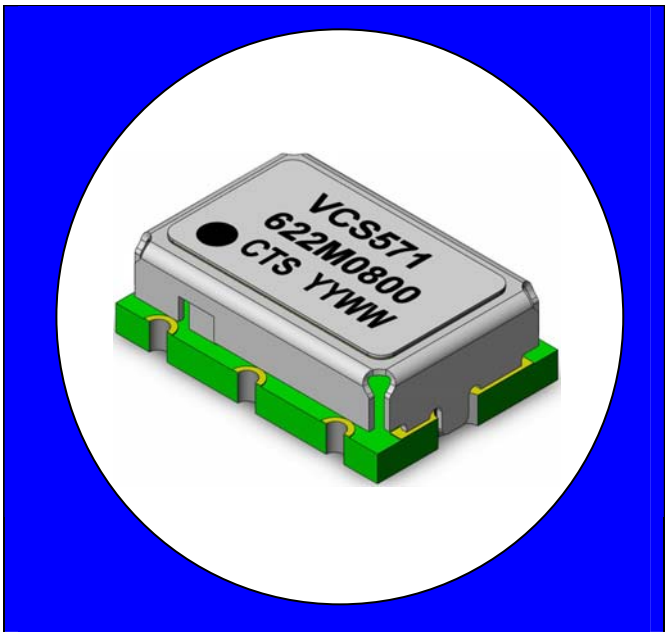
VCS571

Low Kv, 5x7mm VCSO

APPLICATIONS

Frequency Translation and Jitter Attenuation
SONET/SDH
10 GbE
WiMAX
Base Stations/Picocells
DAC clocking



FEATURES

- Lower Tuning Gain Transfer, Kv
- Industry Standard 5x7mm SMT Footprint
- +3.3 Vdc Supply Voltage
- -40°C to 85°C Temp. Range
- LVPECL differential outputs
- ± 50ppm Absolute Pull Range (APR)
- Output Enable/Disable Function
- SAW resonator
- Extremely Low Jitter

DESCRIPTION

Surface mount 5x7mm VCSO operating at 3.3V supply with complementary LVPECL outputs for use in datacom, telecom, and DAC clock applications.

ELECTRICAL SPECIFICATIONS

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Operating Conditions					
Nominal Frequency	f_{NOM}	460	460.8, 491.52, 622.08, 644.5313, 666.514, 669.3266 693.483, 768	1000	MHz
Operating Temperature Range		-40	-	85	°C
Storage Temperature Range		-55	-	125	°C
Supply Voltage	V_{CC}; ±5%	3.135	3.300	3.465	Vdc
Supply Current	I_{cc}; Max. V_{CC}; T_A = 25°C load = 50Ω to V_{CC} – 2V	-	60	70	mA
Load	output to V_{CC} -2V	-	50	-	Ω
Frequency Stability					
Frequency vs. Temperature	ref to T_A = 25°C; V_C = constant	-	+20 -160	-	ppm
Electronic Frequency Control					
Input Impedance	Z_i	50	100	-	kΩ
Control Voltage Range	V_C ; positive monotonic transfer	0.3	-	3.0	Vdc
Gain Transfer	Kv	-	180	-	ppm/V
Absolute Pull Range	APR; all causes (see Note 1)	± 50	-	-	ppm
Modulation Bandwidth	-3dB ref. 100Hz	-	50	-	kHz
Linearity	Deviation from best linear fit	-	2	10	%

NOTE 1: Minimum guaranteed frequency shift ($\Delta f/f_{NOM}$) under all conditions (temperature, aging, supply voltage, load) for 15 years at an average effective operating temperature of +55°C

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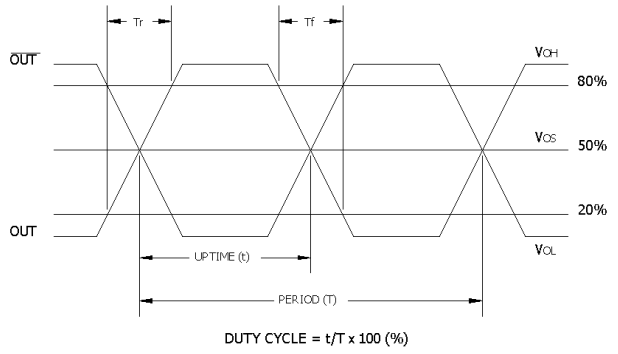
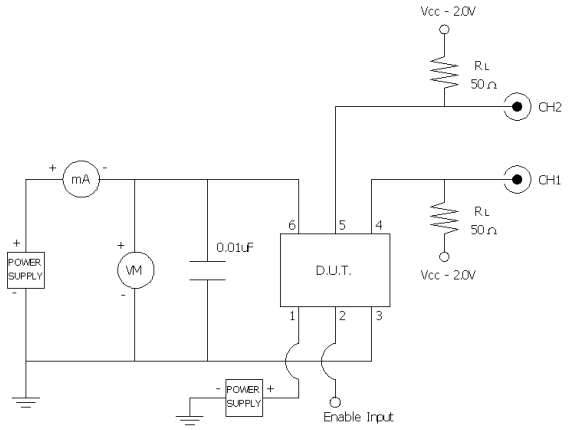
ELECTRICAL SPECIFICATIONS (Continued)

Parameter	Conditions & Remarks		Min	Typical	Max	Unit
Output Parameters						
Output Signal				LVPECL		
Amplitude		V_{OL}	-	-	V_{CC}-1.620	Vdc
		V_{OH}	V_{CC}-1.025	-	-	
Rise/Fall Times	20% to 80%		-	250	400	ps
Duty Cycle	@ 50% of output signal		45	50	55	%
Start up time	to reach 90% of final amplitude		-	-	10	ms
Phase Noise	Typical for 622.08 MHz	100Hz	-	-85	-	dBc/Hz
		1kHz	-	-110	-	dBc/Hz
		10kHz	-	-140	-	dBc/Hz
		100kHz	-	-143	-	dBc/Hz
		1MHz	-	-143	-	dBc/Hz
Phase Jitter	12kHz to 20MHz (calculated from 622 MHz Phase Noise)		-	0.16	0.3	ps RMS
	50kHz to 80MHz (calculated from 622 MHzPhase Noise)		-	0.16	0.3	ps RMS

LVPECL OUTPUT WAVEFORM



TEST CIRCUIT, LVPECL LOAD



OUTPUT ENABLE/DISABLE LOGIC			
Pad 2		**Pad 4**	**Pad 5**
Low "0"	outputs disabled	PECL Low	PECL High
Open	outputs enabled	Output	Comp. Output
High "1"	outputs enabled	Output	Comp. Output

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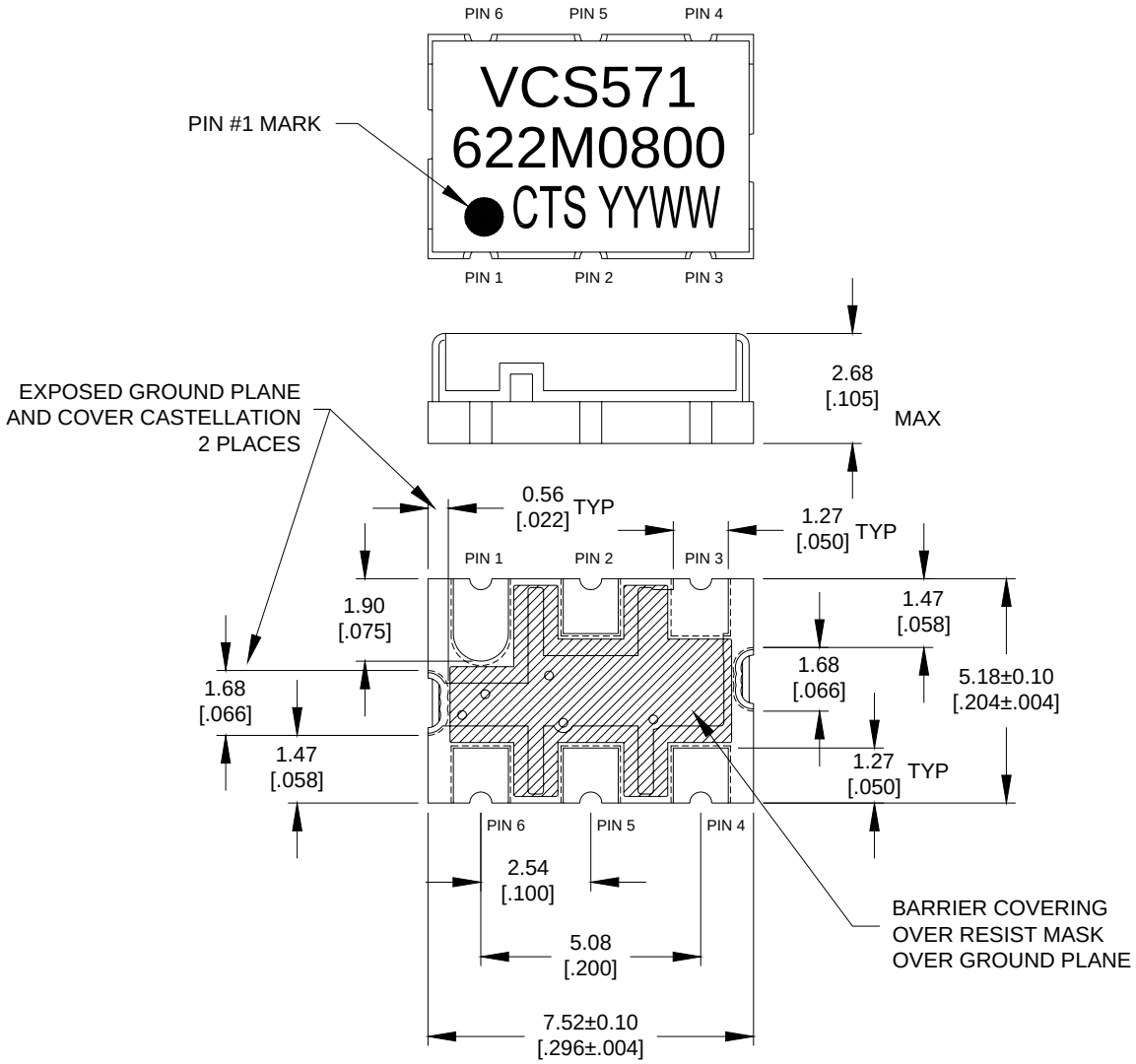
MECHANICAL SPECIFICATIONS

PACKAGE DRAWING



Lead Termination Finish: Gold flash, <10 micro inch, over 100 micro inch minimum Ni plated Cu

Co-Planarity (from seating plane): 0.1 [0.004] maximum

Dimensions in mm and [inches]

PAD FUNCTION

1 - Control Voltage - V_C
2 - Enable/Disable Control
3 - Ground/Case
4 - Output
5 - Complementary Output
6 - Supply Voltage - V_{CC}

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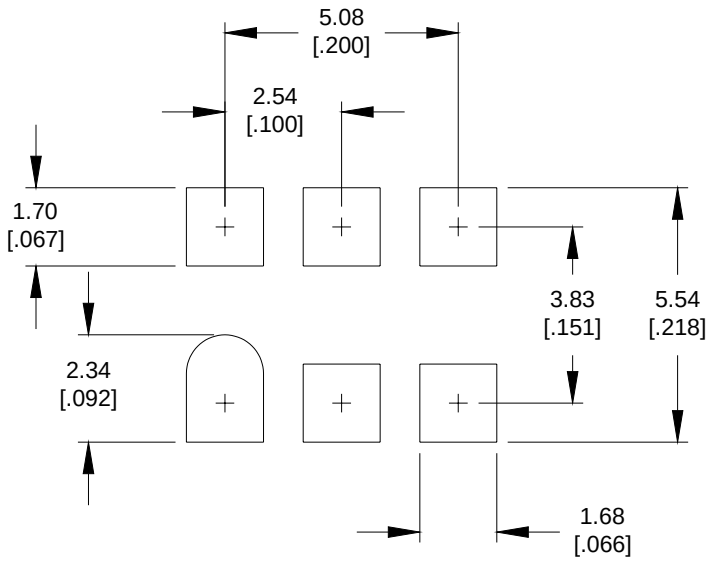
SUGGESTED SOLDER PAD GEOMETRY



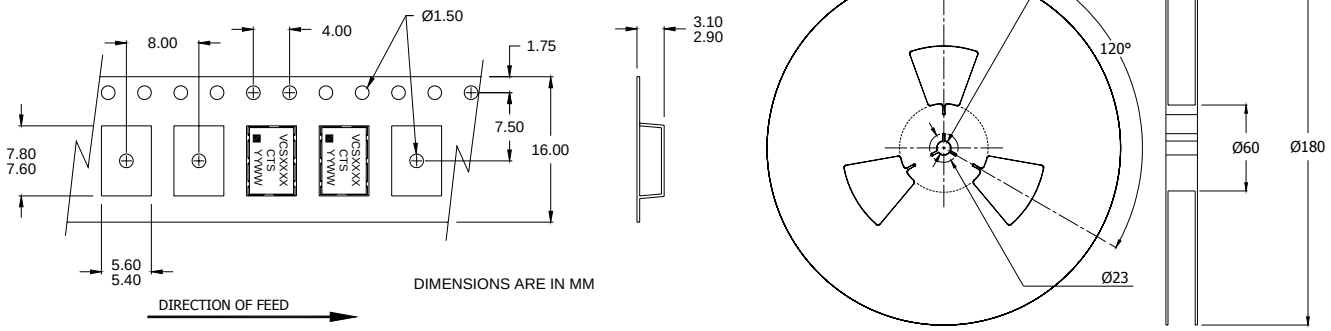
Dimensions are in mm and [inches].

MAXIMUM SOLDERING PROFILE

Temperature	217°C	260°C (Absolute max temperature)
Time	60-150 sec	10 sec. max

Note: Part is not designed to be reflowed in an inverted position.

TAPE AND REEL INFORMATION



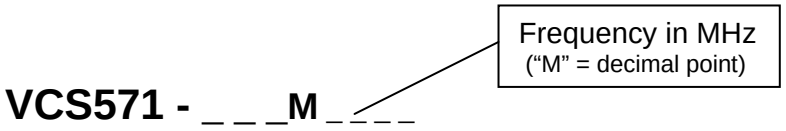
Device quantity is 1000 pieces max. per 180mm reel.

ENVIRONMENTAL SPECIFICATIONS

This product is capable of operating within the following environmental conditions:

Operating Temperature	-40 to +85 °C
Storage Temperature	-55 to 125°C
Humidity	95% Relative humidity max @ 40°C
Atmospheric Pressure	730 to 780 mm Hg
Moisture Sensitivity	Level 1
RoHS	Fully compliant to RoHS Directive 2002/95/EC

Model 571 Part Number Generator:



P/N example: VCS571-622M0800

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