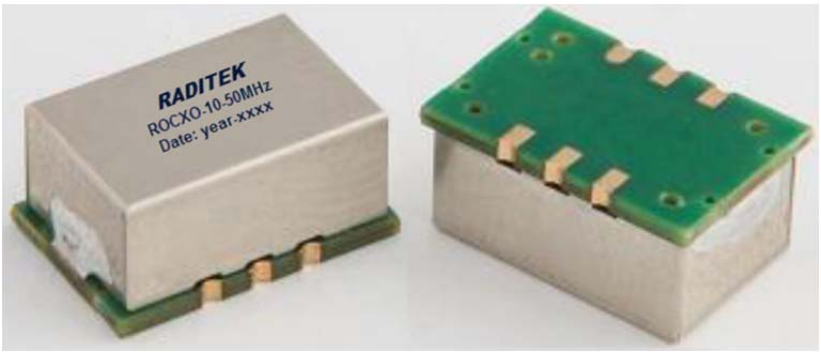
RADITEK INC.

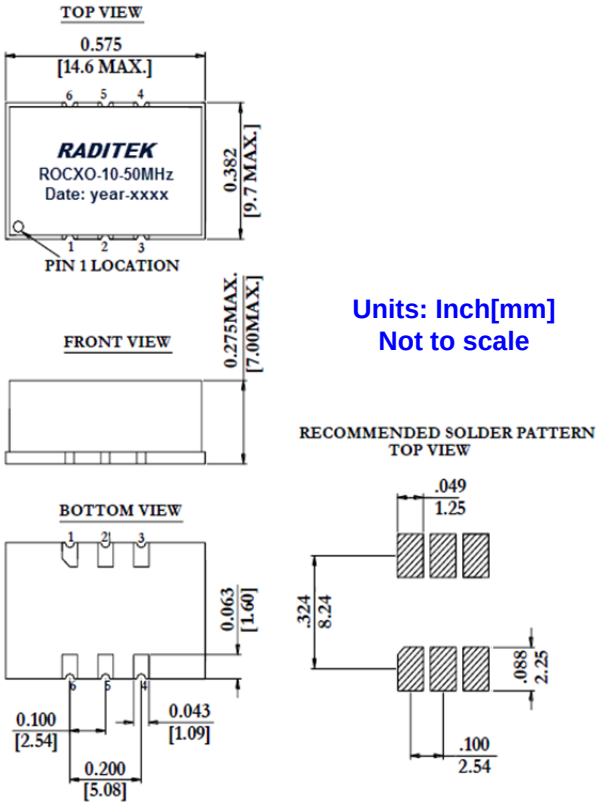
RoHS COMPLIANT

code-r24

Oven Controlled Crystal Oscillators, 10-50MHz

Frequency Stability 5ppb @-40 to +85°C, 5 Volts, SMT type





Units: Inch[mm]
Not to scale

Pin	Symbol	Functions
1	N/C or VC	No connector or Control Voltage
2	N/C	No connect
3	GND	Case Ground
4	Output	RF Output
5	N/C	No connect
6	Vs	Supply Voltage

Order Examples: **ROCXO-10M-5ppb-5v-S-r24**

Description: *(Oven Controlled Crystal Oscillators, 10MHz, SMT type, 5ppb @-40 to +85°C Frequency stability, 5 Volts, LVCMOS)*

Additional option: Frequency from 10-50MHz X (ppb) (see Frequency Stability Table next page)

Parameter	Symbol	Conditions	Value			Unit
Electrical Specifications			**Min**	**Typ**	**Max**	
Frequency Range*	f_o		10.000		50.000	MHz
Supply Voltage	V_s	Vs ±5%	3.135	3.3	3.465	V
			4.75	5.0	5.25	
Power Consumption	P_S	Steady state, @ 25°C			1.5	W
	$P_{S,w}$	During warm-up ,@ 25°C			2.5	W
Warm-up Time	t_W	Vs, Ta=+25°C, within ±100ppb of final frequency with reference after 1 hour on			5	min
Frequency Calibration	$\Delta f/f_0$	Ta=+25°C, after 15mins power on ref. to nominal frequency	-200		+200	ppb
Frequency Stability vs. Temperature*	$\Delta f/f_0$ (T_a)	Measurement referenced to (fmax+fmin)/2. See Table	-5		+5	ppb
Frequency Stability vs. Supply Voltage	$\Delta f/f_0$ (ΔV_{CC})	Ta=25°C, Vs ±5%, load=15pF	-5		+5	ppb
Frequency Stability vs. Load Variation	$\Delta f/f_0$ (ΔI)	Ta=25°C, Vs load=15pF±5%	-5		+5	ppb

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Aging, after 30 days of operation	$\Delta f/\Delta t_d$	Per day	-3.0		+3.0	ppb
	$\Delta f/\Delta t_y$	First year	-500		+500	ppb
	$\Delta f/\Delta t_y$	10 years	-3		+3	ppm
Operating Temperature Range*		See Table 1	-40		+85	°C
Storage Temperature	$T_{(stg)}$		-40		+105	°C
Short Term Stability		τ=1s			0.05	ppb
Control Voltage Range	V_C		0	1.65	3.0	V
Frequency Tuning Range		V_C = 0V	-4		-2	ppm
		V_C = 1.65V	-200		+200	ppb
		V_C= 3.3V	+2		+4	ppm
Linearity			-10		+10	%
*Not any combination Frequency-Operating Temperature Range- Stability is available. Please consult factory						
Phase Noise						
	£ (Δf)	@1 Hz Offset			-80	dBc/Hz
	£ (Δf)	@10 Hz Offset			-110	dBc/Hz
	£ (Δf)	@100 Hz Offset			-135	dBc/Hz
	£ (Δf)	@1 Kz Offset			-145	dBc/Hz
	£ (Δf)	@10 Kz Offset			-150	dBc/Hz
	£ (Δf)	@100 Kz Offset			-153	dBc/Hz
CMOS Output Characteristics						
Output Levels	OH/VOL	VCC = 3.3V, load = 15pF		2.4/0.4		V
Duty Cycle	DC	load = 15pF				%
Rise/Fall Time	t_r/t_f	10% ~ 90% Vout		45/55	5	ns
Load				15	+5%	pf

Temperature Range °C	**Frequency Stability (ppb)**						
	5	10	20	30	50	100	200
0 ~ +60	Y	Y	Y	Y	Y	Y	Y
-10 ~ +60	Y	Y	Y	Y	Y	Y	Y
-20 ~ +70	Y	Y	Y	Y	Y	Y	Y
-30 ~ +70	Y	Y	Y	Y	Y	Y	Y
-40 ~ +75	Y	Y	Y	Y	Y	Y	Y
-40 ~ +85	Y	Y	Y	Y	Y	Y	Y
-55 ~ +85	-	-	Y	Y	Y	Y	Y

Parameter	Symbol	Conditions	Value	Unit
Drop Test	The test shall be carried out as the provisions of the IEC60028-2-32 test Ed. 10cm height, 3 times on hard board with thickness of 3cm			
Bumping Test	Device are bumped to three mutually perpendicular axes at peak acceleration of 400m/s2, each 4000±10times, 6ms pulse duration time			
Vibration Test	Frequency range: 1Hz-4Hz-100Hz-200Hz Acceleration: $0.0001g^2$/Hz-$0.01g^2$/Hz-$0.01g^2$/Hz-$0.001g^2$/Hz Grms=1.15g Sweep time: 30 minutes (perpendicular axes each sweep time)			
Mechanical Shock	100g, 6mS duration, 1/2 sine wave, 3 shocks each direction along 3 mutually perpendicular planes.			
	0.5h@-40℃, 0.5h@+85℃, Note: the changing time < 30 seconds, cycling for 100 times			
Thermal shock				

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Output Type	Cut Type	Series	Revision	Temperature Range	Stability	Frequency	Supply Voltage
LVCMOS	1: No Control Voltage 5: Control Voltage	10:1000	A	First letter: Lowest Temperature Second letter: Highest Temperature: From A=-55°C to Z=+70°C, Then: 1=+75°C, 2=+80°C, 3=+85°C in 5°C Steps Example: HZ: -20°C to +70°C LZ: 0°C to +70°C D3: -40°C to +85°C	Value x 10E-2 in ppm Example: 0.5= 5 ppb 1= 0.01 ppm	In MHz	3.3

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