

# LOW JITTER CRYSTAL OSCILLATOR



14.3 X 8.7 X 5.5 mm

## ABLJO

RoHS/RoHS II Compliant and Pb free



### FEATURES:

- High "Q", 3rd Overtone Crystal Technology
- Ultra Low Jitter performance 0.10 ps Max. (12kHz to 20MHz)
- Standard LVC MOS RF Output
- Wide Operating Temperature (-40°C to +85°C) standard
- ±40 ppm Max. All inclusive Stability (including Aging) over 10-years
- (17) Standard Frequencies between 80MHz & 200MHz
- 9x14mm RoHS Compliant SMT package

### APPLICATIONS:

- Avionics
- COTS - Military communications
- Low Phase Noise Signal Sources
- High Definition TV
- Test & Measurement
- Ultra Low Jitter RF Communication Circuitry

### STANDARD SPECIFICATIONS

Parameters	Minimum	Typical	Maximum	Units	Notes
<b>RF Output Frequency Range</b>	80.00		200.00	MHz	
Standard Available Frequencies	80.00MHz, 81.920MHz, 92.160MHz, 96MHz, 98.304MHz, 100MHz, 106.250MHz, 120MHz, 122.880MHz, 125MHz, 150MHz, 155.520MHz, 156.250MHz, 160MHz, 184.32MHz, 187.5MHz, and 200MHz				
Supply Voltage	3.135	3.300	3.465	Volts	
<b>Current Drain</b>					
80MHz ~ 99.999MHz			25.00	mA	
100MHz ~ 149.999MHz			30.00	mA	
150MHz ~ 200MHz			40.00	mA	
<b>Waveform</b>	<b>LVC MOS</b>				
V <sub>OH</sub>	0.9*V <sub>dd</sub>			Volts	
V <sub>OL</sub>			0.1*V <sub>dd</sub>	Volts	
Symmetry	45	50	55	%	
Rise & Fall Times			3.0	ns	
<b>Operating Temperature Range</b>	-40		+85	°C	
<b>Frequency Stability</b>					
Over (-40° C to +85°C)			±25.00	ppm	
ALL effects, including Aging			±40.00	ppm	
Storage Temperature Range	-40		+85	°C	
Aging					
First Year			±2.00	ppm	
5-Years			±5.00	ppm	
10-Years			±7.00	ppm	
<b>Phase Noise (156.25MHz Carrier)</b>					V <sub>dd</sub> =3.3V
@ 10 Hz offset		-73		dBc/Hz	
@ 100 Hz offset		-107		dBc/Hz	
@ 1,000 Hz offset		-134		dBc/Hz	
@ 10,000 Hz offset		-148	-140	dBc/Hz	
@ 100,000 Hz offset		-154	-150	dBc/Hz	
@ 1,000,000 Hz offset		-158	-150	dBc/Hz	
<b>Integrated RMS Phase Jitter (12kHz ~ 20MHz BW)</b>		75	100	Femto Seconds	0.10 ps Max.



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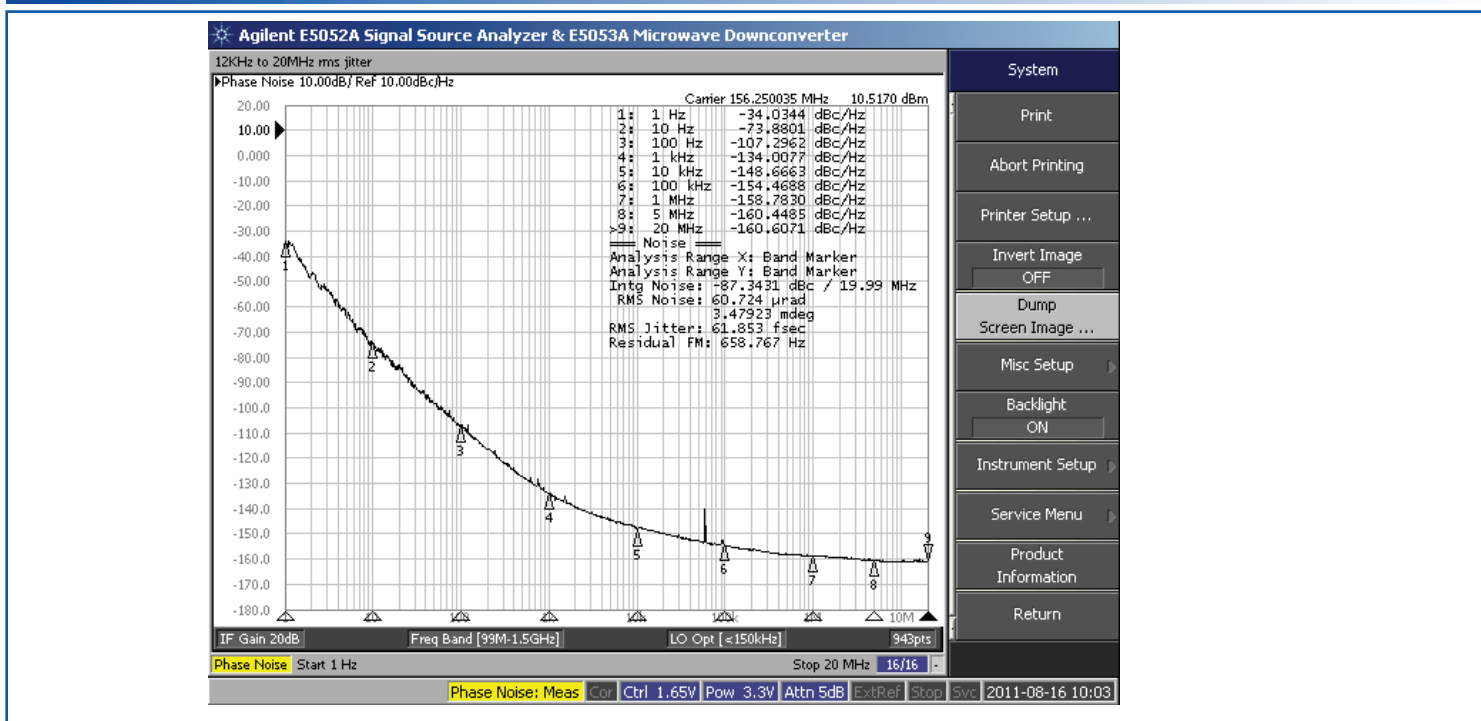
RoHS/RoHS II Compliant and Pb free



## STANDARD SPECIFICATIONS - continued

Parameters	Minimum	Typical	Maximum	Units	Notes
Electrical Frequency Adjustment					
Control Voltage Range (Vc)	0.0		3.30	Volts	
Frequency Pull Range	±45.00			ppm	
Frequency Pull Slope		Positive			
Control Voltage Port Impedance	10			kΩ	
Center Control Voltage	1.45	1.65	1.85	Volts	
Control Port Linearity			±10	%	

## TYPICAL PHASE NOISE PERFORMANCE @ 156.25MHZ CARRIER



## OPTIONS AND PART IDENTIFICATION:

ABLJO - [ ] - Frequency (MHz) - [ ] [ ]

### Frequency Pull Option

Blank	XO (Fixed Frequency)
V	VCXO (±45 ppm min.)

### Tape & Reel Options

Blank	< 250 units on cut tape
T	1,000 units per reel
T2	250 units per reel

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## OUTLINE DIMENSIONS:



## Recommended Soldering Pattern



Pin	Function	
	VCXO	XO
1	Vc	N.C.
2	N.C.	
3	GND	
4	Output	
5	N.C.	
6	Vdd	

Dimensions: inches (mm)

## REFLOW PROFILE:



T <sub>S</sub> max to T <sub>L</sub> (Ramp-up Rate)	3°C/second max.
Preheat	
Temperature Min. (T <sub>S</sub> Min.)	150°C
Temperature Typical (T <sub>S</sub> Typ.)	175°C
Temperature Max. (T <sub>S</sub> Max.)	200°C
Time (t <sub>s</sub> )	60 ~ 180 seconds
Ramp-up rate (T <sub>L</sub> to T <sub>p</sub> )	3°C/second max.
Time Maintained Above:	
--Temperature (T <sub>L</sub> )/Time (T <sub>L</sub> )	217°C/60 ~ 150 seconds
Peak Temperature (T <sub>p</sub> )	250°C max. for 10 seconds
Target Peak Temperature (T <sub>p</sub> Target)	250°C +0/-5°C
Time within 5°C of actual peak (t <sub>p</sub> )	20 ~ 40 seconds
Ramp-down Rate	6°C/second max.
Tune 25°C to Peak Temperature (t)	8 minutes max.

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## TAPE & REEL:

**Packaging: (1,000) units per reel standard, (250) units per reel available (option # T2)**



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