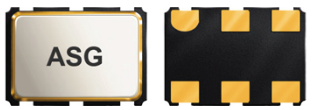
Programmable - High Performance SMD Crystal Oscillator

ASG-C Series



7.0 x 5.0 x 2.0mm

Moisture Sensitivity Level (MSL) - This product is Hermetically Sealed and not Moisture Sensitive; therefore MSL = N/A (Not Applicable)

Pb RoHS Compliant

FEATURES:

- ASG series is a High Performance crystal based oscillator; available either as an XO or a VCXO
- Frequency range from 10MHz to 250MHz with LVCMOS output
- Available from 10MHz to 1.50GHz with LVDS or LVPECL output
- Offered with either 2.50V or 3.30V bias voltage
- Quick turn, 1~5 business days for small quantity orders

APPLICATIONS:

- Networking, SONET/SDH
- WiMax / WLAN
- Computing
- Phase Locked Loops
- Direct Digital Synthesis (DDS)
- DSL/ADSL
- Base Terminal Stations

STANDARD SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency Range:	V_{dd} = 3.3V	10		250	MHz	
	V_{dd} = 2.5V	10		250	MHz	
Operating Temperature:		-40		+85	°C	
Storage Temperature:		-55		+125	°C	
Overall Frequency Stability:		-50		+50	ppm	*See Note # 1*
Initial Set Tolerance		-5.00	≤ ±1.00	+5.00	ppm	
Stability over operating temperature		-35.00	≤ ±20.00	+35.00	ppm	
Aging @ 25ºC over 10-years		-7.00		+7.00	ppm	
Frequency variation over supply voltage change (±5%)		-2.00		+2.00	ppm	
Frequency variation over load variation (15pF ± 5%)		-1.00		+1.00	ppm	
Supply Voltage (Vdd):	V_{dd} = 3.3V	3.135	3.300	3.465	V	
	V_{dd} = 2.5V	2.375	2.500	2.625	V	
Input Current:	V_{dd} = 3.3V			45	mA	Frequency dependent
	V_{dd} = 2.5V			35	mA	Frequency dependent
Symmetry:		48	50	52	%	@ 1/2Vdd
Rise and Fall Time (Tr/Tf):			≤ 450	1000	ps	
Output Load:				15	pF	CMOS
Output Voltage:	VOH	Vdd * 0.90			V	
	VOL			Vdd * 0.10	V	
Start-up Time:			≤ 2.0	3.0	ms	
Enable/Disable Function :		"1" (V_{IH} ≥ 0.7*Vdd) or Open: Oscillation "0" (V_{IL} < 0.3*Vdd) : High Z				
Vcontrol Range		0.00		Vdd	Volts	
Frequency Pull		±50			ppm	
Control Port Bandwidth		10			kHz	
Phase jitter RMS [tjit(φ)] *See Note #2*	Integer Mode		< 0.60	1.60	ps	12kHz to 20MHz
	Fractional Mode		< 0.90	1.60	ps	12kHz to 20MHz

Note #1: Inclusive of initial tolerance at 25ºC±3ºC, operating temperature range, input voltage variation, load variation & aging.
Note #2: The rms jitter over 12kHz to 20MHz Bandwidth is dependent on the carrier and whether or not the final frequency is achieved without engaging the Fractional Mode

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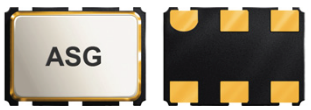

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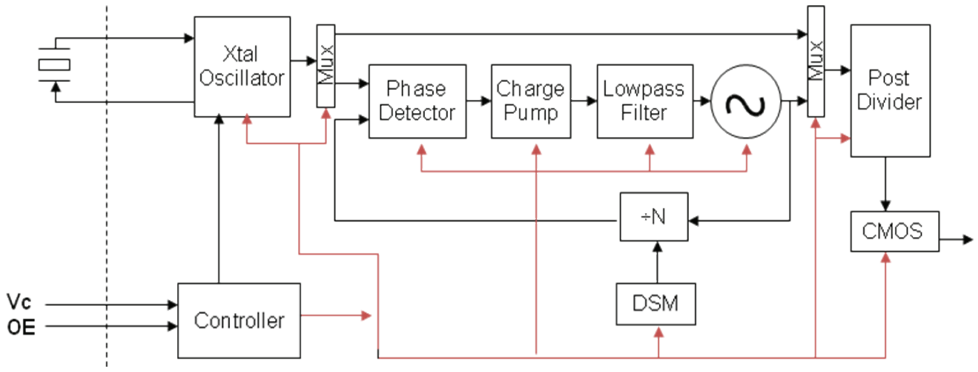
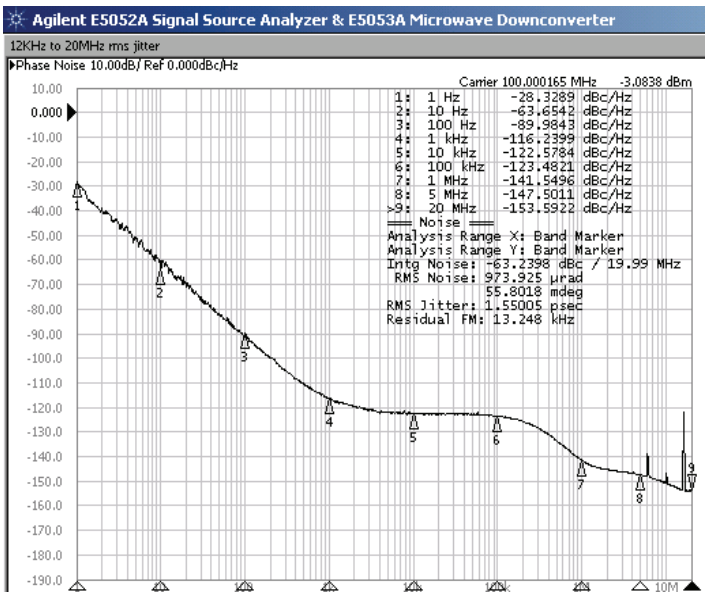
OVERALL SYSTEM BLOCK DIAGRAM

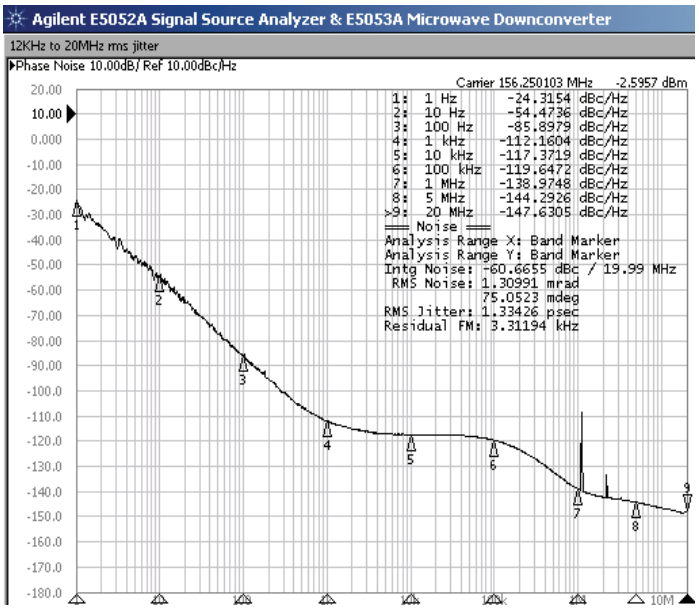


PHASE NOISE & JITTER CHARACTERISTICS

100MHz Carrier



156.25MHz Carrier



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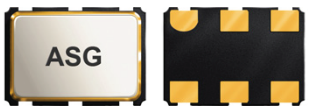

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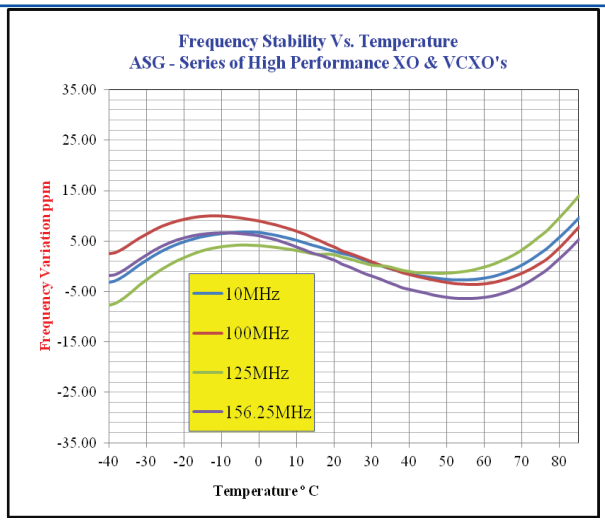
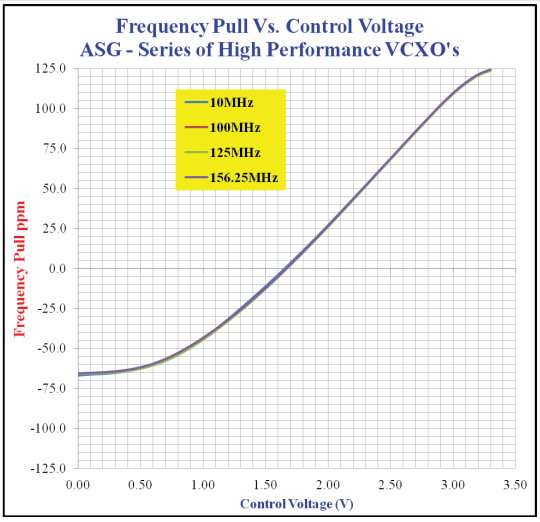
FREQUENCY STABILITY VS. TEMPERATURE



FREQUENCY PULLING VS. CONTROL VOLTAGE (VCXO MODE)

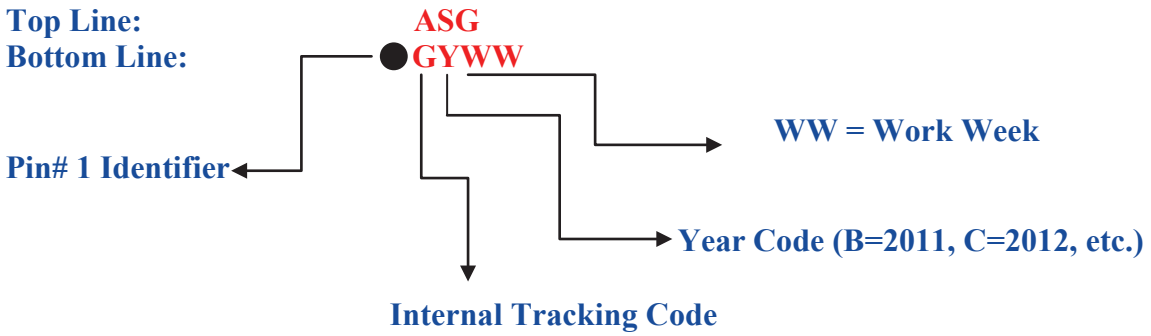


PART IDENTIFICATION:

ASG - C - ☐ - ☐ - ☐ MHz - ☐

Fixed or Pull-able	Operating Voltage	Frequency in MHz	Packaging
X = Fixed Oscillator	3.30V = A	Please specify the Frequency in MHz e.g. 100.000 MHz	Blank = Bulk
V = VCXO	2.50V = B		T = Tape & Reel

MARKING:



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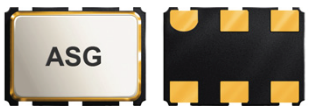

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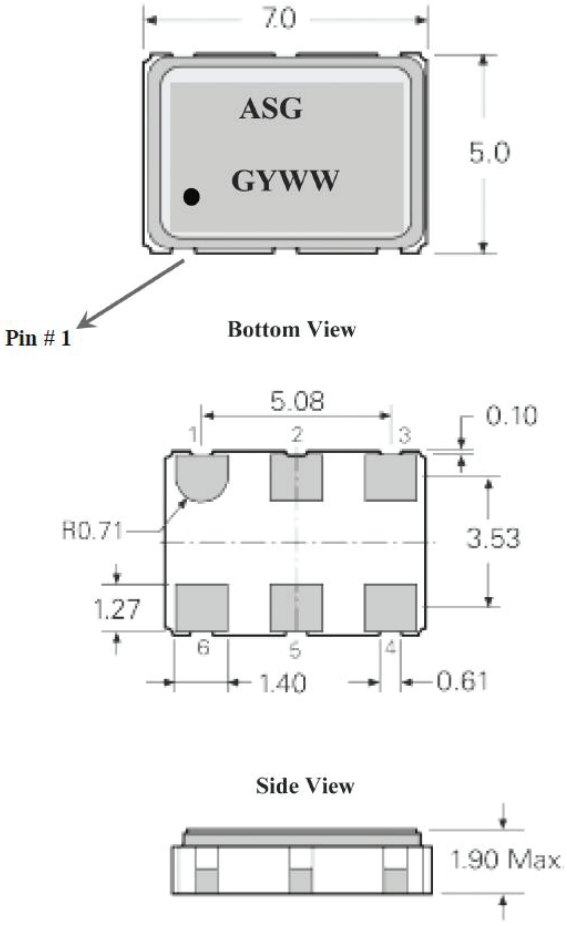
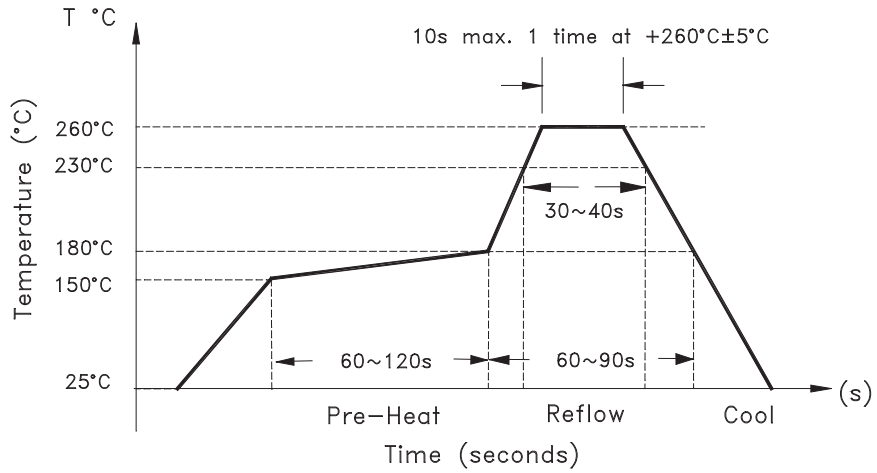
OUTLINE DIMENSIONS:

Pin #	Pin Description For VCXO configuration
1	Voltage Control for VCXO
2	Output Enable (OE)
3	GND
4	RF Output
5	N/C
6	Vdd

Pin #	Pin Description For XO configuration
1	Output Enable (OE)
2	N/C for XO
3	GND
4	RF Output
5	N/C
6	Vdd



REFLOW PROFILE:



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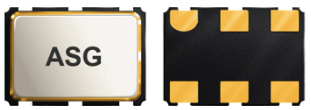

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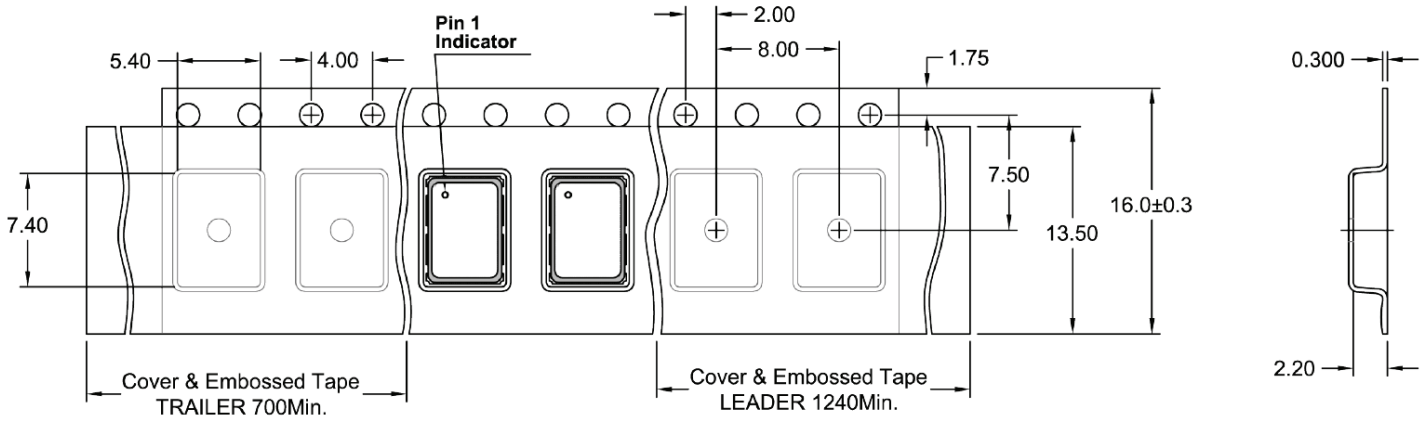
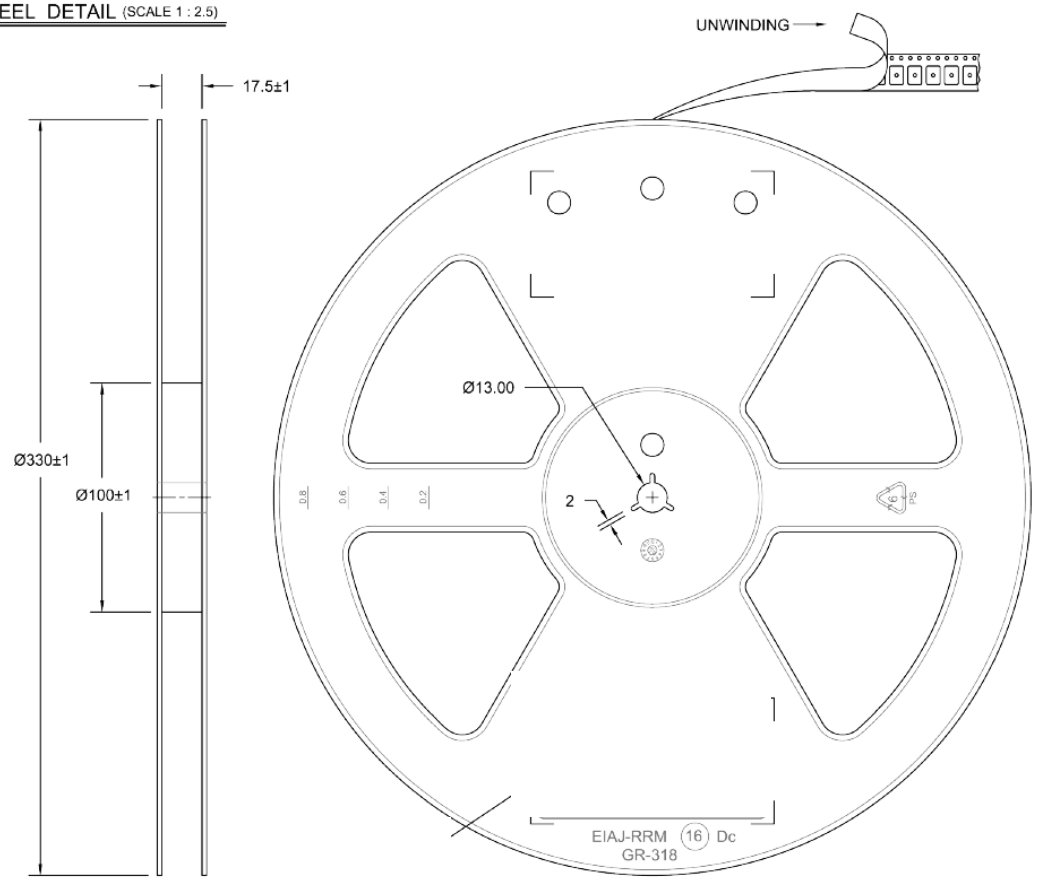
TAPE & REEL:

T= Tape and reel (2,000pcs/reel)

TAPE DETAIL (SCALE 2 : 1)



REEL DETAIL (SCALE 1 : 2.5)



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