

MODEL IT3200B

SMD Temperature Compensated Crystal Oscillators

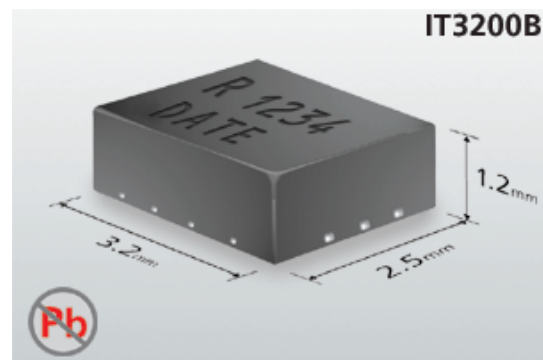
Low cost SMD TCXO using an analogue IC for compensation.
Frequencies ranging from 16MHz to 36MHz.

Product Description

The IT3200B employs an analogue IC for the oscillator and temperature compensation. 3.2 x 2.5 x 1.2mm in size. The crystal is housed in a ceramic package and is contained in the plastic mould together with the lead frame and IC. The segregation of the crystal from the oscillator further improves the reliability of the product.

Applications include

Mobile phones, GPS and many other wireless applications.



Features

- Excellent phase noise performance.
- Standard temperature stability choices are $\pm 0.5\text{ppm}$, $\pm 1\text{ppm}$, $\pm 1.5\text{ppm}$ and $\pm 2.5\text{ppm}$, over wide temperature ranges.
- Clipped sinewave frequency output from 16MHz to 36MHz.
- Frequency slope and perturbation specifications can be customized to the application requirement.
- The unit consumes only 1.2mA typically.

1.0 SPECIFICATION REFERENCES

1.1	Model Description	IT3205BE 23.104 MHz
1.2	RoHS compliant	Yes
1.3	Reference Number	48193
1.4	Company	IXNOVE SARL
1.5	Internal Part Number	TX4557
1.6	Customer Part Number	

2.0 FREQUENCY CHARACTERISTICS

Line	Parameter	Test Condition	Min.	Max.	Units
2.1	Nominal Frequency			23.104	MHz
2.2	Nominal frequency tolerance	Frequency at 25°C, sixty minutes after reflow.		2.0	$\pm\text{ppm}$
2.3	Frequency stability over temperature	Referenced to the mid point between minimum and maximum frequency value over the specified temperature range (Note 2). Over the temperature range -30 deg C to 80 deg C.		0.5	$\pm\text{ppm}$
2.4	Frequency stability over temperature	Referenced to the mid point between minimum and maximum frequency value over the specified temperature range (Note 2). Over the temperature range -40 deg C to 85 deg C.		2.5	$\pm\text{ppm}$
2.5	Temperature range	The operating temperature range over which the frequency stability is measured (Note 3).	-40.0	85.0	°C

2.6	Frequency slope of perturbations	Minimum of 1 frequency reading every 2°C, over –30 deg C to 80 deg C.	0.1	ppm/°C
2.7	Frequency slope of perturbations	Minimum of 1 frequency reading every 2°C, over –40 deg C to 85 deg C.	0.5	ppm/°C
2.8	Static temperature hysteresis	Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C.	0.6	±ppm
2.9	Supply voltage stability	Supply voltage varied ±5% at 25°C.	0.1	±ppm
2.10	Load sensitivity	±10% load change.	0.2	±ppm
2.11	Long term stability	Frequency drift over 1 year (Note 1).	2.0	±ppm
2.12	Long term stability	Frequency drift over 10 years (Note 1).	5.0	±ppm

3.0 POWER SUPPLY

Line	Parameter	Test Condition	Min.	Max.	Units
3.1	Supply voltage	Supply voltage range based on nominal 3V	2.85	3.15	V
3.2	Current	At maximum supply voltage.		1.5	mA

4.0 OSCILLATOR OUTPUT

Line	Parameter	Test Condition	Min.	Max.	Units
4.1	Output waveform	DC coupled clipped sinewave.			
4.2	Output voltage level	At minimum supply voltage, three settings are available; low, mid or high.	0.8		V
4.3	Output load resistance	Operating range.	9.0	11.0	kOhm
4.4	Output load capacitance	Operating range.	9.0	11.0	pF

5.0 SSB PHASE NOISE

5.1	SSB phase noise power density at 1Hz offset	Typical values at 25°C.	–57.0		dBc/Hz
5.2	SSB phase noise power density at 10Hz offset	Typical values at 25°C.	–88.0		dBc/Hz
5.3	SSB phase noise power density at 100Hz offset	Typical values at 25°C.	–112.0		dBc/Hz
5.4	SSB phase noise power density at 1KHz offset	Typical values at 25°C.	–130.0		dBc/Hz
5.5	SSB phase noise power density at 10KHz offset	Typical values at 25°C.	–140.0		dBc/Hz

6.0 ENVIRONMENTAL

- | | | |
|------------|----------------------------|--|
| 6.1 | Storage temperature | –40 to 85°C. |
| 6.2 | Shock | Half sinewave acceleration of 100G peak amplitude for 11ms duration, 3 cycles each plane. |
| 6.3 | Humidity | After 48 hours at 85°C $\pm 2^{\circ}\text{C}$ 85% relative humidity non-condensing. |
| 6.4 | Thermal shock test | Exposed at –40°C for 30 minutes then to 85°C for 30 minutes constantly for a period of 5 days. |

7.0 MARKING

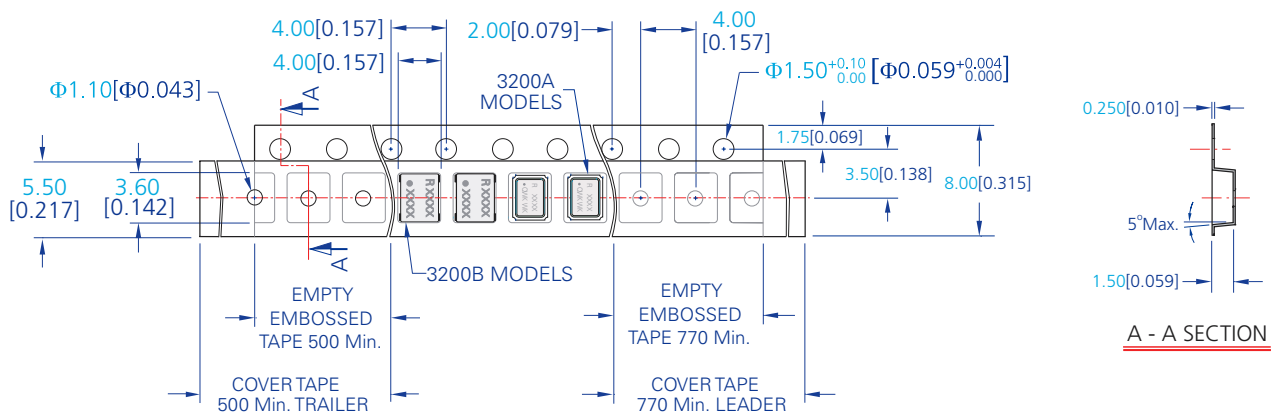
- | | | |
|------------|---------------|--|
| 7.1 | Type | Engraved. |
| 7.2 | Line 1 | Rakon Logo and the last four characters of the Internal Part Number. |
| 7.3 | Line 2 | Pin 1 mark and Date Code. |

8.0 MANUFACTURING INFORMATION

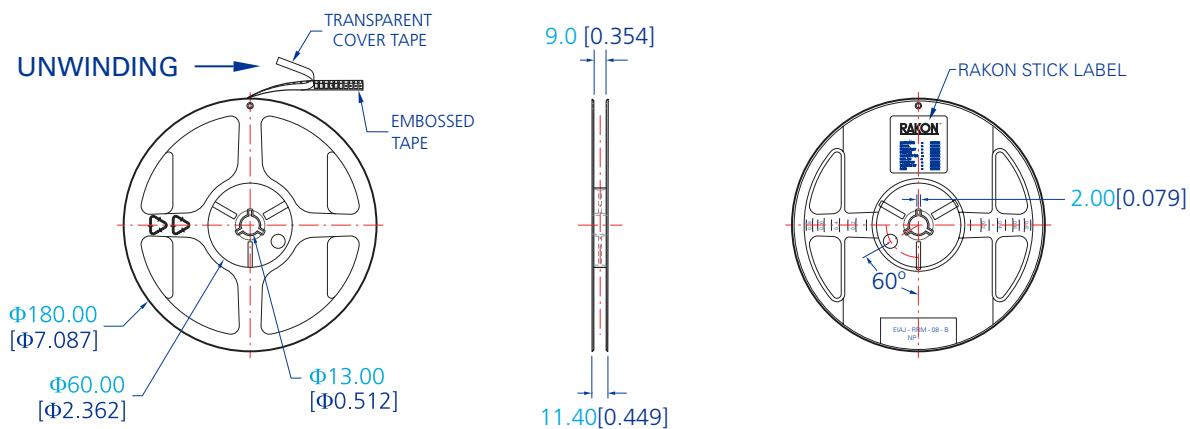
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|------------|------------------------------|---|
| 8.1 | Washing and reflow | Able to withstand aqueous washing process and normal solder reflow processes. |
| 8.2 | Packaging description | Tape and reel. For the Dia.180mm reel, The standard packing quantity is 1000 units/reel or 2000 units/reel. |

9.0 SPECIFICATION NOTES

- | | | |
|------------|---------------|---|
| 9.1 | Note 1 | The maximum value is the specification. A minimum value, if present, indicates the best specification available. |
| 9.2 | Note 2 | A maximum frequency stability over the temperature is required to be specified. Values between $\pm 0.3\text{ppm}$ and $\pm 10\text{ppm}$ are available. Standard options are $\pm 0.5\text{ppm}$, $\pm 1\text{ppm}$, $\pm 1.5\text{ppm}$, and $\pm 2.5\text{ppm}$. |
| 9.3 | Note 3 | The operating temperature range needs to be specified. The extremes for this model are –40 and +85°C. |



TAPE DETAIL SCALE 2 : 1



REEL DETAIL SCALE 1 : 5

NOTE:

1. $\Phi 180$ mm REEL's PACKING QUANTITY IS 1000 or 2000 OSCILLATORS PER REEL.

TITLE: 3200 SERIES TAPE & $\Phi 180$ REEL

FILENAME: CAT300

REVISION: C

Tolerances:

RELATED DRAWINGS:

DATE: 27-Jul-05

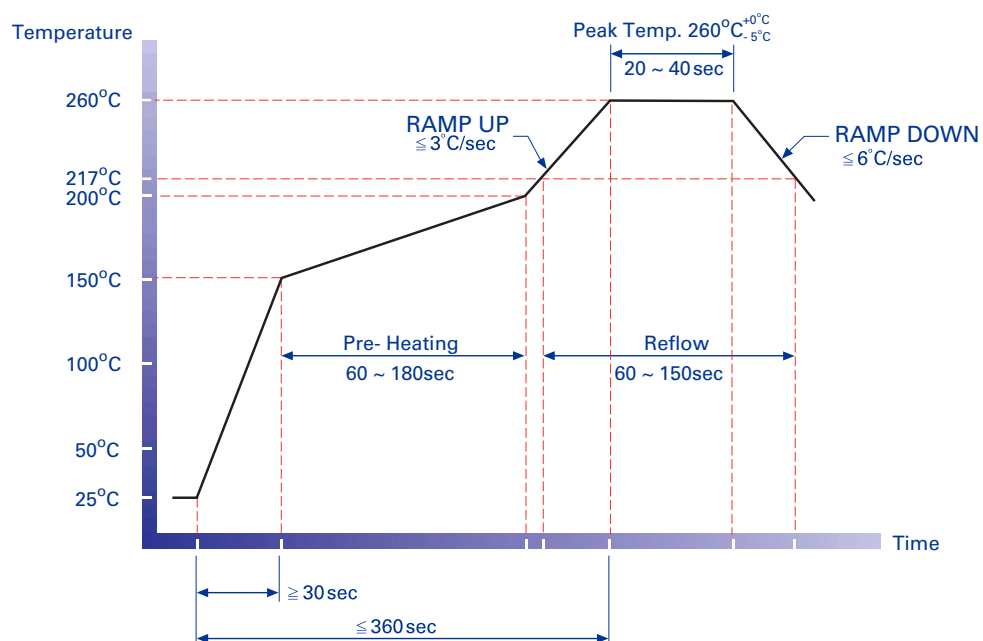
SCALE: See Above

Millimetres [inch]

XX = ± 0.5
 X.X = ± 0.2
 X.XX = ± 0.10
 X.XXX = ± 0.05
 X⁰ = $\pm 1.0^\circ$
 Hole = ± 0.10

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NOTE:

The product has been tested to withstand the Reflow Profile shown. The Reflow Profile used to solder Rakon TCXO is determined by the solder paste manufacturer's specification. It is recommended that the Reflow Profile used does not exceed the one shown in this picture.

TITLE: 3200 SERIES Pb-FREE REFLOW

FILENAME: CAT324

REVISION: A

RELATED DRAWINGS:

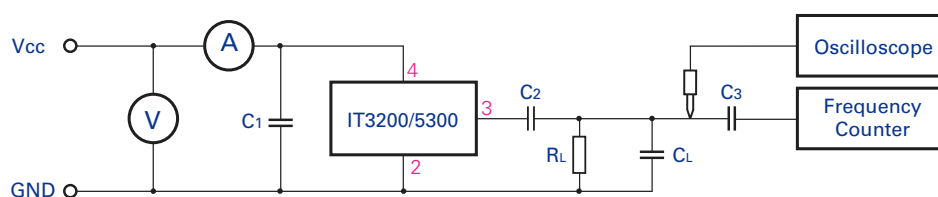
DATE: 04-Feb-05

SCALE: NTS

Millimetres [inch]

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C1: 10nF

C2: 150pF to 1 μ F

C3: 3pF

RL: 10K

CL + Cs = 10pF (Cs - Oscilloscope probe capacitance)

TITLE: IT3200/5300 SERIES TEST CIRCUIT

FILENAME: CAT286

REVISION: C

RELATED DRAWINGS:

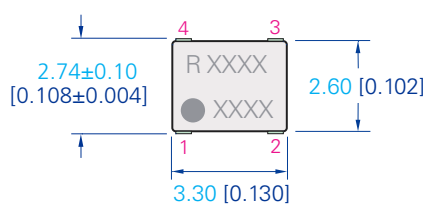
DATE: 29 - Mar - 05

SCALE: NTS

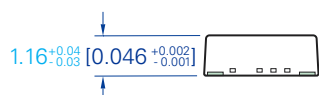
Millimetres [inch]

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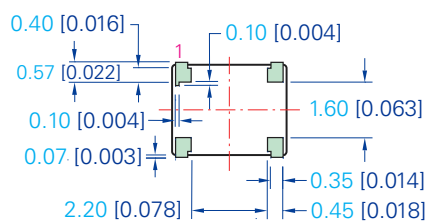
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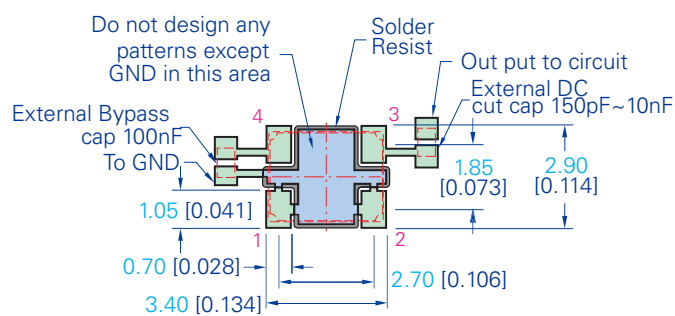
TOP VIEW



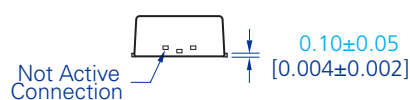
SIDE VIEW



BOTTOM VIEW



RECOMMENDED PAD LAYOUT TOP VIEW
 UNIVERSAL FOR ALL 3200 PACKAGES



END VIEW

PIN CONNECTIONS

1	GROUND RECOMMENDED
2	COMMON
3	OUTPUT
4	+Vcc

TITLE: IT3200B MODEL

FILENAME: CAT255

REVISION: F

Tolerances:

RELATED DRAWINGS:

DATE: 27-Jul-05

XX ± 0.5
 X.X ± 0.2
 X.XX ± 0.10
 X.XXX ± 0.05
 X⁰ $\pm 1.0^{\circ}$
 Hole ± 0.10

SCALE: 5 : 1

Millimetres [inch]

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