

Programmable - High Performance SMD XO & VCXO

ASG-D Series



RoHS
Compliant



7.0 x 5.0 x 1.9mm

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

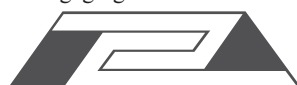
STANDARD SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency Range:	V _{dd} = 3.3V	10		1500	MHz	
	V _{dd} = 2.5V	10		1500	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 @ 25°C 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 (V _{dd}):	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		< 25	40	mA	Frequency dependent
	V _{dd} = 2.5V		< 25	35	mA	Frequency dependent
LVDS Output (Out & $\overline{\text{Out}}$):	Differential Output Voltage	175	350		mV	V _{OD}
	V _{OD} Magnitude Change			50	mV	ΔV _{OD}
	Offset Voltage		1.25		V	V _{OS}
	V _{OS} Magnitude Change			50	mV	ΔV _{OS}
	Duty Cycle	45	48/52	55	%	ODC _{LVDS}
	Rise Time	125		350	ps	t _R
	Fall Time	150		450	ps	t _F
Start-up Time:			≤ 2.0	3.0	ms	
Enable/Disable Function :		"1" (V _{IH} ≥ 0.7*V _{dd}) or Open: Oscillation "0" (V _{IL} < 0.3*V _{dd}) : High Z				
Vcontrol Range		0.00		V _{dd}	Volts	For VCXO
Frequency Pull		±50			ppm	
Control Port Bandwidth		10			kHz	
Phase jitter RMS [t _{jitt(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 25°C±3°C, 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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ASG-D Series

**ASG**

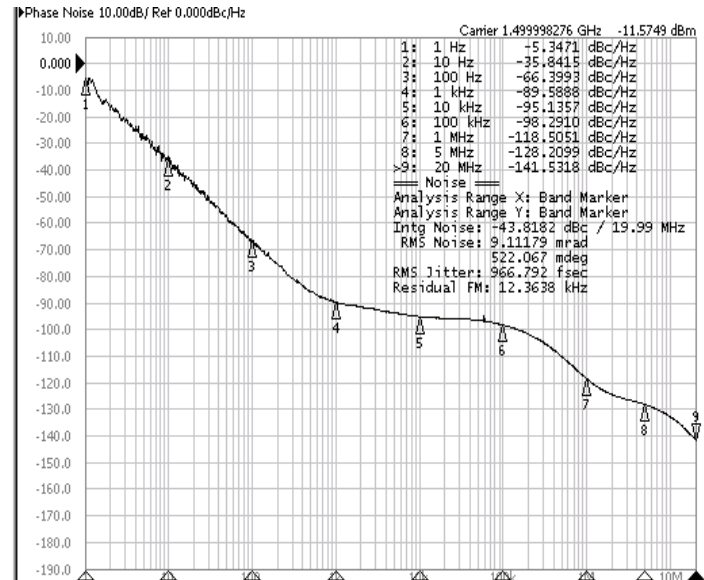
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The diagram illustrates a PLL system with a DSM feedback loop. A crystal oscillator (Xtal Oscillator) provides the reference signal to a multiplexer (Mux). The Mux also receives a feedback signal from the DSM block. The output of the Mux goes to the Phase Detector, which is connected to the Charge Pump. The Charge Pump output goes to the Lowpass Filter, which then feeds into a summing junction (represented by a circle with a plus sign). The output of the summing junction goes to the DSM block, which also receives inputs from the Vc and OE signals. The DSM output goes to the Mux, which also receives a feedback signal from the Post Divider. The Post Divider output goes to the LVPECL or LVDS output stage.

Carrier 622.87828 MHz -5.7565 dBm

Offset	Noise Level (dBc/Hz)
1: 1 Hz	-13.4000
2: 10 Hz	-44.7083
3: 100 Hz	-73.4463
4: 1 kHz	-99.0694
5: 10 kHz	-105.6553
6: 100 kHz	-107.8230
7: 1 MHz	-127.1879
8: 5 MHz	-134.7570
>9: 20 MHz	-145.9035

=== Noise ===
 Analysis Range X: Band Marker
 Analysis Range Y: Band Marker
 Intg Noise: -53.2471 dBc / 19.99 MHz
 RMS Noise: 3.07724 mrad
 RMS Jitter: 176.313 mdeg
 Residual FM: 6.19265 kHz



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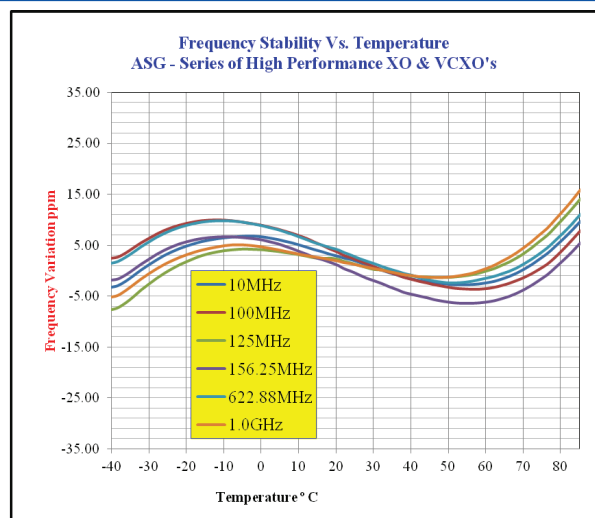


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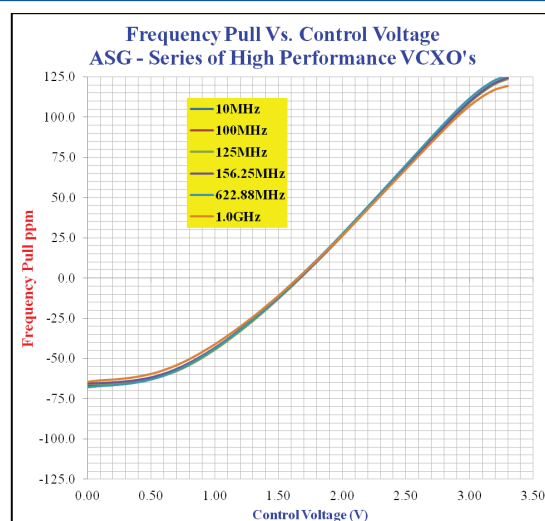


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FREQUENCY STABILITY VS. TEMPERATURE



FREQUENCY PULLING VS. CONTROL VOLTAGE (VCXO MODE)



PART IDENTIFICATION:

ASG - D - - - MHz -

Fixed or Pull-able

X = Fixed Oscillator
V = VCXO

Operating Voltage

3.30V = A
2.50V = B

Frequency in MHz

Please specify the
Frequency in MHz
e.g. 100.000 MHz

Packaging

Blank = Bulk
T = Tape & Reel

MARKING:

Top Line:

Bottom Line:

Pin# 1 Identifier

ASG
GYWW

WW = Work Week

Year Code (B=2011, C=2012, etc.)

Internal Tracking Code

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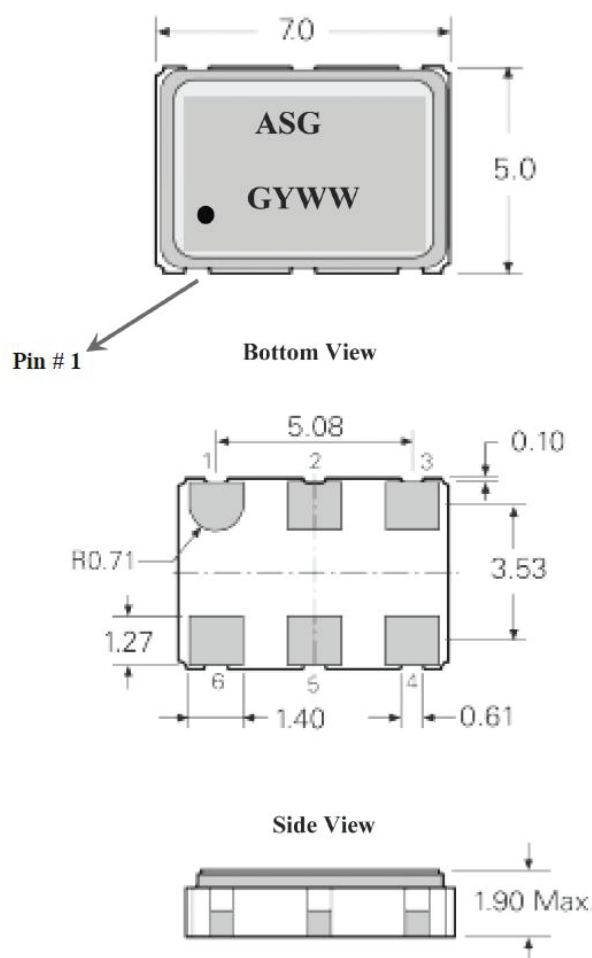


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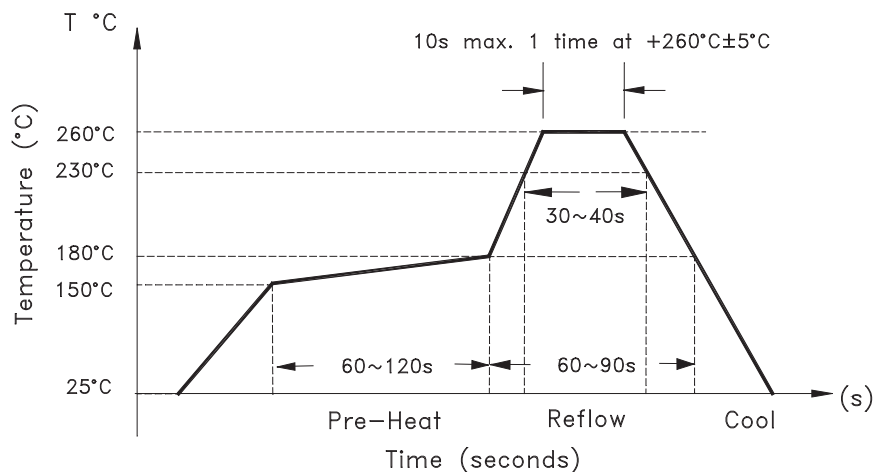
OUTLINE DIMENSIONS:

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

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



REFLOW PROFILE:



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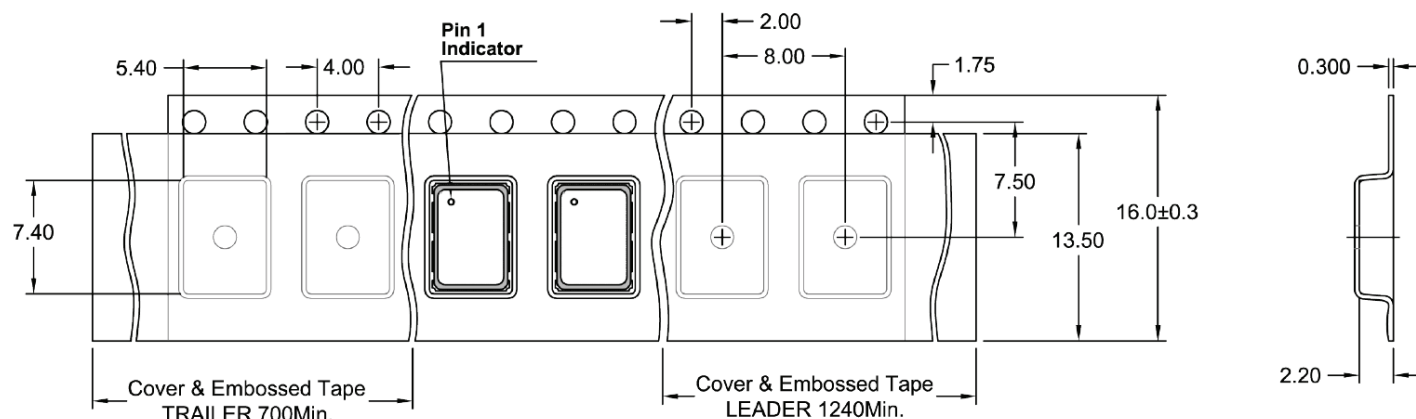


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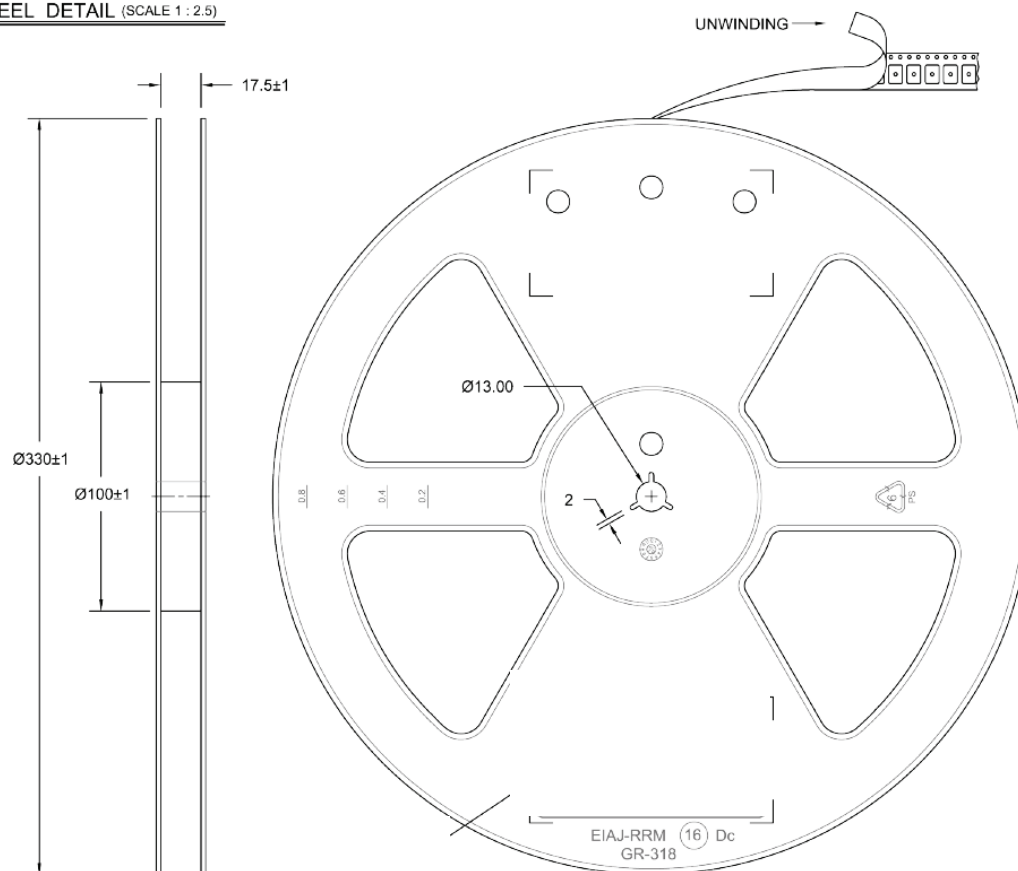
TAPE & REEL:

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

TAPE DETAIL (SCALE 2 : 1)



REEL DETAIL (SCALE 1 : 2.5)



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