

RVG1490L

1.0 Specification References

Parameter	Description
a. Rakon part number	V4118
b. Description	RVG1490L 1.288 GHz LVPECL 3V3 A50



2.0 Absolute Maximum Rating ¹

Parameter	Min.	Max.	Unit
a. Power supply	0	+4.2	V
b. Storage temperature	-40	85	°C

3.0 Frequency Characteristics

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
a. Nominal frequency		1.288		GHz	
b. Temperature range	0		70	°C	The operating temperature range over which the frequency stability is measured
c. Frequency stability			±50	ppm	Including initial tolerance, temperature range, reflow shift, supply variation, load variation and 10 years aging at 25°C

4.0 Power Supply

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
a. Supply voltage (V_{DD})		3.3		V	±5%, V_{DD}
b. Supply current			95	mA	LVPECL Output

5.0 Control Voltage (VCO)

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
a. Absolute Pull range (APR)	±30			ppm	$V_C = 0$ to V_{DD}
b. Control voltage (V_C)	0	1.65	3.3	V	Positive Slope
c. Linearity			10	%	V_C from 0V to V_{DD}
d. Modulation (BW)	15			kHz	
e. Input impedance		10		MΩ	

6.0 Output Characteristics – LVPECL

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
a. Output voltage (V_{OL})			$V_{DD}-1.60$	V	50Ω nominal load
b. Output voltage (V_{OH})	$V_{DD}-1.03$			V	50Ω nominal load
c. Duty cycle	40		60	%	At $V_{DD}-1.3V$
d. Rise and fall time			0.6	ns	80% / 20%
e. RMS jitter			50	fs	Integrated from 12kHz to 20MHz

¹ Operating beyond this limit may result in change or permanent damage to the device.

7.0 SSB Phase Noise – LVPECL (at 25°C) tbc

Parameter	Typ.	Unit	Test Condition / Description
a. 10Hz offset	-55	dBc/Hz	
b. 100Hz offset	-92	dBc/Hz	
c. 1kHz offset	-113	dBc/Hz	
d. 10kHz offset	-133	dBc/Hz	
e. 100kHz offset	-143	dBc/Hz	
f. 1MHz offset	-145	dBc/Hz	
g. 10MHz offset	-145	dBc/Hz	
h. 20MHz offset	-145	dBc/Hz	

8.0 Pin Connections

Parameter	
a. Pin 1	V _C
b. Pin 2	GND
c. Pin 3	GND
d. Pin 4	Output
e. Pin 5	Complementary Output
f. Pin 6	V _{DD}

9.0 Marking and Package

Parameter	Test Condition / Description
a. Package	14 x 9 x 4.1mm (Package variant 2, for LVPECL output type)
b. Top line	[R V4118] = R and Rakon part number
c. Middle line	[1.288G] = Part Information
d. Bottom line	[o FYWW] = Pin 1, Manufacturing code, Year code* and Week code**
e. Year code*	A = 2010, B = 2011, ... E = 2013, ... Z = 2035
f. Week code**	WW = 01 = Week of first Monday of the year

10.0 Manufacturing Information

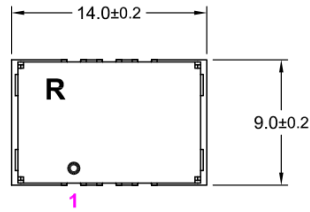
Parameter	Test Condition / Description
a. Reflow	Solder reflow process as per attached profile
b. Packaging description	Tape and reel. Standard packing quantity is 500 units per reel

11.0 Environmental Specification

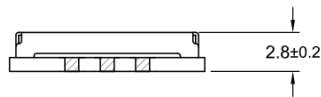
Parameter	Test Condition / Description
a. RoHS compliant	Yes
b. Mechanical shock	JESD22-B104
c. Thermal cycling	JESD22-A104
d. Vibration	JESD22-B103
e. Drop	Free drop from 750mm all axis 3 times

12.0 Model Outline: RVG1490L

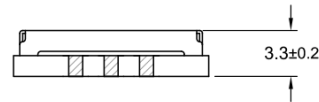
MODEL OUTLINE



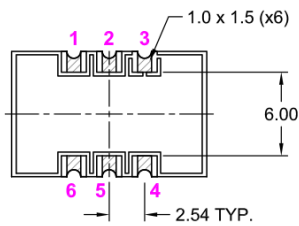
TOP VIEW



FRONT VIEW - 1
(For Single and Differential Sinewave)



FRONT VIEW - 2
(For LVPECL output)

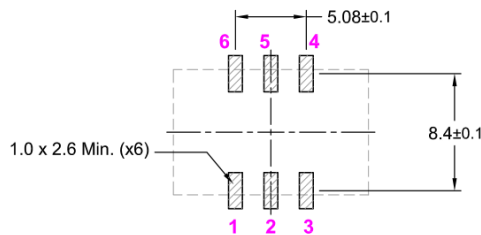


BOTTOM VIEW

NOTE:

1. MARKING INFORMATION IS DETAILED IN THE SPECIFICATION.
2. PIN CONNECTIONS ARE DETAILED IN THE SPECIFICATION.

RECOMMENDED PAD LAYOUT (TOP VIEW)



TITLE: XO/VCXO 1490 GHz Model

RELATED DRAWINGS:

FILENAME: CAT873

REVISION: E

DATE: 20-Apr-2016

SCALE: 2 : 1

Millimetres

TOLERANCES:

XX =

X.X = ±0.2

X.XX = ±0.10

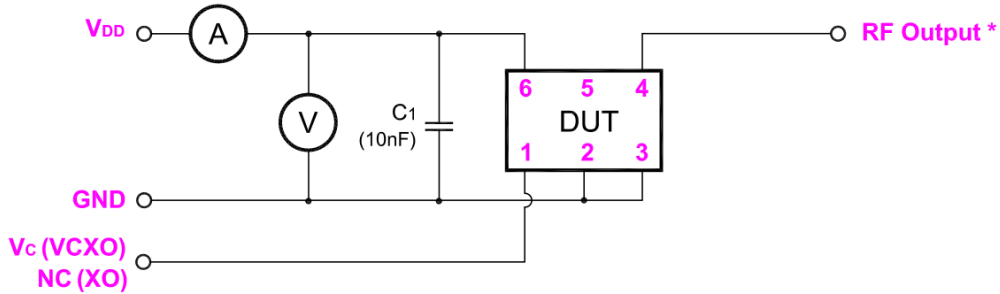
X.XXX = ±0.05

X° =

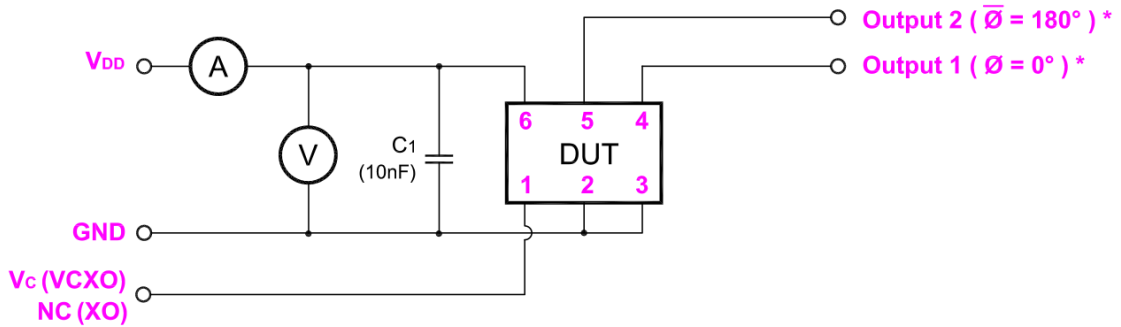
Hole =

13.0 Test Circuit: RVG1490L (6 Pin)

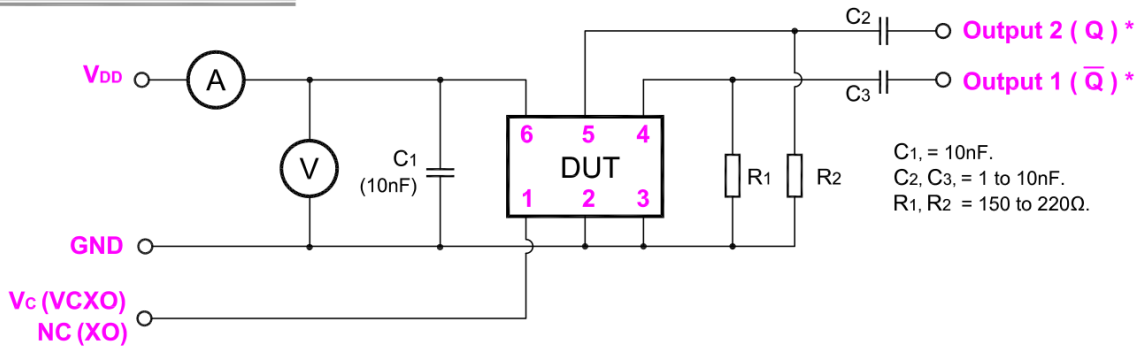
Single Sinewave:



Differential Sinewave:



LVPECL AC Coupling:



NOTE: * RL = 50Ω. It connects to Oscilloscope and Frequency Counter.

TITLE: XO/VCXO 1490 GHz TEST CIRCUIT

FILENAME: CAT883

RELATED DRAWINGS:

REVISION: C

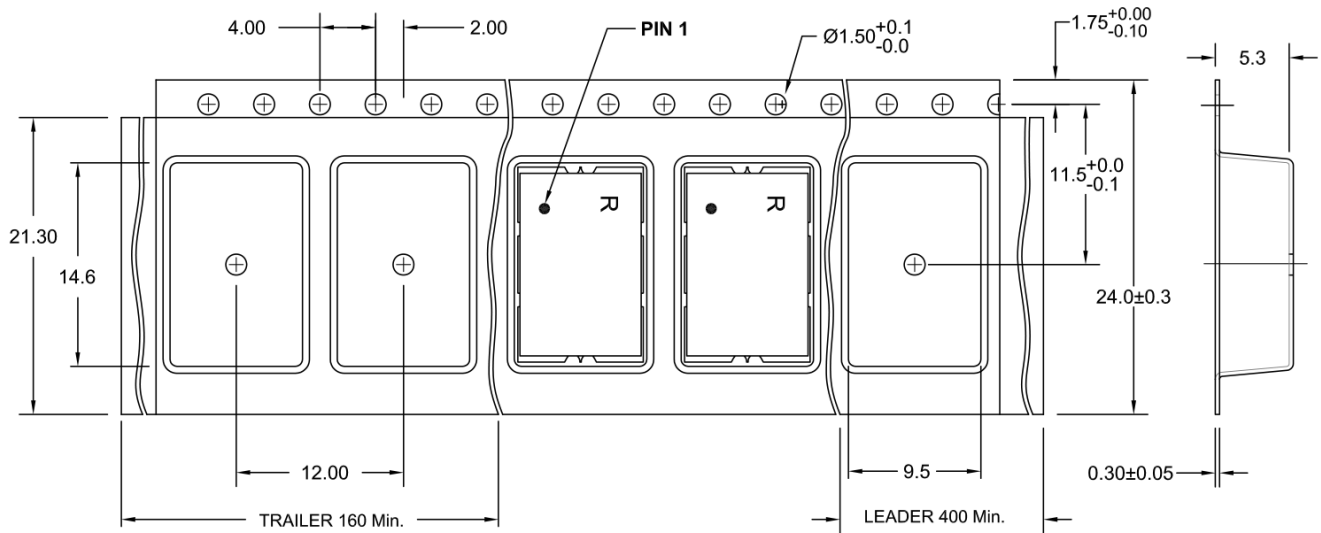
DATE: 27-Apr-2016

SCALE: NTS

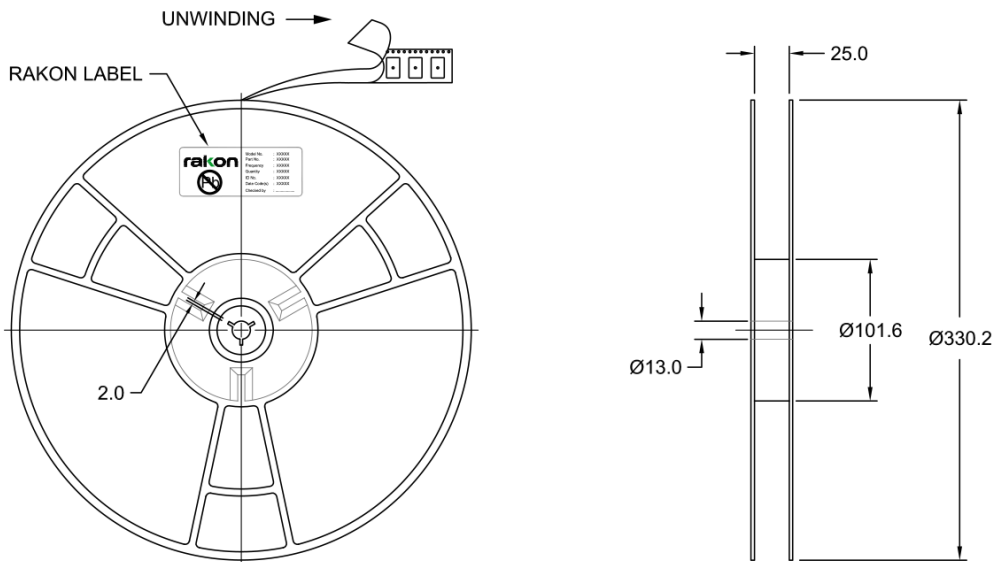
Millimetres

14.0 Tape and Reel (Ø330mm): RVG1490L

TAPE DETAIL (SCALE 2 : 1)



REEL DETAIL (SCALE 1 : 5)



NOTE: 1. Ø330mm REEL STANDARD PACKING QUANTITY is 500 OSCILLATORS PER REEL.

TITLE: 1490 ADAPTER BD SERIES TAPE & REEL

FILENAME: CAT582

TOLERANCES:

RELATED DRAWINGS:

REVISION: E

XX =

X.X = ±0.2

X.XX = ±0.10

X.XXX = ±0.05

X° =

Hole = ±0.10

DATE: 09-Mar-2015

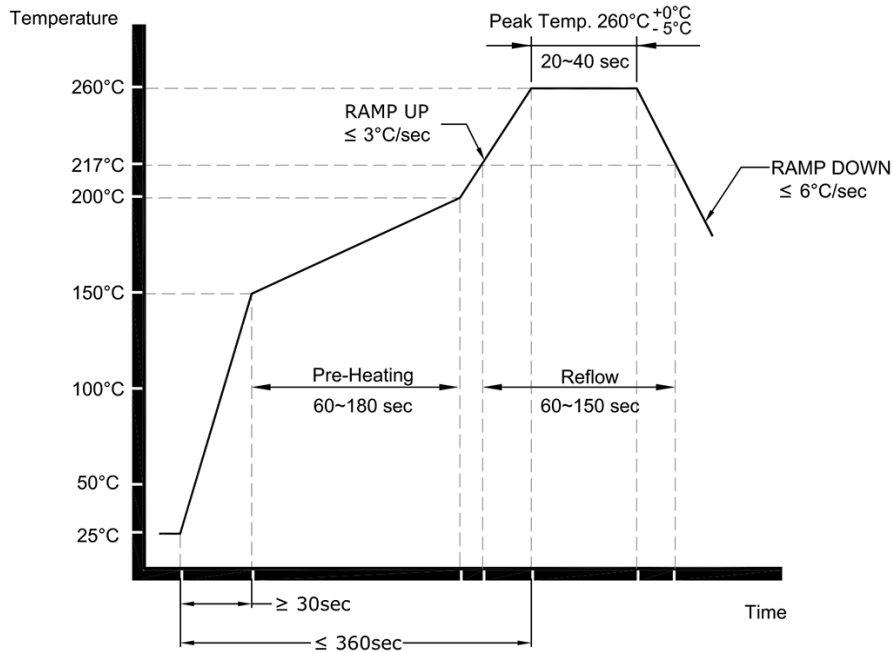
SCALE:

Millimetres

rakon

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15.0 Reflow: RVG1490L



NOTE:

The product has been tested to withstand the Reflow Profile shown. The Reflow Profile used to solder Rakon products 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: Pb-FREE SERIES OSCILLATORS REFLOW

FILENAME: CAT541

RELATED DRAWINGS:

REVISION: B

DATE: 05-Sep-11

SCALE: NTS

Millimetres

rakon

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16.0 Specification History

Version	Changes	Approver	Date
1.0	Specification created	Sowmya Injeti	24 Jan, 2019