

Low Jitter Crystal Oscillator

ABLJO

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ESD Sensitive



14.3 x 8.7 x 5.5 mm

RoHS/RoHS II Compliant

MSL Level = 1

Features

- High "Q", 3rd Overtone Crystal Technology
- Ultra Low Jitter performance 0.10 ps Max. (12kHz to 20MHz)
- Standard LVCMOS 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

Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
RF Output Frequency Range	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	
Current Drain					
80MHz ~ 99.999MHz			25.00	mA	
100MHz ~ 149.999MHz			30.00	mA	
150MHz ~ 200MHz			40.00	mA	
Waveform	LVCMOS				
V _{OH}	0.9*V _{dd}			Volts	
V _{OL}			0.1*V _{dd}	Volts	
Symmetry	45	50	55	%	
Rise & Fall Times			3.0	ns	
Operating Temperature Range	-40		+85	°C	
Frequency Stability					
Over (-40° C to +85°C)			±25.00	ppm	
ALL effects, including Aging			±40.00	ppm	
Storage Temperature Range	-40		+90	°C	
Aging					
First Year			±2.00	ppm	
5-Years			±5.00	ppm	
10-Years			±7.00	ppm	



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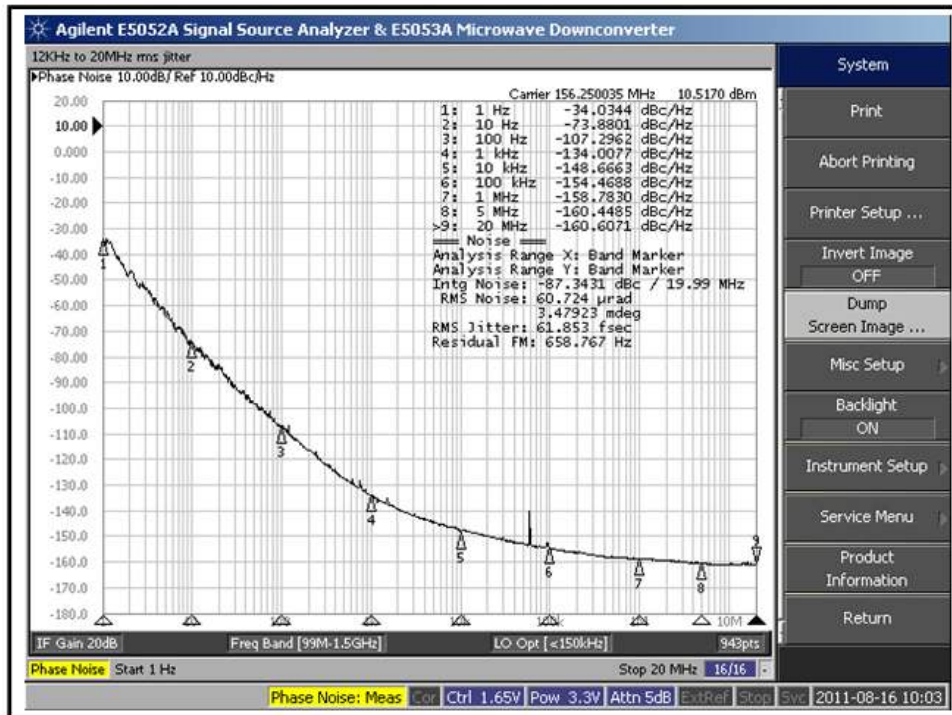
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Parameters	Minimum	Typical	Maximum	Units	Notes
Phase Noise (156.25MHz Carrier)					Vdd=3.3V
@ 10 Hz offset		-73		dBc/Hz	
@ 100 Hz offset		-107		dBc/Hz	
@ 1,000 Hz offset		-134		dBc/Hz	
@ 10,000 Hz offset		-148	-140	dBc/Hz	
@ 100,000 Hz offset		-154	-150	dBc/Hz	
@ 1,000,000 Hz offset		-158	-150	dBc/Hz	
Integrated RMS Phase Jitter (12kHz ~ 20MHz BW)		75	100	Femto Seconds	0.10 ps Max.
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



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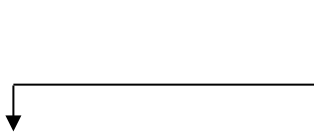
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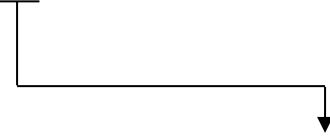
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Options and Part Identification

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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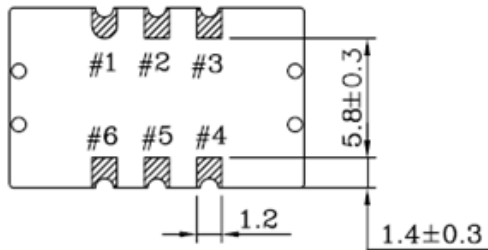
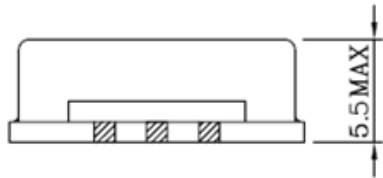
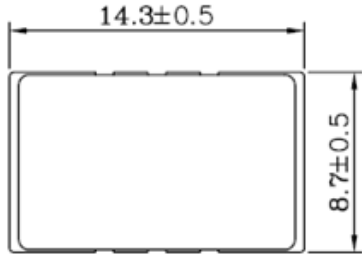


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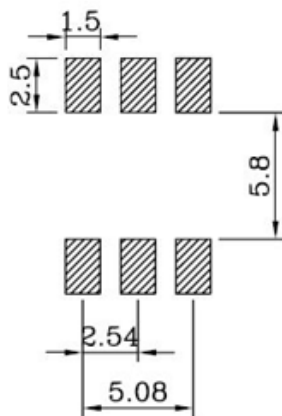


14.3 x 8.7 x 5.5 mm
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Mechanical Dimensions



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



Recommended Soldering Pattern

Dimensions: mm

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Reflow Profile [JEDEC J-STD-020]

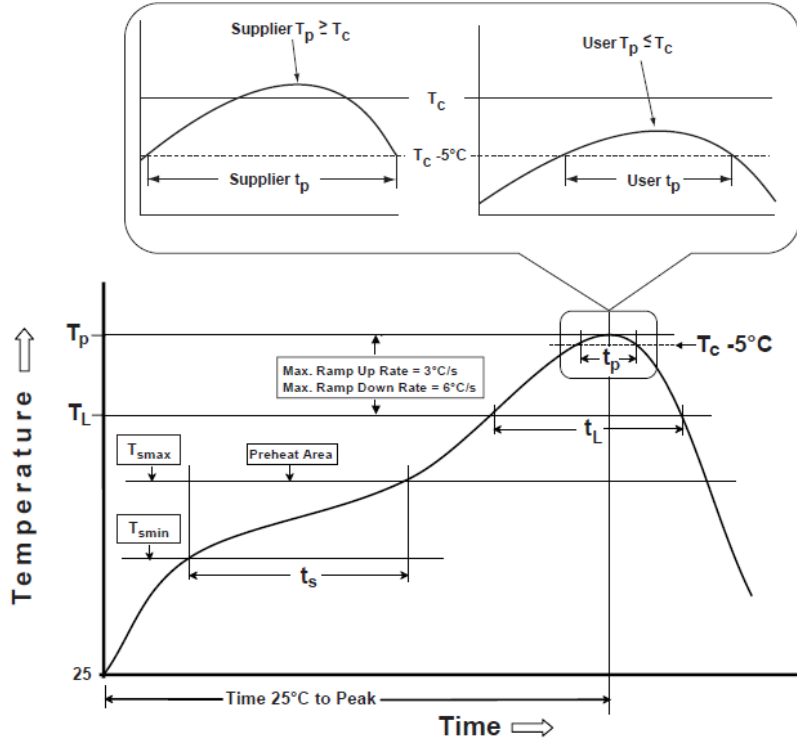


Table 1

SnPb Eutectic Process
Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process
Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T_{smax} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_L)	60 - 150 sec.	60 - 150 sec.
Peak package body temperature (T_p)*	see Table 1	see Table 2
Time (t_p)** within 5°C of the specified classification temperature (T_c)	20 sec.	30 sec.
Ramp-down rate (T_p to T_{smax})	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

**Tolerance for time at peak profile temperature (t_p) is defined as supplier minimum and a user maximum.

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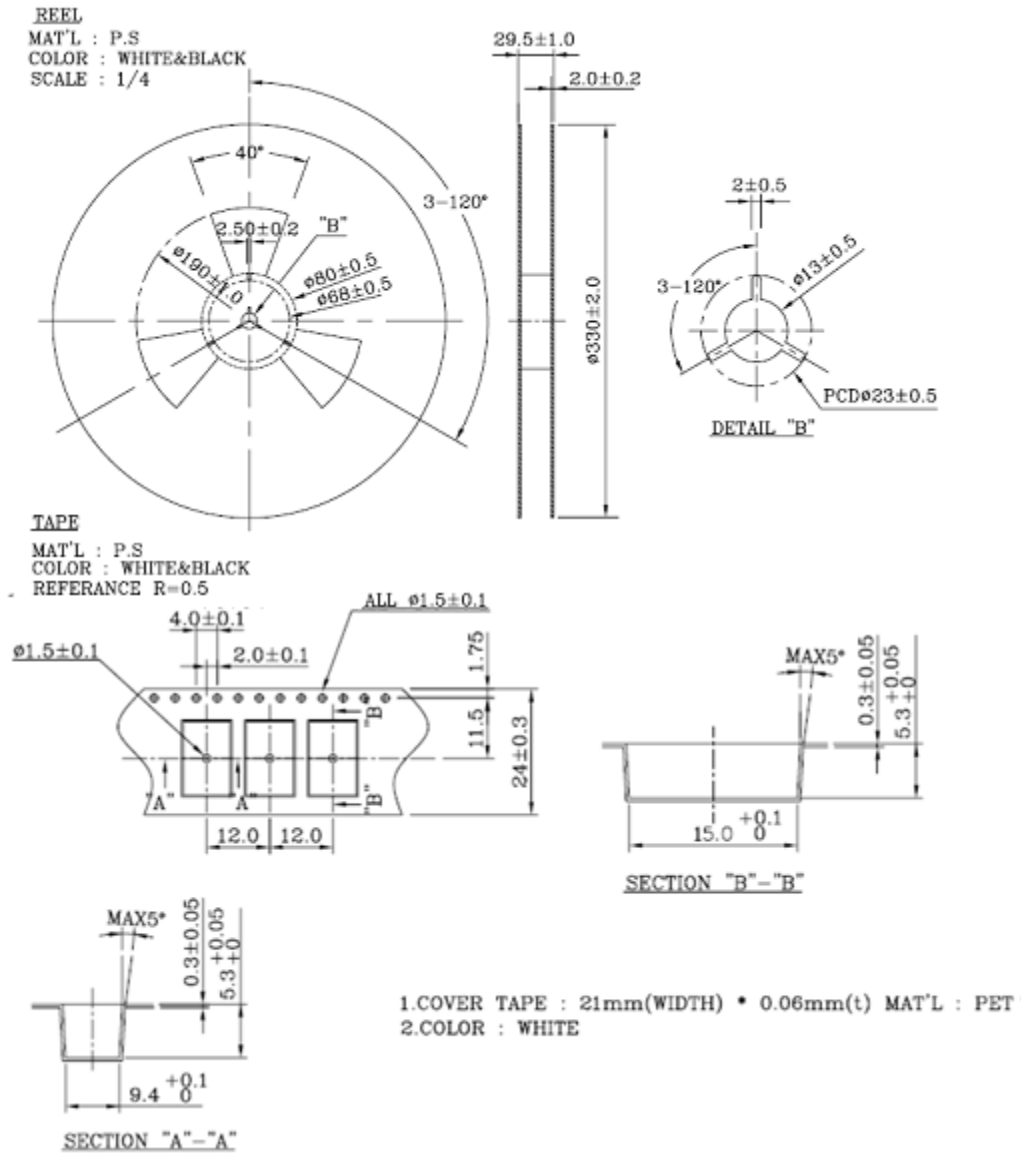
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Packaging:

(1000) units per reel standard, (250) units per reel available (option # T2)



Dimensions: mm

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