

" OCXO " [Oven Controlled Crystal Oscillators]

OC13T

Square Wave

OC13E

True Sine Wave

Best stability

± 5.0 ppb

Standard
OCXO Series

DIP

3.3V

5.0V

Min.

5 MHz

Max.

40 MHz

Applications

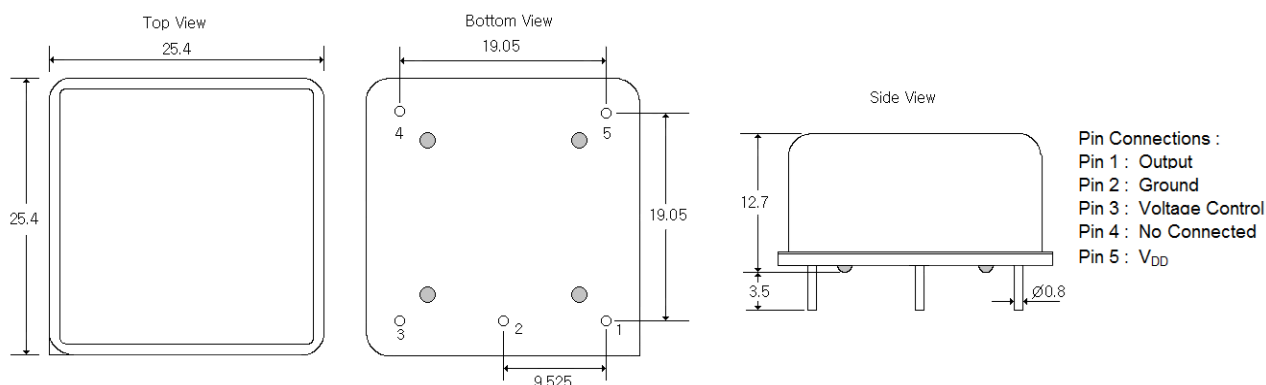
- OC13_ (25.4 * 25.4 * 12.7 mm)
- Full Size 5 pin dip full metal package
- +3.3V , +5.0V Supply Voltages
- Voltage control (Electronic Frequency Tuning) is standard .



General Specifications (at +25°C and specified input voltage)

Output Waveform		Square wave. Waveform code is " T "		True Sine Wave. Waveform code is " E "	
Supply Voltage		+3.3 V	+5.0 V	+3.3 V	+5.0 V
Supply Voltage range , " Voltage code "		+3.3V ± 5% , " 3 "	+5.0V ± 5% , " 5 "	+3.3V ± 5% , " 3 "	+5.0V ± 5% , " 5 "
Frequency Range		5 ~ 40.0 MHz		5 ~ 40.0 MHz	
Initial Calibration Tolerance		± 100 ppb (max.)	± 100 ppb (max.)	± 100 ppb (max.)	± 100 ppb (max.)
		Vcon = +1.65 V	Vcon = +2.5 V	Vcon = +1.65 V	Vcon = +2.5 V
Type of Crystal Cut Used		" SC - cut " crystal or " IT - cut " crystal			
Frequency Stability	vs Temperature (refer to +25°C)	± 3 ppb (max.) over 0°C to +70°C			
		± 5.0 ppb (max.) over -30°C to +70°C			
		± 5.0 ppb (max.) over -40°C to +85°C			
	vs Voltage Change	± 1.0ppb (max.) , for a ± 5% input voltage change .			
	vs Warm-up time (+25°C)	10 minute (max.) Within ± 10 ppb of its reference frequency.			
	vs Aging	± 0.5 ppb (max.) / after 30 days ; ± 50 ppb (max.) / first year ; ± 300 ppb (max.) over 10 years.			
Voltage Control On pin 1 (EFC)	Freq. Deviation Range	± 0.5 ppm (min.) , ± 5 ppm (max.) Reference to fo at +25°C and over operating temperature range.			
	Control Voltage Range	+1.65V ± 1.65V	+2.5V ± 2.5V	+1.65V ± 1.65V	+2.5V ± 2.5V
	Transfer Function	Positive : Increasing control voltage increases output frequency .			
(Electronic Freq. Tuning)	Input Impedance	50 K ohms (min.)			
	EFC Linearity	± 10 % (max.)			
Power	Power Dissipation (at +25°C)	1.3 Watts (max.) at steady-state; 1000 mA (max.) at turn-on.			
Output	Output Level (for True Sine)	---	---	+8 dBm (typ.) , +10 dBm (max.) into 50Ω load .	
	Harmonic (for True Sine)	---	---	-30 dBc (min.)	
	Spurious (for True Sine)	---	---	-60 dBc (min.)	
	Load	15pF		50 Ω	
	Output Logic High (V _{OH})	+2.4 V (min.)	+2.4 V (min.)	---	---
	Output Logic Low (V _{OL})	+ 0.4 V (max.)	+ 0.4 V (max.)	---	---
	Duty Cycle (V _{DD})	50 % ± 5% @ +1.4V		---	---
	Rise and Fall Time	7 nsec. (max.) (20% → 80% of waveform)		---	---
	Phase Noise Offset [10.0 MHz] (typ.)	10 Hz	100 Hz	1 KHz	10 KHz
		-120 dBc	-135 dBc	-145 dBc	-150 dBc

Outline Dimensions (Unit : ±0.2 mm)



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Square Wave " OC _ T "

Clipped Sine Wave " OC _ S "

True Sine Wave " OC _ E "

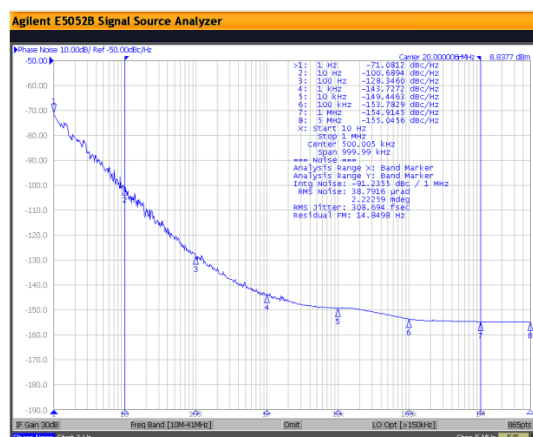
Part Number Format and Example

	[1]	[2]	[3]	-	[4]	-	[5]	/	[6]
	Holder Type	Output Wave	Supply Voltage		Center Frequency		Frequency Stability		Operating Temp. Range
Examples	(1)	OC14	T	5	5.000	10	-40+85		
	(2)	OC18	E	5	100.000	100	-30+70		
	(3)	OC51	S	3	10.000	30	-20+70		
	(4)	OC12	E	3	10.000	200	0+70		

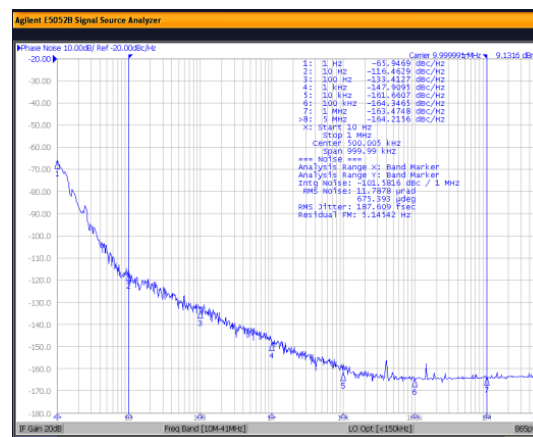
Ex (1) : OC14T5 - 5.000 - 10 / -40+85 [OC14 type , Square Wave , 5.0V , 5.000MHz , ± 10 ppb from -40°C to 85°C]
 Ex (2) : OC18E5 - 100.000 - 100 / -30+70 [OC18 type , True Sine Wave , 5.0V , 100.000MHz , ± 100 ppb from -30°C to 70°C]
 Ex (3) : OC51S3 - 10.000 - 30 / -20+70 [OC51 type , Clipped Sine Wave , 3.3V , 10.000MHz , ± 30 ppb from -20°C to 70°C]
 Ex (4) : OC12E3 - 10.000 - 200 / 0+70 [OC12 type , True Sine Wave , 3.3V , 10.000MHz , ± 200 ppb from 0°C to 70°C]

[1]	Holder Type " OC _ " stands for OCXO ,
[2]	" T " stands for Square Wave , " E " stands for True Sine Wave , " S " stands for Clipped Sine Wave ex 1 : OC14T , OC14 package , Square Wave ; ex 2 : OC18E , OC18 package , True Sine Wave ; ex 3 : OC51S , OC51 package , Clipped Sine Wave ; ex 4 : OC12E , OC12 package , True Sine Wave
[3]	Supply voltage , " 5 " for 5.0V D.C , " 3 " for 3.3V D.C
[4]	Center Frequency in MHz
[5]	Frequency stability in $\pm$ _ ppb ; ex 1 : ± 10 ppb ---10 , ex 2 : ± 100 ppb ---100 , ex 3 : ± 30 ppb ---30 , ex 4 : ± 200 ppb ---200
[6]	Operating temperature range in °C ex 1 : -40 °C to 85°C ----- -40+85 ; ex 2 : -30 °C to 70°C ----- -30+70 ; ex 3 : -20 °C to 70°C ----- -20+70 ; ex 4 : 0 °C to 70°C ----- 0+70

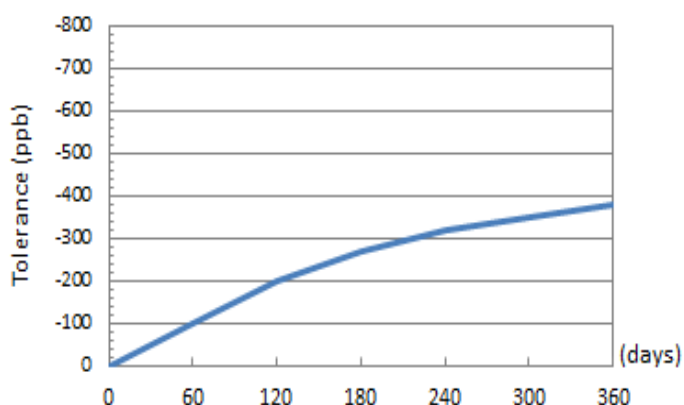
SSB Phase Noise : Clipped Sine Wave(OC51S-20.000)



SSB Phase Noise : Square Wave(OC13T-10.000)



Aging : OC51S-20.000



Power Consumption vs Temperature (OC13T5-10.000)

