

APPLICATIONS

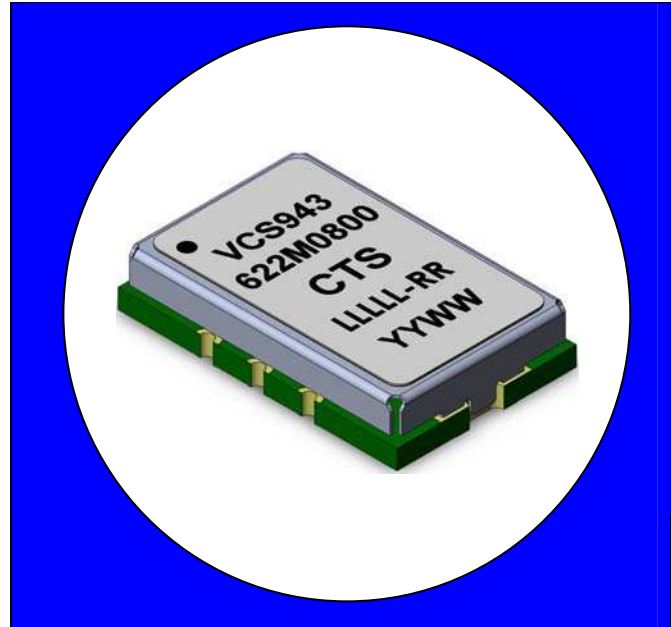
Frequency Translation and Jitter Attenuation
 SONET/ SDH
 10 GbE
 WiMAX
 Base Stations/ Picocells
 DAC clocking

FEATURES

- High Tuning Gain Transfer
- Industry Standard 9x14mm 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 filter design
- Extremely Low Jitter
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DESCRIPTION

Surface mount 9x14mm VCSO operating at 3.3V supply with complementary LVPECL outputs for use in datacom, telecom, and DAC clock applications.



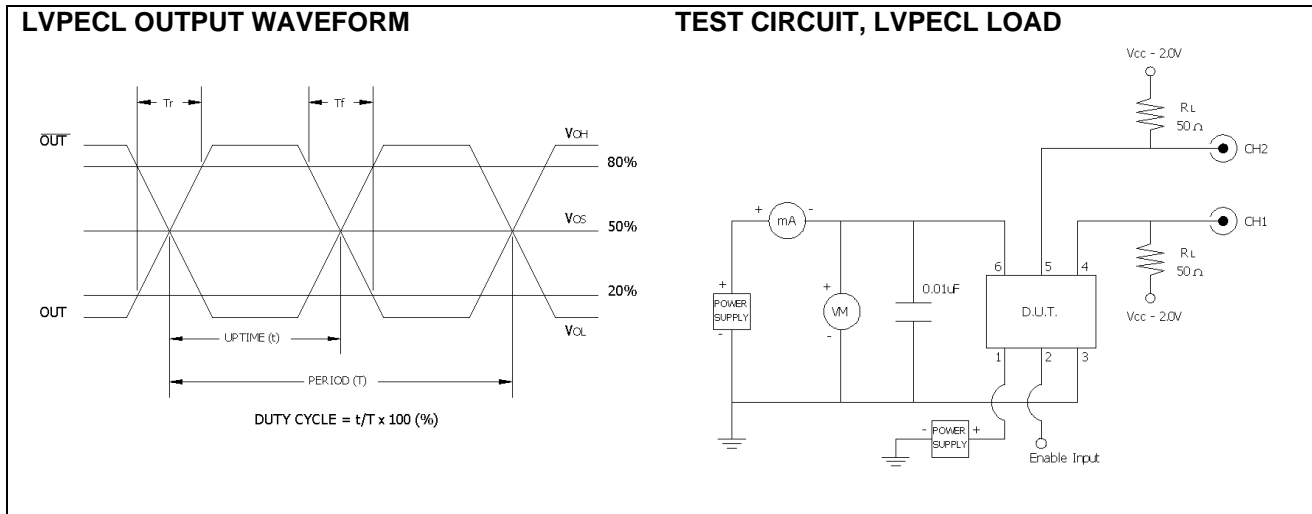
ELECTRICAL SPECIFICATIONS

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Operating Conditions					
Nominal Frequency	f_{NOM}	600	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	$V_{\text{CC}}; \pm 5\%$	3.135	3.300	3.465	Vdc
Supply Current	$I_{\text{CC}}; \text{Max. } V_{\text{CC}}; T_{\text{A}} = 25^{\circ}\text{C}$ load = 50Ω to $V_{\text{CC}} - 2\text{V}$	-	65	75	mA
Load	output to $V_{\text{CC}} - 2\text{V}$	-	50	-	Ω
Frequency Stability					
Frequency vs. Temperature	ref to $T_{\text{A}} = 25^{\circ}\text{C}; V_{\text{C}} = \text{constant}$	-	+20 -160	-	ppm
Electronic Frequency Control					
Input Impedance	Z_{i}	50	100	-	k Ω
Control Voltage Range	$V_{\text{C}}; \text{positive monotonic transfer}$	0.3	-	3.0	Vdc
Gain Transfer	Kv	-	350	-	ppm/V
Absolute Pull Range	APR; all causes (see Note 1)	± 50	-	-	ppm
Modulation Bandwidth	-3dB ref. 100Hz	-	500	-	kHz
Linearity	Deviation from best linear fit	-	±4	±10	%

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

ELECTRICAL SPECIFICATIONS (Continued)

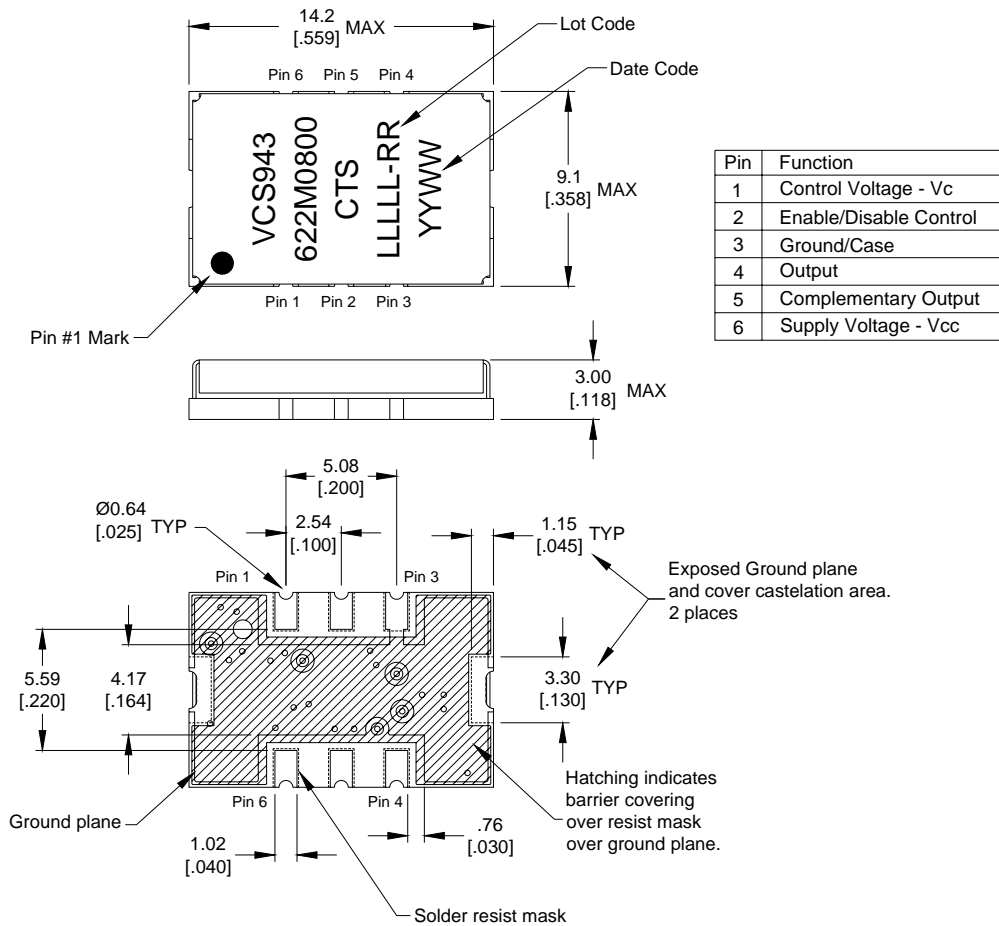
Parameter	Conditions & Remarks	Min	Typical	Max	Unit	
Output Parameters						
Output Signal		LVPECL				
Amplitude		V_{OL}	-	-	$V_{CC}-1.620$	Vdc
		V_{OH}	$V_{CC}-1.025$	-	-	
Rise/Fall Times	20% to 80%	-	250	400	ps	
Duty Cycle	@ 50% of output signal	45	50	55	%	
Start up time	to reach 90% of final amplitude	-	-	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)	-	0.10	0.25	ps RMS	
	50kHz to 80MHz (calculated from 622 MHz Phase Noise)	-	0.10	0.25	ps RMS	



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

MECHANICAL SPECIFICATIONS

PACKAGE DRAWING



All dimensions are in MM [Inches].

All dimensions are Nominal unless otherwise specified.

Lead Termination Finish: Gold Flash, <10 micro inch, over Ni plated Cu.

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

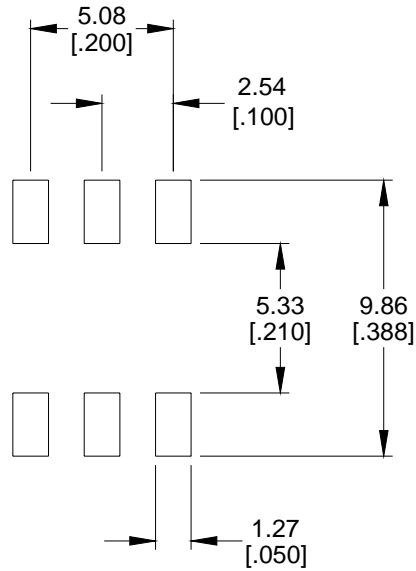
Co-Planarity (from seating plane): 0.1 [0.004] maximum

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}

SUGGESTED SOLDER PAD GEOMETRY



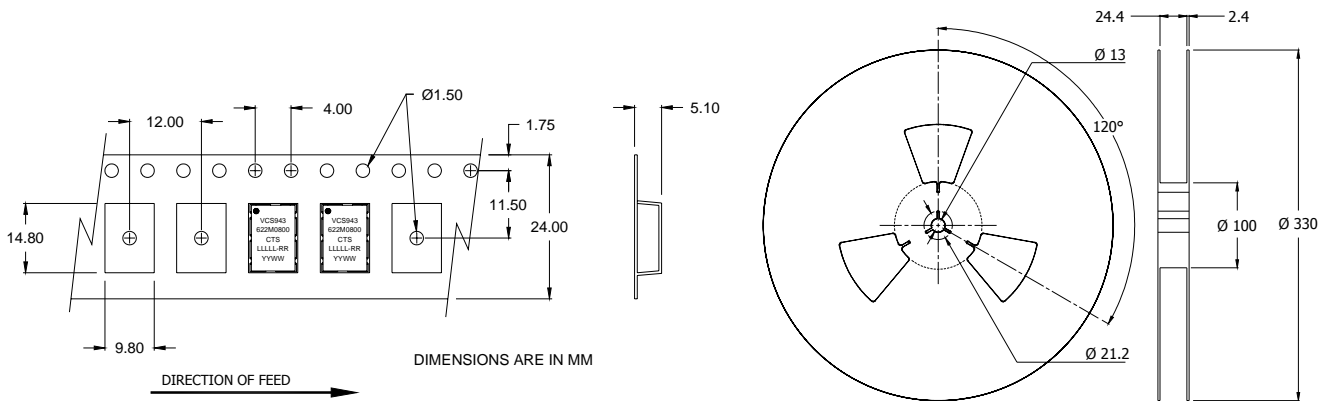
Dimensions are in mm and [inches].

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



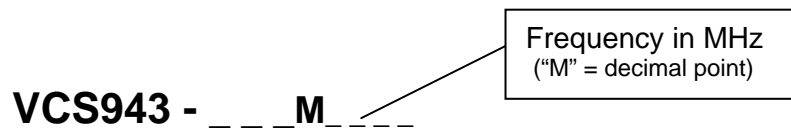
Device quantity is 1000 pieces max. per 330mm reel.

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 943 Part Number Generator:



P/N example: VCS943-622M0800