTime for frequencies between 80 MHz - 110 MHz
- Extremely fast start-up time, <3 ms enabling power-cycling for lower system power
- Programmable standby or output enable modes
- <10 μ A current consumption in standby mode
- All-silicon device with outstanding reliability of 2 FIT, 10x improvement over quartz-based devices, improves system MTBF
- Outstanding mechanical robustness for portable applications
- Ultra short lead time
- Ideal for portable applications: High Capacity (HC) SIM cards, Smart cards, Near Field Communications (NFC), SD cards, multi-chip modules (MCM) and System-in-Package (SiP)

Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Output Frequency Range	f	1	-	80	MHz	Contact SiTime for frequencies between 80 MHz - 110 MHz
Frequency Tolerance	F_tol	-100	-	+100	PPM	Inclusive of: Initial tolerance, operating temperature, rated power supply voltage change, load change, aging (1st yr@25°C), shock and vibration.
Storage Temperature Range		-55	-	+125	°C	
Operating Temperature Range	T_use	-20	-	+70	°C	Extended Commercial
		-40	-	+85	°C	Industrial
Supply Voltage	Vdd	1.62	1.8	1.98	V	
		2.25	2.5	2.75	V	
		2.52	2.8	3.08	V	
		2.97	3.3	3.63	V	
Current Consumption	Idd		3.0	3.5	mA	No load condition, f = 20 MHz, Vdd = 1.8 V
			3.5	4	mA	No load condition, f = 20 MHz, Vdd = 2.5 V, 2.8 V or 3.3 V
Standby Current	I_std	-	3	10	μ A	Output is Weakly Pulled Down, \overline{ST} = GND, Vdd = 1.8 V
		-	7	10	μ A	Output is Weakly Pulled Down, \overline{ST} = GND, Vdd = 2.5 V, 2.8 V or 3.3 V
Duty Cycle	DC	45	-	55	%	All Vdds. f < 70 MHz
		40	-	60	%	All Vdds. f > 70 MHz
Rise/Fall Time	Tr, Tf	-	1.0	2	ns	20% - 80% Vdd level
Output Voltage High	VOH	90	-	-	%Vdd	IOH = -4 mA (Vdd = 3.3 V) IOH = -3 mA (Vdd = 2.8 V and Vdd = 2.5 V) IOH = -2 mA (Vdd = 1.8 V)
Output Voltage Low	VOL	-	-	10	%Vdd	IOH = 4 mA (Vdd = 3.3 V) IOH = 3 mA (Vdd = 2.8 V and Vdd = 2.5 V) IOH = 2 mA (Vdd = 1.8 V)
Input Voltage High	VIH	70	-	-	%Vdd	Pin 1, OE or \overline{ST}
Input Voltage Low	VIL	-	-	30	%Vdd	Pin 1, OE or \overline{ST}
Input Current	I_in	-	-	10	μ A	
Output Load	Ld	-	-	15	pF	Maximum frequency and supply voltage. Contact SiTime for higher output load
Start up Time	T_osc	-	-	3	ms	Measured from the time Vdd reaches its rated minimum value
RMS Period Jitter	T_jitt	-	-	6	ps	f = 48 MHz, Vdd = 1.8 V
		-	-	4	ps	f = 48 MHz, Vdd = 2.5 V, 2.8 V or 3.3 V
RMS Phase Jitter (random)	T_phj	-	1.60	-	ps	f = 62.5 MHz, Integration bandwidth = 1.875 MHz to 20 MHz
		-	1.00	-	ps	f = 75 MHz, Integration bandwidth = 900 kHz to 7.5 MHz

■ Dimensions, Pin Description and Land Pattern

Dimensions (Unit: mm)

Pin #1 Functionality

Pin #1 Functionality	
OE	
H or Open; specified frequency output	
L: output is high impedance	
ST	
H or Open; specified frequency output	
L: output is low level (weak pull down)	

Pin Map

Pin	Connection
1	OE/ST
2	GND
3	CLK
4	VDD

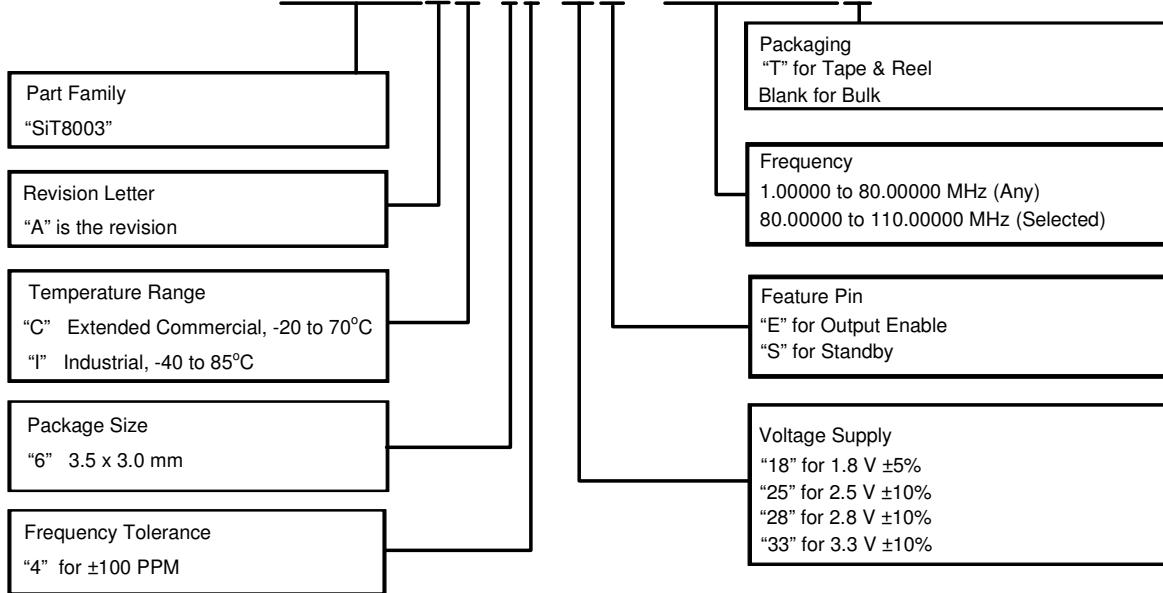
Note: XXXX top marking denotes manufacturing lot no.

Recommended Land Pattern (Unit: mm)

Note: A capacitor of value 0.1µF between Vdd and GND is recommended

■ Part No. Guide- How to Order

SiT8003AC-64-18E - 100.12345T



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