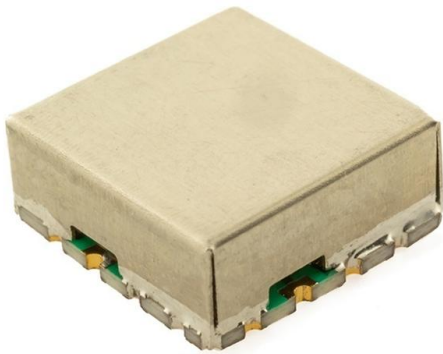


RQRA-4130-4730 Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	RQRA-4130-4730-DG
Manufacturer	Raltron Electronics
Manufacturer Product Number	RQRA-4130-4730
Description	VCO 4130MHZ-4730MHZ SMD .5X.5"
Detailed Description	4.43GHz Center Frequency 0.2 V ~ 7 V Voltage Controlled Oscillator 0 ±3 dBm -15 2nd Harmonic Typ (dBc)



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

RQRA-4130-4730

Series:

RQRA VCO

Frequency Range:

4.13 ~ 4.73GHz

Voltage - Supply:

5V

2nd Harmonic, Typ (dBc):

-15

Pushing (MHz/V):

5

Phase Noise Typ (dBc/Hz):

-88

Package / Case:

16-QFN, Variant

Height:

0.241" (6.11mm)

Manufacturer:

Raltron Electronics

Product Status:

Active

Frequency - Center:

4.43GHz

Tuning Voltage (VDC):

0.2 V ~ 7 V

Icc Max:

28mA (Typ)

Power (dBm):

0 ±3

Operating Temperature:

-40°C ~ 85°C

Size / Dimension:

0.500" L x 0.500" W (12.70mm x 12.70mm)

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8542.39.0001

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



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RQRA-4130-4730

ELECTRICAL SPECIFICATIONS

PARAMETER	CONDITION	SYMBOL	VALUE			UNIT
			Min.	Typ.	Max.	
Frequency Range	Vt=0.5 V	fo(Vt)			4130	MHz
	Vt=5.0		4730			
Power Supply Voltage		Vcc	4.75	5.0	5.25	V
Tuning Voltage		Vt	0.2		7.0	V
Supply Current	Vcc=5.0V ±5%	Icc		28		mA
Tuning Sensitivity	Vt=0.5-5V Vcc=5.0V ±5% T=25°C	df/dVt		150		MHz/V
Modulation Bandwidth	@3 dB			5000		kHz
Tuning Port Capacitance	Vt=0.5-5V			20		pF
Pushing	Vcc=4.75 – 5.25V	df/dVcc		5	8	MHz/V
Pulling ^{1,2}	Return Loss: 12dB	df/dZL		3	5	MHz-pk-pk
Frequency Drift with Temperature	@-40°C			25		MHz
	@+85°C			25		MHz
Operating Temperature Range		Ta	-40		85	°C
Storage Temperature Range		Tstor	-55		125	°C
Maximum Limits Voltage	Vcc(abs)		-0.4		8.0	V
Moisture Sensitivity Level	MSL	JEDEC J-STD-2	1			
Termination; Finish			Glass-reinforced laminate base and nickel-silver cover			
ESD Sensitivity	HBM	Human body model JESD22-A114		3		kV

OUTPUT CHARACTERISTICS

SINE-WAVE	PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
				Min	Typ.	Max	
	Output Power	Pw	Output termination 50Ω Vcc=5.0V ±5%	-3		+3	dBm
	Harmonic Suppression	h ²			-15	-10	dBc
	Output Power		Vt=0 and 5V	-3			dB
	Output Load	OCL			50		Ω



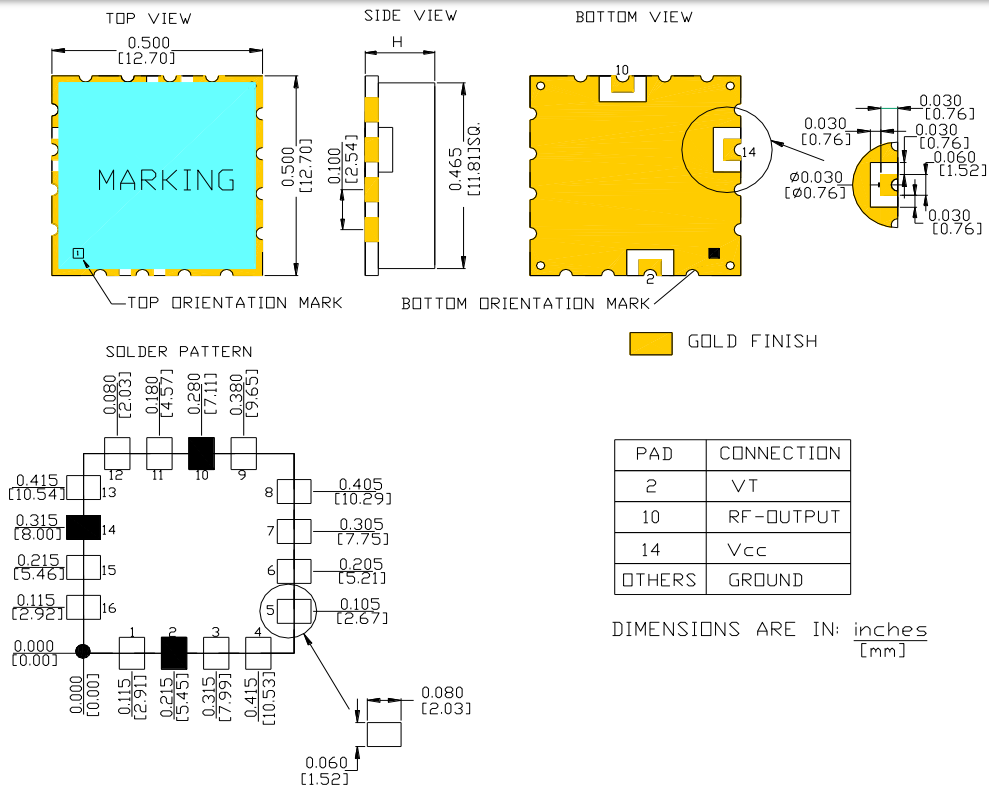
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MECHANICAL DIMENSIONS AND PIN FUNCTIONING



$H = \frac{0.220}{5.6}$

H Tolerance: ± 0.020 in
 ± 0.51 mm

PIN	SYMBOL	FUNCTION
2	Vt	Control Voltage
10	Rf _{out}	RF Output
14	Vcc	Power Supply
6,Others, Cover	GND	Ground

■ Marking:

RQRA
 4130-4730
1 Date code



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PHASE NOISE

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min	Typ	Max	
SSB Phase noise	$\Sigma(\Delta f)$	$\Delta f=1\text{kHz}$		-60	-55	dBc
		$\Delta f=10\text{kHz}$		-88	-83	
		$\Delta f=100\text{kHz}$		-108	-103	
		$\Delta f=1\text{ MHz}$		-128	-123	

COMMON SPECIFICATIONS

- 1.1 -Load impedance is 50 Ohms.
- 1.2 -Pulling is measured with 12dB return loss, all phases.
- 1.3- Package outline tolerances are typ. $\pm 0.30\text{mm}$ / ± 0.012 inch if not stated differently on the drawing.
- 1.4 -It is recommended to provide two bypass-capacitors (ceramic), from Vcc to Gnd, $1\text{nF} \parallel 100\text{pF}$.
- 1.5- Solder temperature (peak) is 260°C for 10-20s.

Environmental Compliance

PARAMETER	CONDITIONS
Mechanical Shock	MIL-STD-883, Method 2002
Mechanical Vibration	MIL-STD-883, Method 2007
Solderability	MIL-STD-883, Method 2003
Resistance to Solvents	MIL-STD-883, Method 2016



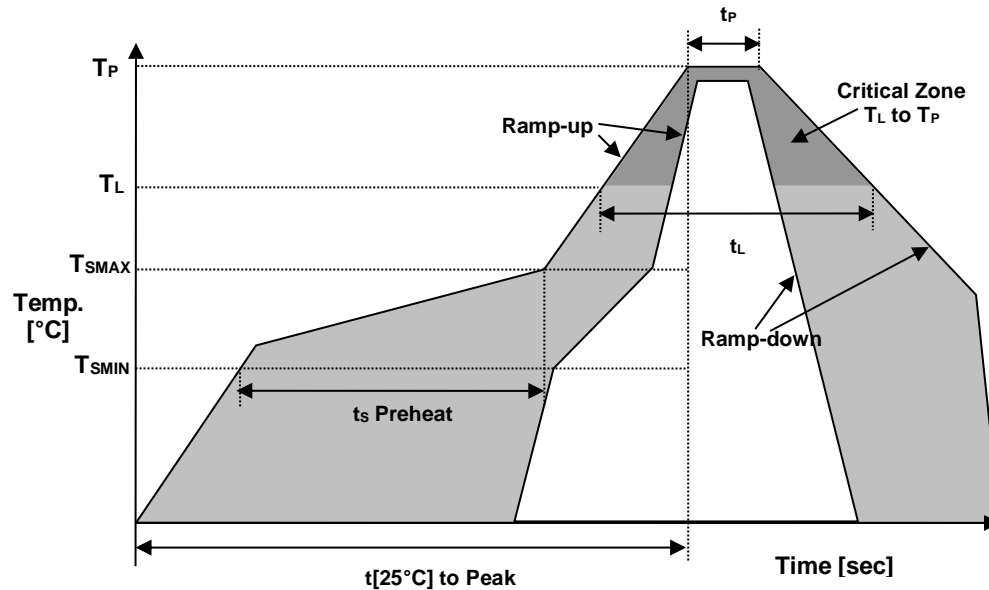
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REFLOW PROFILE



Recommended Solder Reflow Profile		
Temperature Min Preheat	T_{SMIN}	150°C
Temperature Max Preheat	T_{SMAX}	175°C
Time (T_{SMIN} to T_{SMAX})	t_s	60-180 sec.
Temperature	T_L	217°C
Peak Temperature	T_P	260°C
Ramp-up rate	R_{UP}	3°C/sec max.
Ramp-down rate	R_{DOWN}	6°C/sec max.
Time within 5°C of Peak Temperature	t_p	10-20 sec max.
Time $t_{[25^\circ\text{C}] \text{ to Peak}}$	$t_{[25^\circ\text{C}] \text{ to Peak}}$	480 sec.
Time	t_L	60-150 sec.

APPROVALS

Eng. approval, date: IM 11/25/2019

Created by, date: CP 11/25/2019

Revision: A



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