

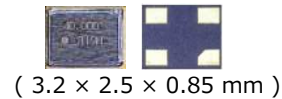
GT-CUT CRYSTAL OSCILLATOR

3.2 mm × 2.5 mm / 1 MHz to 150 MHz / -40 °C to 200 °C / CMOS

GT-XO-04

FEATURES

- High stability over extended temperature ranges (± 50 ppm over -40 °C to 200 °C)
- Broad choice of available frequencies (1 MHz to 150 MHz)
- Low current consumption, Typ. 8 mA (F = 150 MHz, $V_{DD} = 3.3$ V, No load)



APPLICATIONS

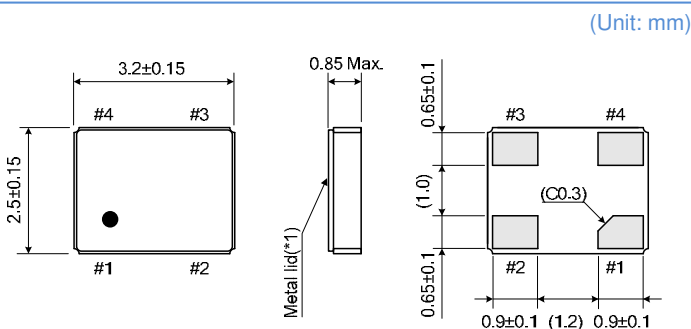
- Recommended for applications requiring tight frequency stability at temperatures up to 200 °C
- Applications requiring better frequency accuracy than ordinary oscillators

STANDARD SPECIFICATIONS

Item		Specifications			Unit	Conditions / Remarks
		MIN	TYP	MAX		
Nominal frequency		1		150	MHz	-
Storage temperature	Standard	-40	-	+125	°C	-
	High Temp	-40	-	+200	°C	-
Operating temperature	Standard	-40	-	+125	°C	-
	High Temp	-40	-	+200	°C	-
Frequency stability (*1)	Standard	-30	-	+30	ppm	-40 °C to $+125$ °C
		-100	-	+100	ppm	-40 °C to $+200$ °C
	High Precision	-20	-	+20	ppm	-40 °C to $+125$ °C
		-50	-	+50	ppm	-40 °C to $+200$ °C
Supply voltage (V_{DD})		-10%	1.8	+10%	V	-
		-10%	2.5	+10%	V	-
		-10%	3.3	+10%	V	-
Output		CMOS			-	-
Current consumption	Enable	5.8	8	10	mA	F: 1 MHz to 150 MHz, $V_{DD} = 3.3$ V, No load
	Standby	35	60	100	μ A	-
Output voltage	V_{OH}	$0.9V_{DD}$	-	-	V	$I_{OH} = 60$ mA, $V_{DD} = 3.3$ V
	V_{OL}	-	-	$0.1V_{DD}$	V	$I_{OL} = 1$ mA, $V_{DD} = 1.8$ V
Standby function	V_{IH}	$0.7V_{DD}$	-	-	V	-
	V_{IL}	-	-	$0.3V_{DD}$	V	-
Output load		-	-	15	pF	-
Symmetry (Duty Cycle)		45	50	55	%	$V_{TH} = 0.5V_{DD}$
Rise time / Fall time		-	1.5	5	ns	$0.1V_{DD}$ to $0.9V_{DD}$
Start-up time		-	-	10	ms	-
Random jitter (RJ)		-	3.6	-	ps	$V_{DD} = 3.3$ V, BER = 10^{-12}
Total jitter (TJ)		-	51	-	ps	WAVECREST 3100C Instrument
Phase jitter		-	20	-	ps	Offset frequency: 12 kHz to 20 MHz

*1 : Inclusive of frequency tolerance (at 25 °C) and frequency deviation over temperature.

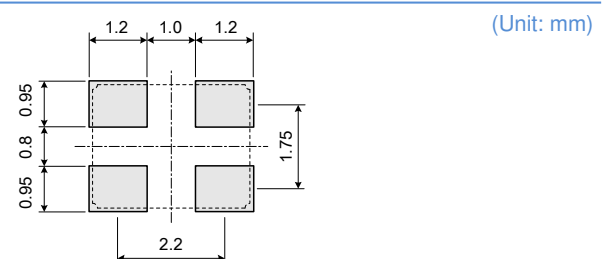
OUTLINE DIMENSIONS



Pin	Function
#1	Standby
#2	Ground
#3	Output
#4	V_{DD}

• Pin #2 is connected to the metal lid (*1)

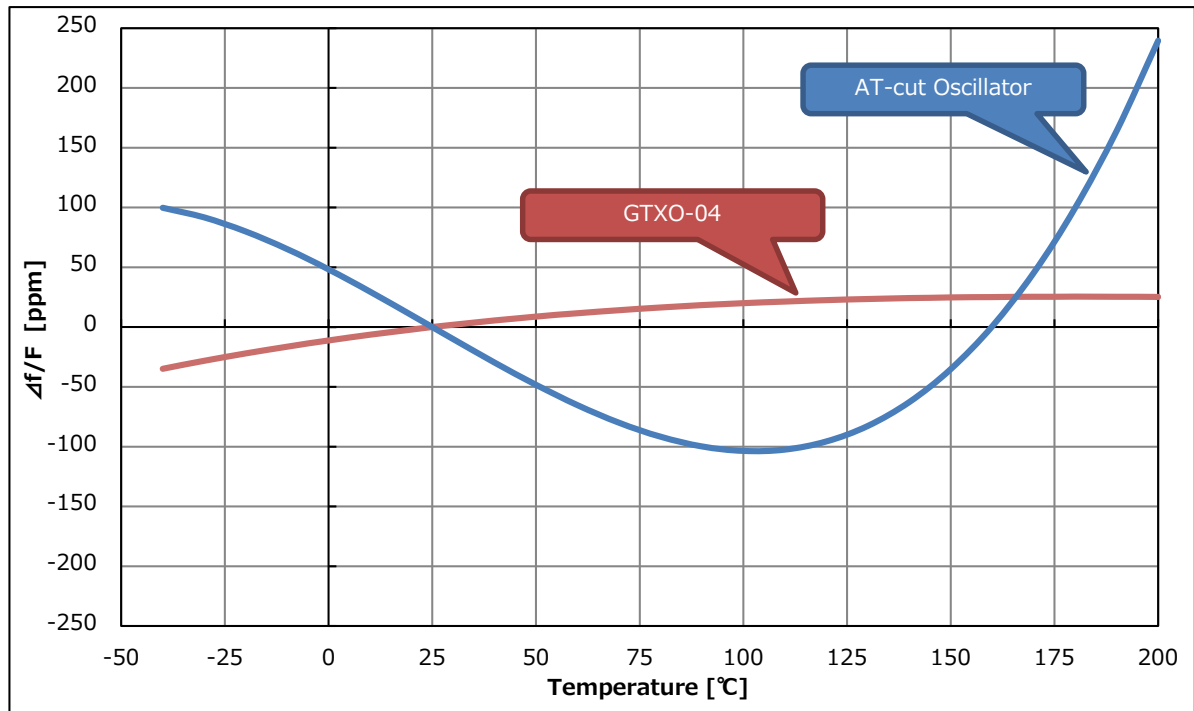
RECOMMENDED LAND PATTERN



GENERAL NOTES

- Particular combinations of standard options may be classified as high-spec models.
- Custom specifications are available. Please contact us with requested modifications.
- The information in this document is subject to change without notice.
- For operational stability, a 0.1 μ F bypass capacitor should be placed between V_{DD} and Ground as close as possible to the oscillator.

*2 : Frequency versus Temperature characteristics (Typical example)



*3 : Test circuit

- Output (CMOS)

