# **SiT8925B**

# High Frequency, Automotive AEC-Q100 Oscillator



### **Features**

- AEC-Q100 with extended temperature range (-55°C to 125°C)
- Frequencies between 115.2 MHz and 137 MHz accurate to 6 decimal points
- 100% pin-to-pin drop-in replacement to quartz-based XO
- Excellent total frequency stability as low as ±20 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
- Industry-standard packages: 2.0 x 1.6, 2.5 x 2.0, 3.2 x 2.5, 5.0 x 3.2, 7.0 x 5.0 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
- Powertrain control









SEARCH INVENTORY

GREEN SOLUTIONS

### **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 nominal supply voltage.

**Table 1. Electrical Characteristics** 

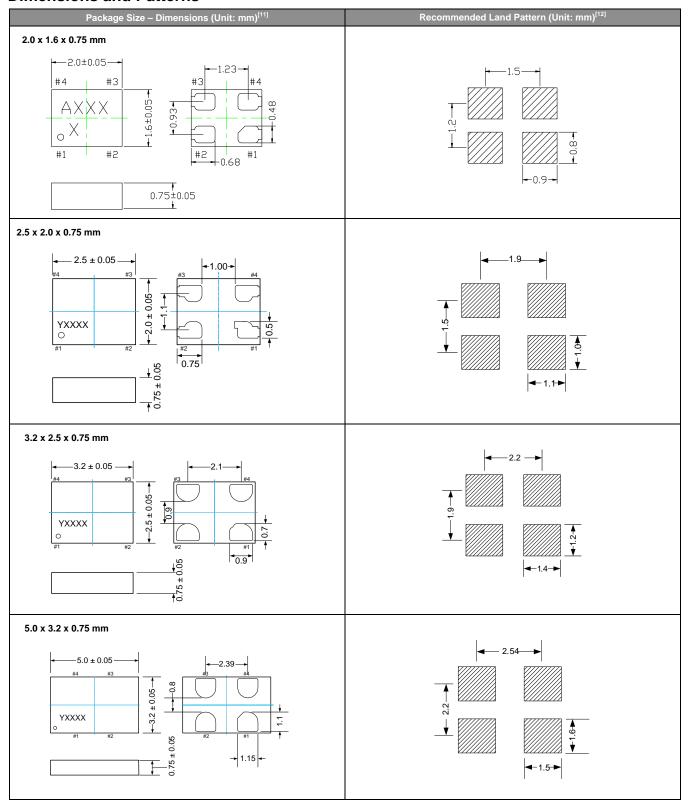
Parameter	Symbol	Min.	Тур.	Max.	Unit	Condition
				Freq	uency Rar	nge
Output Frequency Range	f	115.20	_	137	MHz	Refer to Table 13 and Table 14 for the exact list of supported frequencies
Frequency Stability and Aging						
Frequency Stability	F_stab	-20	_	+20	ppm	Inclusive of Initial tolerance at 25°C, 1st year aging at 25°C, and variations over operating temperature, rated power supply voltage and load (15 pF ±10%).
		-25	-	+25	ppm	
		-30	_	+30	ppm	
		-50	_	+50	ppm	
				Operating '	Temperatu	ure Range
Operating Temperature Range (ambient)	T_use	-40	_	+85	°C	Industrial, AEC-Q100 Grade 3
		-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. Contact SiTime for 1.5V support
		2.25	_	3.63	V	
Current Consumption	ldd	-	6	8	mA	No load condition, f = 125 MHz, Vdd = 2.25V to 3.63V
		-	4.9	6	mA	No load condition, f = 125 MHz, Vdd = 1.62V to 1.98V
			L	VCMOS O	utput Chara	acteristics
Duty Cycle	DC	45	_	55	%	
Rise/Fall Time	Tr, Tf	-	1.5	3	ns	Vdd = 2.25V - 3.63V, 20% - 80%
		-	1.5	2.5	ns	Vdd = 1.8V, 20% - 80%
Output High Voltage	VOH	90%	_	_	Vdd	IOH = -4 mA (Vdd = 3.0V or 3.3V)
						IOH = -3 mA (Vdd = 2.8V and Vdd = 2.5V) IOH = -2 mA (Vdd = 1.8V)
Output Low Voltage	VOL	_	-	10%	Vdd	IOL = 4 mA (Vdd = 1.0V)
						IOL = 3  mA  (Vdd = 2.8 V and Vdd = 2.5 V)
						IOL = 2 mA (Vdd = 1.8V)
Input Characteristics						
Input High Voltage	VIH	70%	_	- 200/	Vdd	Pin 1, OE
Input Low Voltage Input Pull-up Impedence	Z in		100	30%	Vdd kΩ	Pin 1, OE Pin 1, OE logic high or logic low
mpat run-up impedence	<u></u>		100	Startup a	nd Resume	
Startup Time	T start		T _	5 Startup at	ms	Measured from the time Vdd reaches its rated minimum value
Enable/Disable Time	T oe		_	130	ns	
Litable/Disable Hille	1_06			130	Jitter	f = 115.20 MHz. For other frequencies, T_oe = 100 ns + 3 * cycles
RMS Period Jitter	T_jitt		1.6	2.5	ps	f = 125 MHz, 2.25V to 3.63V
Tano i criod vitter	, _j,,,		1.8	3	ps	f = 125 MHz, 1.8V
Peak-to-peak Period Jitter	T_pk	_	12	20	ps	f = 125 MHz, Vdd = 2.5V, 2.8V, 3.0V or 3.3V
reak-to-peak remousities	, _p,,	_	14	30	ps	f = 125 MHz, Vdd = 1.8V
RMS Phase Jitter (random)	T_phj	_	0.7	-	ps	f = 125 MHz, Integration bandwidth = 900 kHz to 7.5 MHz
		_	1.5	_	ps	f = 125 MHz, Integration bandwidth = 12 kHz to 20 MHz

SHENZHEN YIJIN ELECTRONICS CO: LTD TEL: 0755-27876565

18924600166 QQ: 857950243 http://www.vc-tcxo.com



### **Dimensions and Patterns**



#### Notes

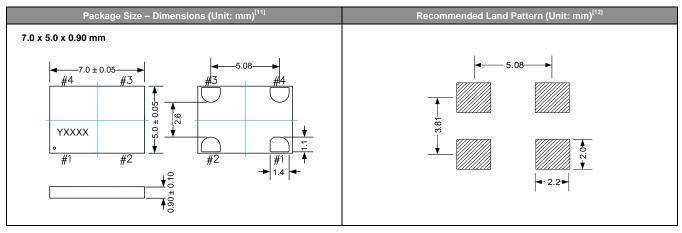
- 11. Top marking: Y denotes manufacturing origin and XXXX denotes manufacturing lot number. The value of "Y" will depend on the assembly location of the device.
- 12. A capacitor of value 0.1  $\mu\text{F}$  or higher between Vdd and GND is required.

SHENZHEN YIJIN ELECTRONICS CO: LTD TEL: 0755-27876565

18924600166 QQ: 857950243 http://www.vc-tcxo.com



### **Dimensions and Patterns**



#### Notes:

- 11. 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.
- 12. A capacitor of value 0.1  $\mu\text{F}$  or higher between Vdd and GND is required.

SHENZHEN YIJIN ELECTRONICS CO: LTD TEL: 0755-27876565

18924600166 QQ: 857950243 http://www.vc-tcxo.com