

3.3V REDUCED JITTER SMD SPREAD SPECTRUM CLOCK OSCILLATOR



ASSVJ

7.0 x 5.0 x 1.8mm

ASSVJ SERIES

NEW
for
2007



RoHS
Compliant

FEATURES:

- Low Cycle to Cycle Jitter
- Integrated Spread Spectrum Technology
- EMI reduction up to 20dB
- Solve EMI failures as a drop in replacement for std. 5x7mm Osc.
- Cost effective EMI reduction

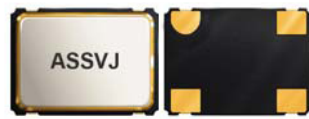
APPLICATIONS:

- Printers, Digital Copy Machines, Scanners, Projectors, Modems, LAN, WAN, Navigation Equipment, Automotive, Audio, Medical Electronics, Hand-held readers, Industrial Automation

STANDARD SPECIFICATIONS:

PARAMETERS	
ABRACON P/N	ASSVJ Series
Frequency Range	13.0 MHz to 220.0 MHz
Spread Type & Percentage	Center Spread $\pm 0.5\%$ (see options)
EMI Reduction (Reduction is applied to the entire freq. spectrum)	EMI reduction (dB) = $10\text{Log}(\text{"Total \%"} \times \text{"SSC Frequency (MHz)"} / 0.12)$ (See 125MHz Example)
Operating Temperature	0°C to + 70°C (see options)
Storage Temperature	- 65°C to + 150°C
Frequency Stability	± 100 ppm (see options)
Supply Voltage (Vdd)	3.3 Vdc $\pm 5\%$
Start-up Time	2ms typ, 5ms max.
Rise and Fall Time (Tr/Tf)	1.2n sec. max. (20% Vdd \leftrightarrow 80% Vdd)
Load	15pF
Current Consumption	25mA Typical (depends on frequency)
Duty Cycle	50% $\pm 5\%$ (CL = 15pF at 50% VDD)
Output Logic	CMOS Square wave
Cycle to cycle Jitter	± 100 ps typ; ± 150 ps max.
Output Impedance	40ohm
Static Discharge Voltage	>2,000V (per MIL-STD-883, method 3015)
Aging	± 5 ppm per year max.; Ta=+25°C
Output Voltage "High"; "1"	2.4V min. (at 80% VDD)
Output Voltage "Low"; "0"	0.4V max. (at 20% VDD)
Modulation Carrier Freq. (dither rate)	25.3kHz min.; 58.6kHz max; (depends on frequency)

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OPTIONS AND PART IDENTIFICATION:

(Left blank if standard)

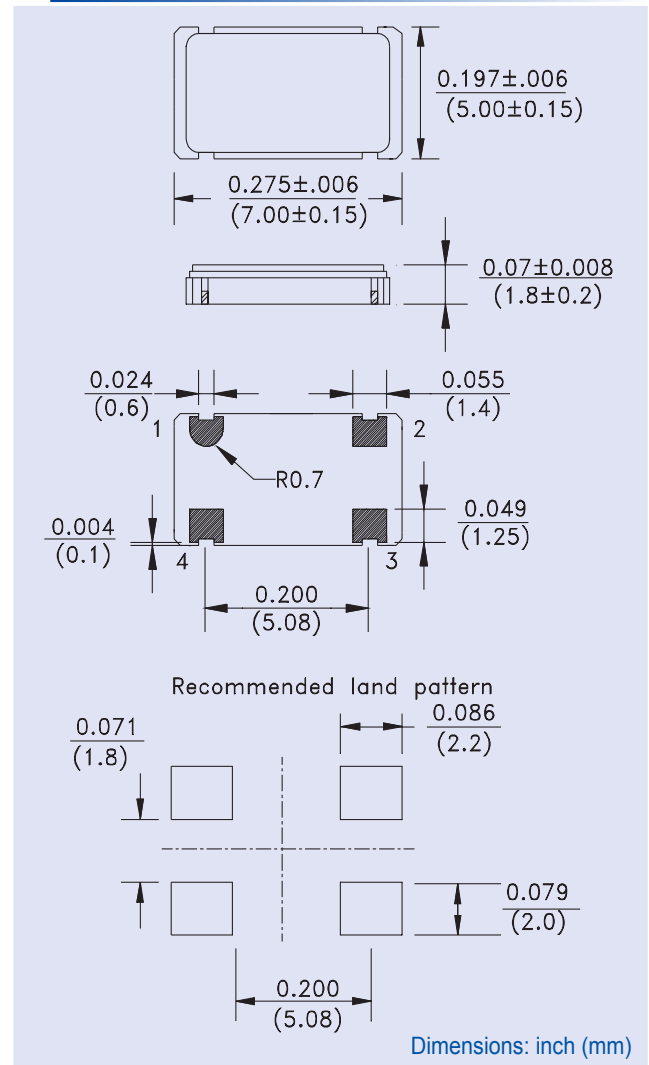
ASSVJ-Frequency-X-X-X-X

Operating Temp		Freq. Stability		Spread Type		Packaging	
Blank	0°C to +70°C	Blank*	±100ppm	Option	(%)	T	Tape and Reel (1000pcs)
L	-40°C to +85°C	R	±25ppm	Down Spread			
		C	±50ppm	D0.25	-0.25%		
				D0.5	-0.5%		
				D0.75	-0.75%		
				D1.25	-1.25%		
				D2.0	-2.0%		
				D2.5	-2.5%		
				D3.0	-3.0%		
				D3.5	-3.5%		
				D3.75	-3.75%		
				Center Spread			
				C0.25	±0.125%		
				C0.5	±0.25%		
				C0.75	±0.375%		
				C1.25	±0.625%		
				C2.0	±1.0%		
				C2.5	±1.25%		
				C3.0	±1.5%		
				C3.5	±1.75%		
				C3.75	±1.875%		

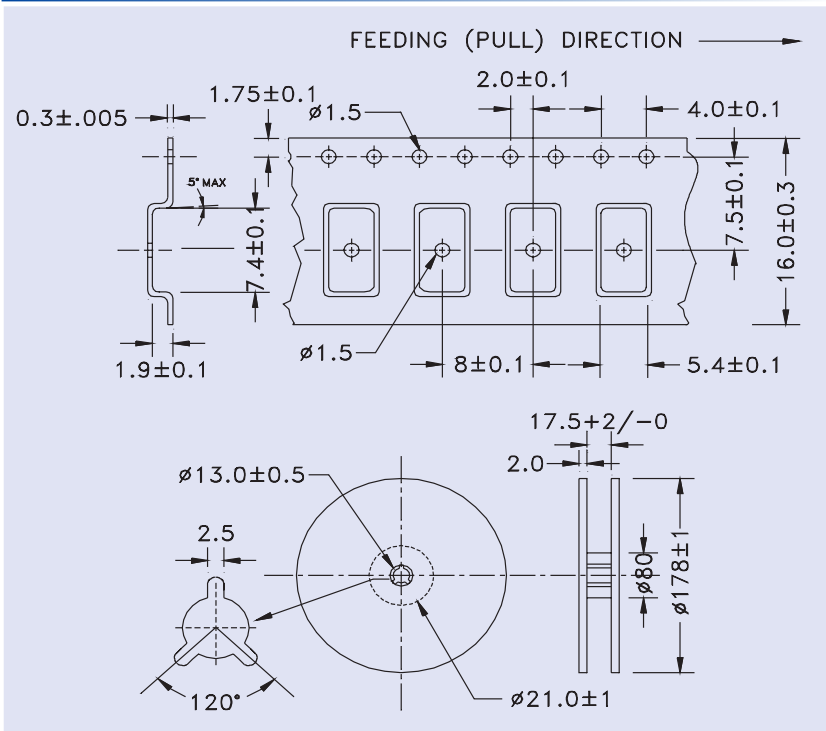
PIN	FUNCTION
1	NC
2	Ground
3	SS Output
4	Vdd

Please see note on next page about Down and Center Spread.

OUTLINE DRAWING:



TAPE & REEL:



ABRACON IS
ISO 9001 / QS 9000
CERTIFIED



REVISED: 3.8.07

30332 Esperanza, Rancho Santa Margarita, California 92688
tel 949-546-8000 | fax 949-546-8001 | www.abracon.com

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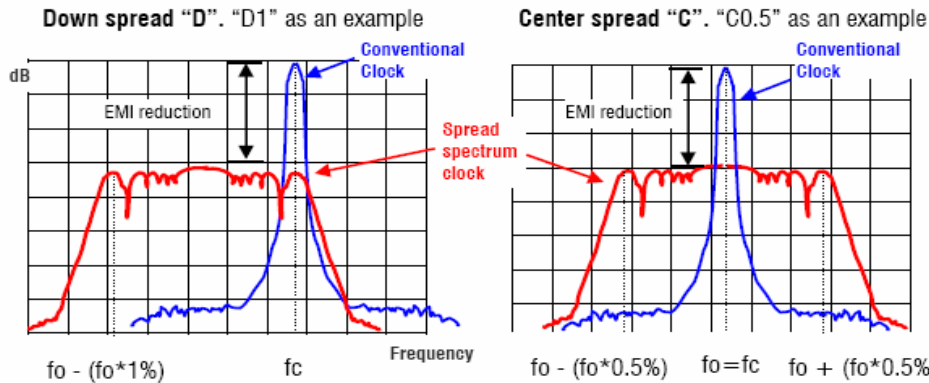
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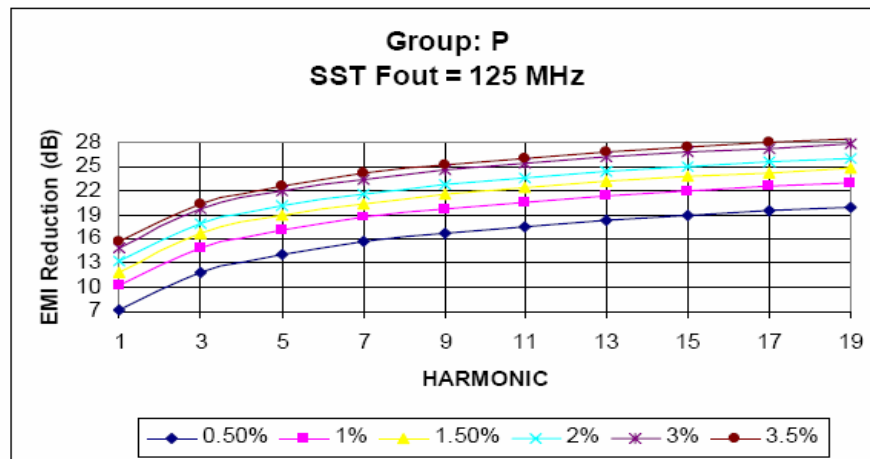
MODULATION:

Modulation Types Output amplitude (dB) vs frequency span (MHz)



EMI REDUCTION:

EMI Reduction Data 125 MHz at various spread percentages. Modulation Carrier Frequency: 48.8 KHz



Main mode:
$$\text{EMI reduction (dB)} = 10\text{Log}\left(\frac{\text{Total\%} * \text{Frequency(MHz)}}{0.12}\right)$$

3rd Harmonic:
$$\text{EMI reduction (dB)} = 10\text{Log}\left(\frac{\text{Total\%} * \text{Frequency(MHz)} * 3}{0.12}\right)$$

5th Harmonic:
$$\text{EMI reduction (dB)} = 10\text{Log}\left(\frac{\text{Total\%} * \text{Frequency(MHz)} * 5}{0.12}\right)$$

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➤ FREQUENCY:

Instantaneous Frequencies (Example of 100 MHz)

If over-clocking is a problem to your system please choose down spread

Total Spread %	Down Spread Instantaneous Frequency		Center Spread Instantaneous Frequency	
	min.	max.	min.	max.
	Down Range	Up Range	Down Range	Up Range
0.5 %	- 1%	0%	-0.5 %	+0.5%
	-5,000 ppm	0 ppm	-2500 ppm	+2500 ppm
	99.500000	100.000000	99.750000	100.250000
2 %	- 2.0%	0%	-1.0 %	+1.0%
	-20,000 ppm	0 ppm	-10,000 ppm	+10,000 ppm
	98.000000	100.000000	99.000000	101.000000
3 %	- 3.0%	0%	-1.5 %	+1.5%
	-30,000 ppm	0 ppm	-15,000 ppm	+15,000 ppm
	97.000000	100.000000	98.500000	101.500000

