6.1 TOC2020

20.6 x 20.6 mm Oven Controlled Crystal Oscillator

Pb Free RoHS Compliant

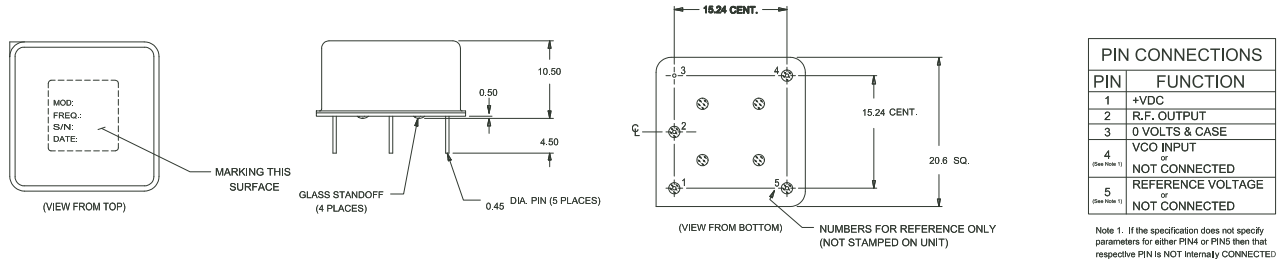
FEATURES

- Dimension 20.6 x 20.6 x 11.0 mm typical
- SC Cut Crystal

TYPICAL APPLICATION

- SDH/SONET, Telecommunication base station
- Test and measurement equipment
- Synthesizer, Digital switch, Reference Timing Circuit

DIMENSIONS



PIN CONNECTIONS	
PIN	FUNCTION
1	+VDC
2	R.F. OUTPUT
3	0 VOLTS & CASE
4 (See Note 1)	VCO INPUT or NOT CONNECTED
5 (See Note 1)	REFERENCE VOLTAGE or NOT CONNECTED

Note 1. If the specification does not specify parameters for either PIN4 or PIN5 then that respective PIN is NOT Internaly CONNECTED

ELECTRICAL SPECIFICATION

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Output Frequency		—	10	—	MHz	Available frequency range is from 5MHz to 40MHz. Standard frequencies are 10, 12.8, 13, 15.36, 16.384, 19.2, 20 and 25MHz.
Waveform		—	Rectangular	—	—	Sine wave output is available. Consult factory for more information.
Level (HCMOS)	"1" Level	3.5	—	—	V	
	"0" Level	—	—	0.5		
	Load	—	15	—	pF	
	Duty Cycle	45	50	55	%	@+2.0V
	Spurious	—	—	-60	dBc	
Frequency Stability	Ambient	-10	—	+10	ppb	-30 ~ +70°C, referenced to +25°C Refer to Freq. Stability Vs Temp. Range table.
	Aging	-0.5	—	+0.5	ppb	Per day, at time of shipment.
	Daily	-0.5	—	+0.5	ppb	after 30 days
	Yearly	-50	—	+50	ppb	
	10 years	-0.3	—	+0.3	ppm	
	Voltage	-0.5	—	+0.5	ppb	±5% Change
	Warm-up	-50	—	+50	ppb	In 3 minutes @ +25°C, referenced to 1 hour.
Phase Noise		—	—	-115	dBc/Hz	@10 Hz
		—	—	-135		@100 Hz
		—	—	-145		@1 kHz
		—	—	-150		@10 kHz

OCXO

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Electrical Frequency Adjustment	Range	—	—	-0.5	ppm	VCO@ 0V
		0.5	—	—		VCO@4.0V
	Control	0	2	4	V	
	Slope	—	Positive	—		
	Input impedance	100	—	—	kΩ	
Input Power	Voltage	4.75	5.0	5.25	V	3.3V input voltage is available. Consult factory for control voltage and output level.
	Current	—	—	500	mA	@ turn on
	Steady state	—	—	1.0	W	@ +25°C
Reference Voltage	Voltage	3.8	4.0	4.2	V	
	Load	9	—	—	kΩ	

FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C) \ ppb	±5	±10	±20
0 ~ +70	○	○	○
-30 ~ +70	△	○	○
-40 ~ +85	△	○	○

*o: Available Δ: Condition X: Not available

Note: not all combination of options are available. Other specifications may be available upon request.
Specifications subject to change without notice.

6.2 TOC2522

25.4 x 22.1 mm Oven Controlled Crystal Oscillator

Pb Free RoHS Compliant

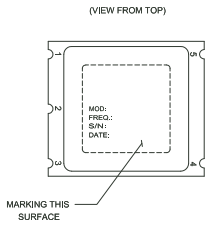
FEATURES

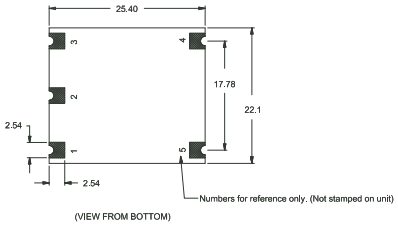
- Dimension 25.4 x 22.1 x 11.0 mm typical
- SC Cut Crystal

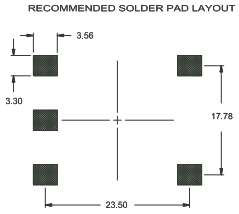
TYPICAL APPLICATION

- SDH/SONET, Telecommunication base station
- Test and measurement equipment
- Synthesizer, Digital switch, Reference Timing Circuit

DIMENSIONS







PIN CONNECTIONS	
PIN	FUNCTION
1 (See Note 1)	VCO INPUT or NOT CONNECTED
2 (See Note 1)	REFERENCE VOLTAGE or NOT CONNECTED
3	+VDC
4	R. F. OUTPUT
5	0 VOLTS & CASE

Note 1. If the specification does not specify parameters for either PIN1or PIN2 then that respective PIN is NOT internally CONNECTED

ELECTRICAL SPECIFICATION

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Output Frequency		—	10	—	MHZ	Available frequency range is from 5MHz to 40MHz. Standard frequencies are 10, 12.8, 15.36, 16.384, 19.2, 20 and 25MHz.
Waveform		—	Rectangular	—	—	Sine wave output is available. Consult factory for more information.
Level (HCMOS)	"1" Level	2.4	3.3	—	V	
	"0" Level	—	—	0.4		
	Load	—	15	—	pF	
	Duty Cycle	45	50	55	%	@+1.4V
	Spurious	—	—	-60	dBc	
Frequency Stability	Ambient	-10	—	+10	ppb	-30 ~ +70°C, referenced to +25°C Refer to Freq. Stability Vs Temp. Range table.
	Aging	-0.5	—	+0.5	ppb	Per day, at time of shipment.
	Daily	-0.5	—	+0.5	ppb	after 30 days
	Yearly	-50	—	+50	ppb	
	10 years	-0.4	—	+0.4	ppm	
	Voltage	-0.5	—	+0.5	ppb	±5% Change
	Warm-up	-10	—	+10	ppb	In 2 minutes @ +25°C, referenced to 1 hour.
Phase Noise @ 20MHz		—	—	-115	dBc/Hz	@10 Hz
		—	—	-130		@100 Hz
		—	—	-140		@1k Hz
		—	—	-150		@10k Hz

OCXO

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Electrical Frequency Adjustment	Range	—	—	-0.5	ppm	VCO@ 0V
		0.5	—	—		VCO@2.8V
	Control	0	1.4	2.8	V	
	Slope	—	Positive	—		
	Input impedance	100	—	—	kΩ	
Input Power	Voltage	3.135	3.3	3.465	V	5.0V input voltage is available. Consult factory for control voltage and output level.
	Current	—	—	1000	mA	@ turn on
	Steady state	—	—	1.2	W	@ +25°C
Reference Voltage	Voltage	2.7	2.8	2.9	V	
	Load	9	—	—	kΩ	

FREQ. STABILITY VS. TEMP. RANGE

Temp.(°C) \ ppb	±5	±10	±20
0 ~ +70	○	○	○
-30 ~ +70	△	○	○
-40 ~ +85	△	○	○

*o: Available Δ: Condition X: Not available

Note: not all combination of options are available. Other specifications may be available upon request.
Specifications subject to change without notice.

6.3 TOC2525

25.4 x 25.4 mm Oven Controlled Crystal Oscillator

Pb Free

RoHS Compliant

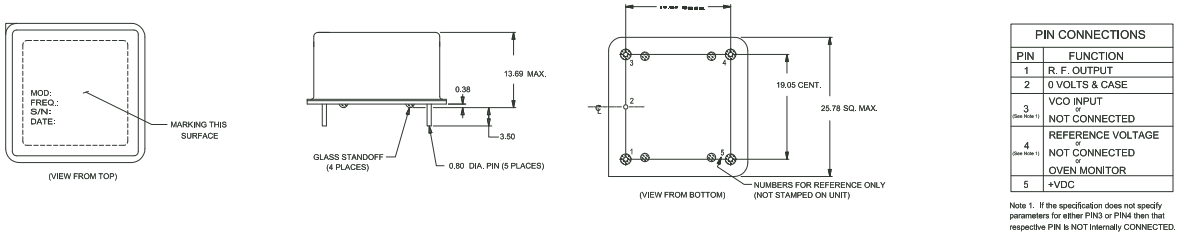
FEATURES

- Dimension 25.4 x 25.4 x 12.7 mm typical
- SC Cut Crystal

TYPICAL APPLICATION

- SDH/SONET, Telecommunication base station
- Test and measurement equipment
- Synthesizer, Digital switch, Reference Timing Circuit

DIMENSIONS



PIN CONNECTIONS	
PIN	FUNCTION
1	R. F. OUTPUT
2	0 VOLTS & CASE
3 (See Note 1)	VCO INPUT or NOT CONNECTED
4 (See Note 1)	REFERENCE VOLTAGE or NOT CONNECTED or OVEN MONITOR
5	+VDC

Note 1. If the specification does not specify parameters for either PIN3 or PIN4 then that respective PIN is NOT internally CONNECTED.

ELECTRICAL SPECIFICATION

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Output Frequency		—	10	—	MHz	Available frequency range is from 5Hz to 40MHz. Standard frequencies are 10, 12.8, 13, 15.36, 19.2, 20, 25, 38.88MHz.
Waveform		—	Rectangular	—	—	Sine wave output is available. Consult factory for more information.
	Level	—	LVTTL	—		
	"1" Level	2.4	—	—	V	
	"0" Level	—	—	0.4		
	Load	—	15	—	pF	
	Duty Cycle	45	50	55	%	@+1.4V
	Spurious	—	—	-60	dBc	
Frequency Stability	Ambient	-10	—	+10	ppb	-30 ~ +70°C, referenced to +25°C Refer to Freq. Stability Vs Temp. Range table.
	Aging	—	—	—		
	Daily	-0.5	—	+0.5	ppb	after 30 days
	Yearly	-50	—	+50	ppb	
	10 years	-0.3	—	+0.3	ppm	
	Voltage	-5.0	—	+5.0	ppb	±5% Change
	Warm-up	-10	—	+10	ppb	In 10 minutes @ +25°C, referenced to 1 hour.
Phase Noise @ 20MHz		—	—	-120	dBc/Hz	@10 Hz
		—	—	-135		@100 Hz
		—	—	-145		@1 kHz
		—	—	-150		@10 kHz

OCXO

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Electrical Frequency Adjustment	Range	—	—	-0.5	ppm	VCO@ 0V
		+0.5	—	—		VCO@3.3V
	Control	0	1.65	3..3	V	
	Slope	—	Positive	—		
	Input impedance	100	—	—	kΩ	
Input Power	Voltage	3.135	3.3	3.465	V	5.0V input voltage is available. Consult factory for control voltage and output level.
	Current	—	—	1000	mA	@ turn on
	Steady state	—	—	1.3	W	@ +25°C

FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C) \ ppb	±3	±5	±10
0 ~ +70	○	○	○
-30 ~ +70	△	○	○
-40 ~ +85	△	○	○

*o: Available Δ: Condition X: Not available

Note: not all combination of options are available. Other specifications may be available upon request.
Specifications subject to change without notice.

6.4 TOC3627

36.3 x 27.2 mm Oven Controlled Crystal Oscillator

Pb Free

RoHS Compliant

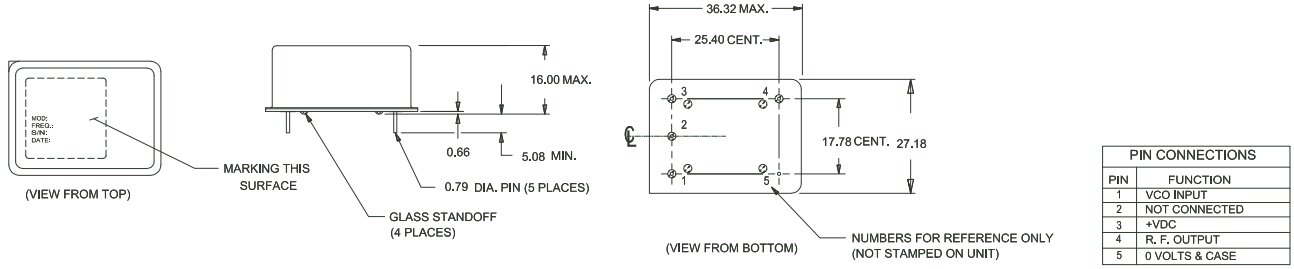
FEATURES

- Dimension 36.3 x 27.2 x 12.7 mm typical
- SC Cut Crystal

TYPICAL APPLICATION

- SDH/SONET, Telecommunication base station
- Test and measurement equipment
- Synthesizer, Digital switch, Reference Timing Circuit

DIMENSIONS



PIN CONNECTIONS	
PIN	FUNCTION
1	VCO INPUT
2	NOT CONNECTED
3	+VDC
4	R. F. OUTPUT
5	0 VOLTS & CASE

ELECTRICAL SPECIFICATION

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Output Frequency		—	10	—	MHz	Available frequency range is from 5MHz to 40MHz. Standard frequencies are 10, 12.8, 13, 15.36, 19.2, 20, 25 and 38.88MHz.
Waveform		—	Rectangular	—	—	Since wave output is available. Consult factory for more information.
Level (LVTTL)	"1" Level	2.4	—	—	V	
	"0" Level	—	—	0.4		
	Load	—	15	—	pF	
	Duty Cycle	45	50	55	%	@+1.4V
	Spurious	—	—	-60	dBc	
Frequency Stability	Ambient	-5.0	—	+5.0	ppb	-40 ~ +85°C, referenced to +25°C Refer to Freq. Stability Vs Temp. Range table.
	Aging	-0.5	—	+0.5	ppb	
	Daily	-0.5	—	+0.5	ppb	after 30 days
	Yearly	-50	—	+50	ppb	
	10 years	-0.3	—	+0.3	ppm	
	Voltage	-0.5	—	+0.5	ppb	±5% Change
	Warm-up	-10	—	+10	ppb	In 10 minutes @ +25°C, referenced to 1 hour.
Phase Noise		—	—	-120	dBc/Hz	@10 Hz
		—	—	-135		@100 Hz
		—	—	-145		@1 kHz
		—	—	-150		@10 kHz

OCXO

Parameter		Min.	Typ.	Max.	Unit.	Test Condition
Electrical Frequency Adjustment	Range	—	—	-0.5	ppm	VCO@ 0V
		0.5	—	—		VCO@5.0V
	Control	0	2.5	5.0	V	
	Slope	—	Positive	—		
	Input impedance	100	—	—	kΩ	
Input Power	Voltage	4.75	5.0	5.25	V	3.3V input voltage is available. Consult factory for control voltage and output level.
	Current	—	—	850	mA	@ turn on
	Steady state	—	—	1.3	W	@ +25°C

FREQ. STABILITY vs. TEMP. RANGE

Temp.(°C) \ ppb	±3	±5	±10
0 ~ +70	○	○	○
-30 ~ +70	△	○	○
-40 ~ +85	△	○	○

*o: Available Δ: Condition X: Not available

Note: not all combination of options are available. Other specifications may be available upon request.
Specifications subject to change without notice.