

Specifications

1.0 SPECIFICATION REFERENCES

Line	Parameter	Description
1.1	Model Description	IT3205CE 19.200 MHz
1.2	RoHS Compliant	Yes
1.3	Reference Number	IT3200C-57
1.4	Internal Part Number	502736 (TX4867)
1.5	Current Version	1.00

2.0 FREQUENCY CHARACTERISTICS

Line	Parameter	Test Condition	Value	Unit
2.1	Frequency		19.200	MHz
2.2	Nominal frequency tolerance	Frequency at 25°C, sixty minutes after reflow	±2 max	ppm
2.3	Frequency stability over temperature	Referenced to the midpoint between minimum and maximum frequency value over the specified temperature range (Note 9)	±0.5	ppm
2.4	Temperature range	The operating temperature over which the frequency stability is measured	-30 to 85	°C
2.5	Frequency slope	Minimum of 1 frequency reading every 2°C, over the operating temperature range (Note 9)	0.05 to 0.1	ppm/°C
2.6	Static temperature hysteresis	Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C	0.6 max	ppm
2.7	Supply voltage stability	Supply voltage varied ±5% at 25°C	±0.1 max	ppm
2.8	Load sensitivity	±10% load change	±0.2 max	ppm
2.9	Long term stability	Frequency drift over 1 year	±1.0 max	ppm

3.0 POWER SUPPLY

Line	Parameter	Test Condition	Value	Unit
3.1	Supply voltage	Nominal supply voltage range 3.0V	2.85 to 3.15	V
3.2	Current	At maximum supply voltage (Note 5)	1.5 max	mA

4.0 OSCILLATOR OUTPUT

Line	Parameter	Test Condition	Value	Unit
4.1	Output waveform	DC coupled clipped sine-wave (Note 7)		
4.2	Output voltage level	At minimum supply voltage (Note 5)	0.8 min	V
4.3	Output load resistance	Refer test circuit	9 to 11	kOhm
4.4	Output load capacitance	Refer test circuit	9 to 11	pF

5.0 SSB PHASE NOISE

Line	Parameter	Test Condition	Value	Unit
5.1	SSB phase noise power density at 1Hz offset	Typical value for a 16.369 MHz oscillator at 25°C	-60	dBc/Hz
5.2	SSB phase noise power density at 10Hz offset	Typical value for a 16.369 MHz oscillator at 25°C	-89	dBc/Hz
5.3	SSB phase noise power density at 100Hz offset	Typical value for a 16.369 MHz oscillator at 25°C	-113	dBc/Hz
5.4	SSB phase noise power density at 1KHz offset	Typical value for a 16.369 MHz oscillator at 25°C	-132	dBc/Hz
5.5	SSB phase noise power density at 10KHz offset	Typical value for a 16.369 MHz oscillator at 25°C	-145	dBc/Hz

6.0 ENVIRONMENTAL

Line	Parameter	Description
6.1	Shock	Half sine-wave acceleration of 100G peak amplitude for 11ms duration, 3 cycles each plane
6.2	Humidity	After 48 hours at -85°C±2°C 85% relative humidity non-condensing
6.3	Thermal shock	Exposed at -40°C for 30 minutes then to 85°C for 30 minutes constantly for a period of 5 days.
6.4	Storage temperature	-40°C to 85°C

7.0 MARKING

Line	Parameter	Description
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

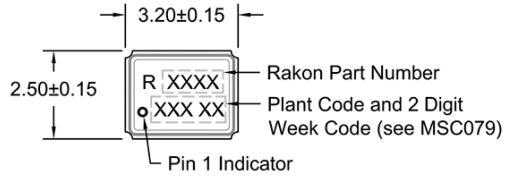
Line	Parameter	Description
8.1	Washing	Able to withstand aqueous washing process
8.2	Reflow	Solder reflow processes as per profile attached
8.3	Packaging description	Tape and reel

9.0 SPECIFICATION NOTES

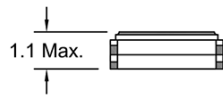
Line	Parameter	Description
9.1	Note 1	A maximum frequency stability over the temperature is required to be specified. Values between ±0.3 and ±5.0 ppm are available. Standard options are ±0.5 ppm, ±1.0 ppm, ±1.5 ppm and ±2.5 ppm
9.2	Note 2	The operating temperature range needs to be specified. The extremes for this model are -40 to 85 °C
9.3	Note 3	The maximum value is the specification. A minimum value, if present, indicates the best specification available
9.4	Note 4	The unit will operate on any voltage between minimum and maximum values
9.5	Note 5	Specified for the load stated in 4.3 and 4.4 at 25 °C
9.6	Note 6	The maximum frequency tuning range depends on the design frequency and the trimming sensitivity of the crystal. Linearity performance degrades if maximum frequency tuning setting is selected
9.7	Note 7	External AC-Coupling capacitor required. 1nF or greater recommended
9.8	Note 8	Voltage control cannot exceed Vcc -0.2V or below GND +0.2V
9.9	Note 9	parts should be shielded from drafts causing unexpected thermal gradients. Temperature changes due to ambient air currents can lead to short term frequency drift

Drawing Name: I(V)T3200C Model Drawing (1.1mm Max.)

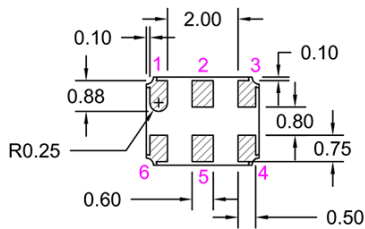
MODEL DRAWING



TOP VIEW



FRONT VIEW



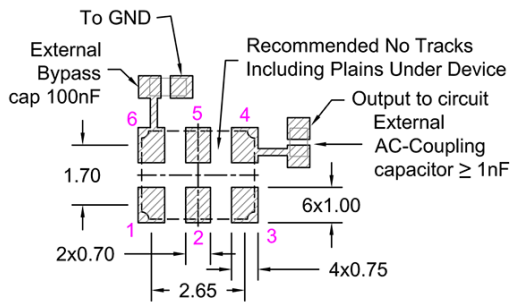
BOTTOM VIEW

PIN CONNECTIONS

Pin	IT	IVT
1	GND	VCO
2	NC	NC
3	GND	GND
4	OUTPUT	OUTPUT
5	NC	NC
6	V _{DD}	V _{DD}

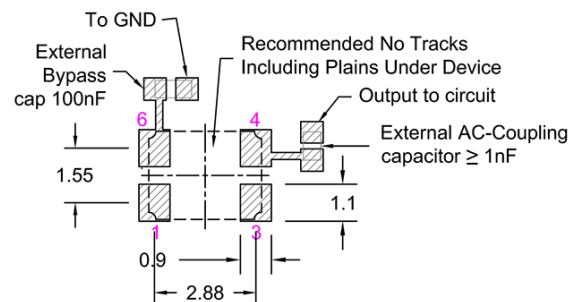
RECOMMENDED LAYOUT

- TOP VIEW, 6 PAD



RECOMMENDED LAYOUT

- TOP VIEW, 4 PAD



TITLE: I(V)T3200C MODEL

RELATED DRAWINGS:

FILENAME: CAT434

REVISION: G

DATE: 30-Jul-13

SCALE: 5 : 1

Millimetres

TOLERANCES:

XX = ±0.5

X.X = ±0.2

X.XX = ±0.10

X.XXX = ±0.05

X° = ±1.0°

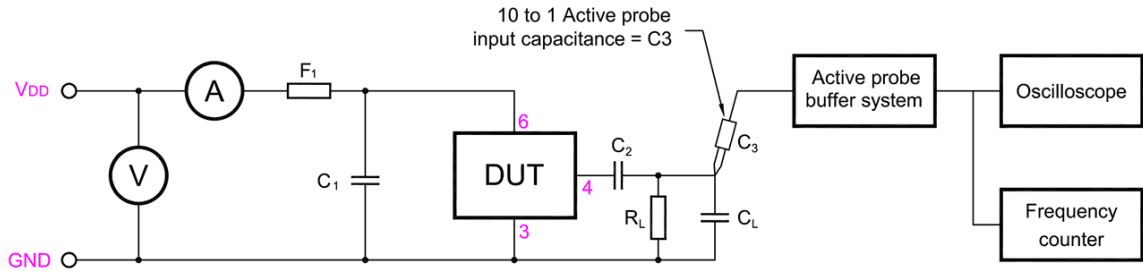
Hole = ±0.10

rakon

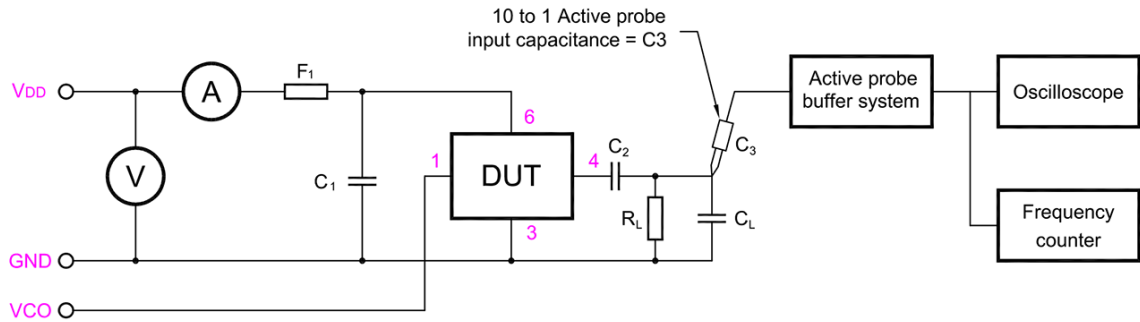
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Drawing Name: I(V)T3200 Series Test Circuit

IT TEST CIRCUIT:



IVT TEST CIRCUIT:



C1: 100nF
C2: ≥1nF
RL: 10kΩ

$C_T = C_L + C_3$ (C_3 - Oscilloscope probe capacitance)
 C_T as stated in OSCILLATOR OUTPUT selection
F1: A ferrite bead or a resistor between 22Ω ~ 47Ω recommended.

TITLE: I(V)T3200 SERIES TEST CIRCUIT

FILENAME: CAT286

RELATED DRAWINGS:

REVISION: G

DATE: 29-Jul-13

SCALE: NTS

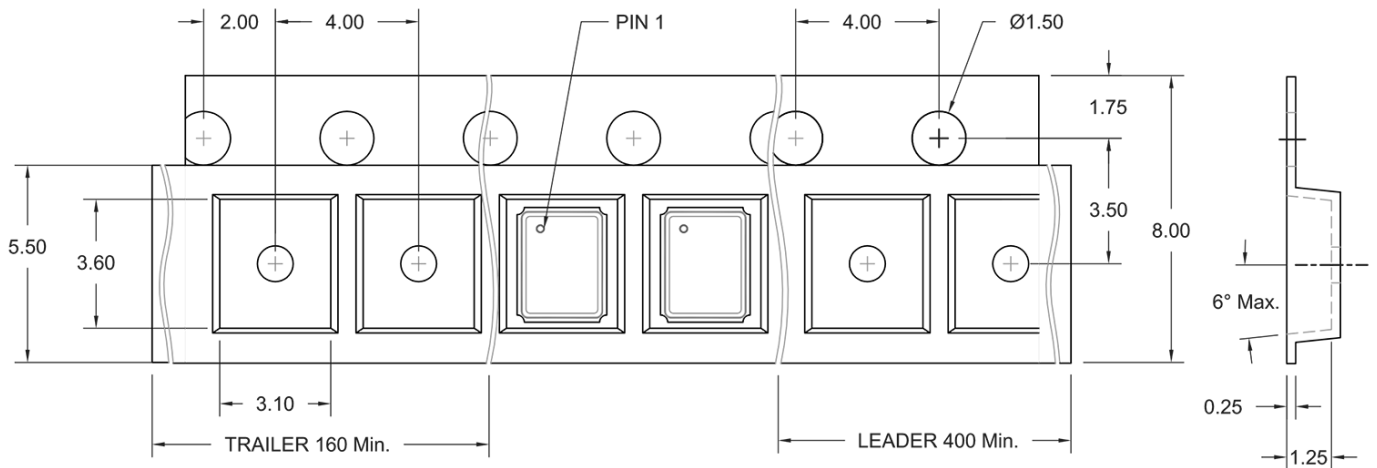
Millimetres

rakon

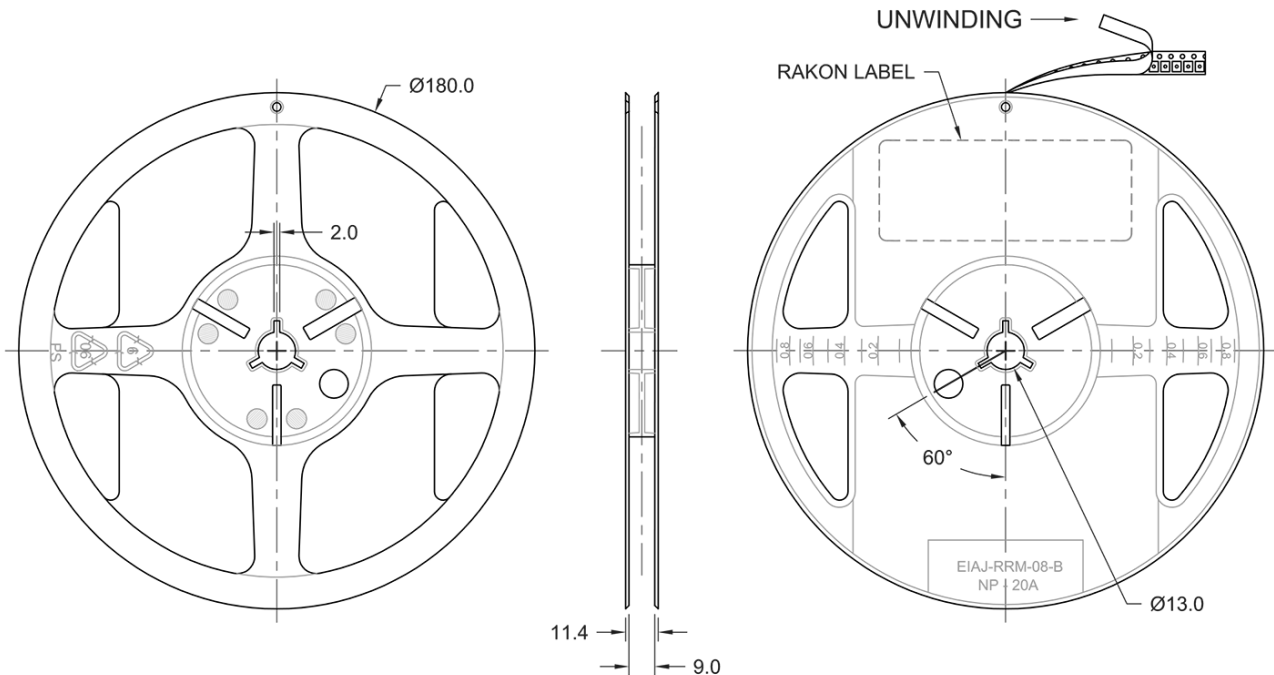
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Drawing Name: 3200 Series Tape & Reel

TAPE DETAIL (Scale 5 : 1)



REEL DETAIL (Scale 1 : 2.5)



TITLE: 3200 SERIES TAPE & REEL

RELATED DRAWINGS:

FILENAME: CAT300

REVISION: K

DATE: 29-Jul-13

SCALE: See Above

Millimetres

TOLERANCES:

XX =

X.X = ±0.2

X.XX = ±0.10

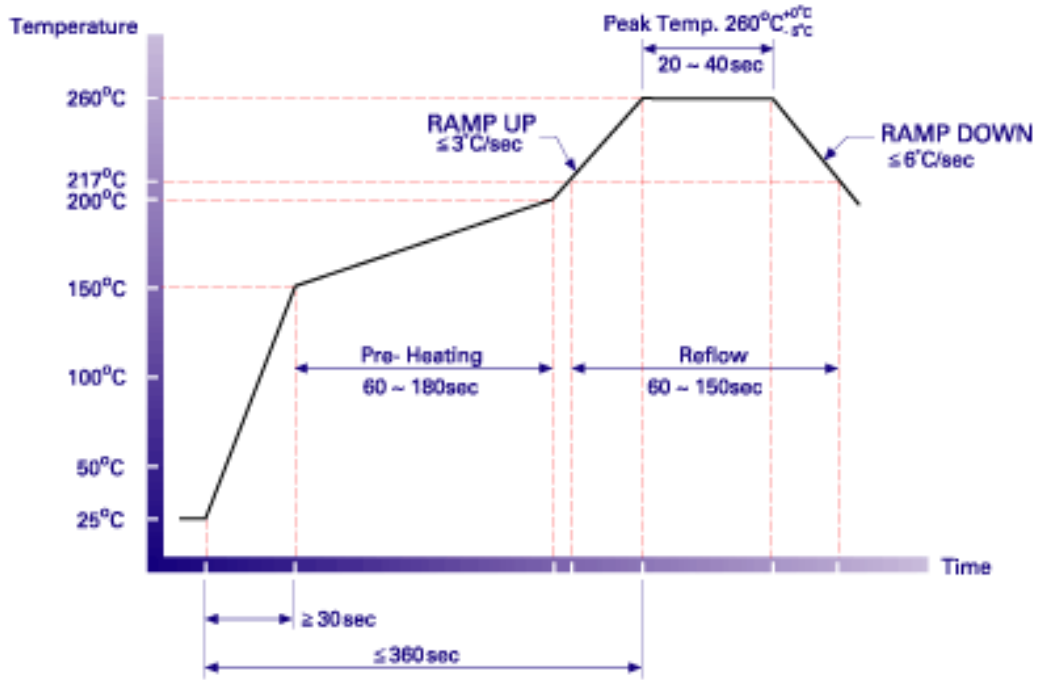
X.XXX =

X° =

Hole =

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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 above.

TITLE: 3200 SERIES Pb-FREE REFLOW

FILENAME: CAT324

RELATED DRAWINGS:

REVISION: B

DATE: 14-Mar-08

SCALE: NTS

Millimetres [inch]



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Specification History

Current Version : 1.00

Version	User	Change	Note	Date
1.0	System	Specification Created		2010-01-25 14:13