

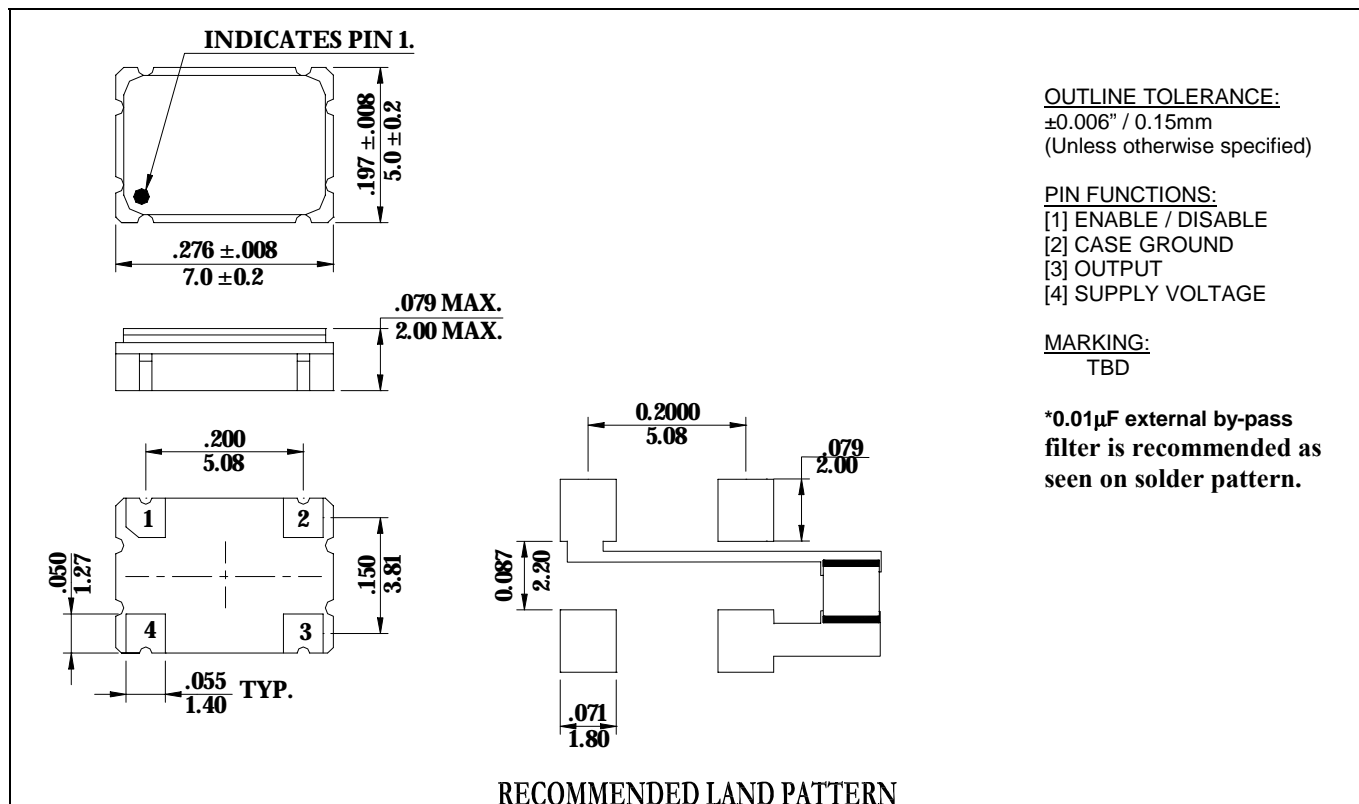
## 5X7 HCMOS CLOCK

(see below for part numbering scheme)

### ■ APPROVALS

RALTRON		CUSTOMER	
Eng. approval, date:	LUIS 4/17/02	Name (please print):	
Sales approval, date:		Title (please print):	
Created by, date:	ALAN 4/17/02	Signature, date:	
Revision: <b>ADDED NOTE 2 PAGE 2 (3/15/02). ADDED 2.7 AND 2.5VDC SUPPLY VOLTAGES (4/10/02).</b>			

### ■ MECHANICAL SPECIFICATION

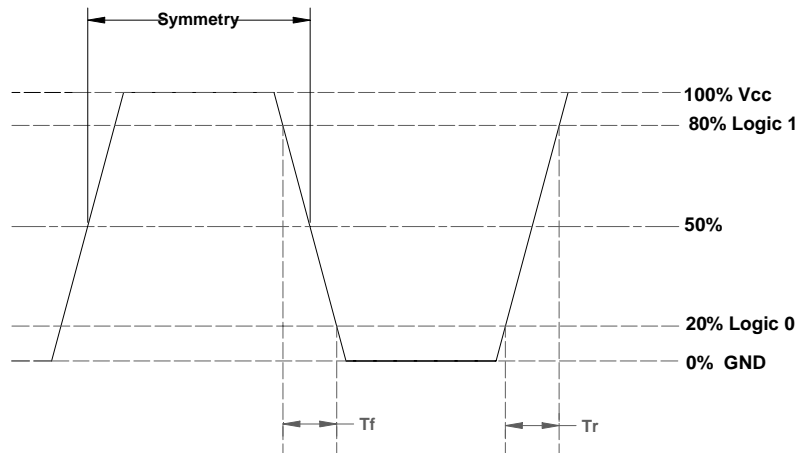
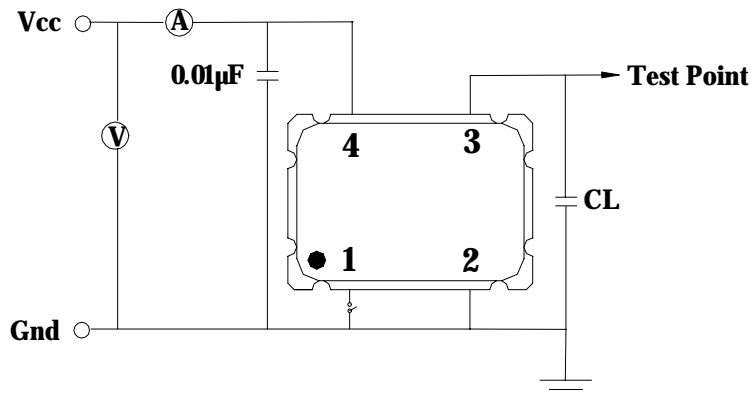


### ■ ELECTRICAL SPECIFICATION

PARAMETER	SYMBOL	CONDITIONS	VALUE	UNIT
Frequency, nom	fo	-	1.000~160.000	MHz
Supply voltage, nom.	Vcc	Vcc±5%	SEE PART NUMBER GENERATION TABLE	V
Supply current, max.	Is	Vcc=nom., Ta=+25°C, load=15pF	10.0...55.0 (see note A)	mA
HCMOS output levels	VOH / VOL	load=15pF, Vcc=nom.	0.9•Vcc / 0.1•Vcc	V
Duty cycle	DC	load=15pF / @50%Vcc, Ta=+25°C	45...55 or 40...60	%
Rise- / fall time, max.	tr / tf	20%~80% Vout, 80%~20% Vout	1.5...10.0 (see note A)	ns
Jitter, rms, max.	J	1σ, Fj = 12KHz...20MHz	1.0	ps
Overall freq. stability, max.	Δf/fc	Including temperature, 10 year aging, +/-5% load & supply variations, and calibration @ +25°C.	SEE PART NUMBER GENERATION TABLE	ppm
Enable option (pin 1)	En	High or open (min.)	0.7•Vcc	V
Disable option (pin 1)	Dis	Ground (output pin high impedance) (max.)	0.3•Vcc	V
Operating temperature range	Ta	Vcc=nom., Ta=+25°C, load=15pF	SEE PART NUMBER GENERATION TABLE	°C
Storage temperature range	T(stg)	-	-55...+125	°C
Absolute voltage range	Vcc(abs)	Non-destructive, DC	-0.5...+7.0	V

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NOTE A: SUPPLY CURRENT, RISE &amp; FALL TIMES ARE FREQUENCY DEPENDENT.

**WAVEFORM: LOAD = 15pF**

**RECOMMENDED TEST CIRCUIT WITH CMOS LOAD:**


\*CL (Capacitive Load): Includes the input capacitance of oscilloscope.  
 \*\*0.01µF external by-pass filter is recommended.

**■ PART NUMBER GENERATION**

SERIES	SYMMETRY	TEMPERATURE RANGE (°C)	STABILITY (Overall)	FREQUENCY (MHz)	SUFFIX
CS2: 5.0V HCMOS CS4: 3.3V HCMOS CSG: 2.7V HCMOS CSH: 2.5V HCMOS	A: 40%...60% T: 45%...55%	R: 0...+50 S: 0...+70 U: -20...+70 V: -40...+85	H: ±50 ppm J: ±100 ppm (See note below)	1.000...156.250 (See note 2)	4

4/17/02 marketing-rfq, vxco, Cx90ns

**NOTE:**

1. Variations from standard specification are available, please contact factory.
2. For frequencies above 125.000MHz, only 3.3V supply is available. 30MHz...70MHz available for Vcc below 3.3V

**EXAMPLE: CS4TSH-155.520-4**