

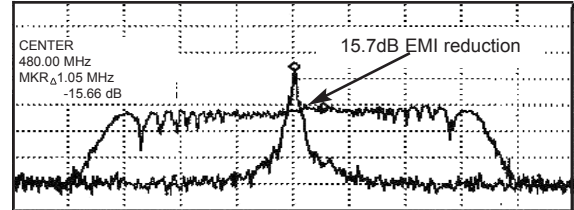
5.0VDC or 3.3VDC • 5 X 7mm SMD • HCMOS/ TTL

## LOW EMI SPREAD SPECTRUM CRYSTAL CLOCK OSCILLATORS

# ASSL and ASSV

### FEATURES:

- Integrated Spread Spectrum technology
- Standard TTL or HCMOS output.
- Meets jitter requirements for all major CISC, RISC and DSP processors
- 8 MHz to 128 MHz output frequency range.



5th Harmonic of 96 MHz

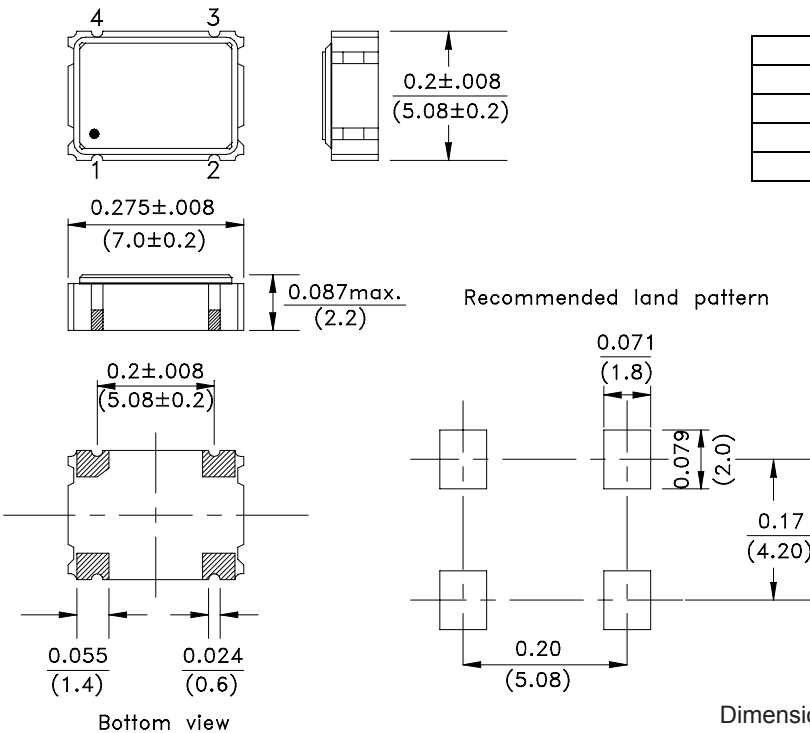
### APPLICATIONS:

- Medical
- Printers
- Scanners
- Modems
- Telecommunications
- Aerospace
- Copier
- Automotive

### ADDITIONAL BENEFITS:

- Reduce emissions up to 20 dB.
- Systemic approach to EMI.
- Highly cost effective compared to other methods.
- Eliminate need for individual node suppression.
- Eliminate need for expensive shielding.
- Reduce component count.
- Reduce PCB layer count.
- Drop-in replacement for 5 X 7mm SMD packages.

### MECHANICAL DIMENSIONS:



### PIN CONFIGURATION:

Pin Number	Function
1	NC
2	GND
3	OUTPUT
4	VDC

Table1

**ABRACON IS**  
ISO 9001 / QS 9000  
CERTIFIED

Rev. 2.4

NOTE: Left blank if standard • All specifications and markings subject to change without notice

29 Journey • Aliso Viejo, CA 92656 • USA  
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05/2003

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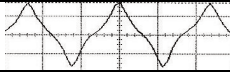
## ASSL and ASSV

Table 2

STANDARD ELECTRICAL SPECIFICATIONS			
PARAMETER	ASSL	ASSV	Conditions
Frequency Range (Fo)	8.000 MHz – 128.000 MHz		
Operating Temperature (Topr)	-40°C to +85°C (See Ordering Options)		
Storage Temperature (Tsto)	- 65°C to +150°C		
Frequency Stability vs. Temp (dF/Fo)	±100ppm max (See Ordering Options)		
Operating Supply Voltage (VDC)	5.0 VDC	3.3 VDC	+/-5 %
Operating Input Current (IDD)	30 mA max		
Duty Cycle	45/55		% max
Rise Time	5.0 ns.	3.5 ns.	15 pF
Fall Time	5.0 ns.	3.5 ns.	15 pF
Output Voltage (VOH/VOL)	3.0VDC min. / 0.4 VDC max.		+25°C
Start-up Time	10 ms max. 3 ms typ.		
Aging	+/- 5ppm max. /year		
Jitter (CCJ1)	225 ps typical		F = 8 MHz
Jitter (CCJ2)	125 ps typical		F = 32 MHz
Jitter (CCJ3)	135 ps typical		F = 64 MHz
Jitter (CCJ4)	180 ps typical		F = 128 MHz
Output Load	10-LSTTL or 15 pF		
Bandwidth Accuracy	+/- 10%		

For detailed discussion of Spread Spectrum Clocking, read SSC application note at [www.abracon.com/emi.ssc](http://www.abracon.com/emi.ssc)

Table 3

FACTORY BANDWIDTH SELECTION									
FREQ. (MHz)	CENTER SPREAD (%)				DOWN SPREAD (%)				MODULATION RATE (kHz)
ORDER OPTION	C1	C2	C3	C4	D1	D2	D3	D4	
8 – 10	±1.4	±1.2	±0.6	±0.5	-3.0	-2.2	-1.9	-0.7	31.25 – 39.06 kHz
10 - 12	±1.3	±1.1	±0.5	±0.4	-2.7	-1.9	-1.7	-0.6	39.06 – 46.88 kHz
12 – 14	±1.2	±0.9	±0.5	±0.4	-2.5	-1.8	-1.5	-0.6	46.88 – 54.69 kHz
14 - 16	±1.1	±0.9	±0.4	±0.3	-2.3	-1.7	-1.4	-0.5	54.69 – 62.50 kHz
16 – 20	±1.4	±1.2	±0.6	±0.5	-3.0	-2.2	-1.9	-0.7	31.25 – 39.06 kHz
20 - 24	±1.3	±1.1	±0.5	±0.4	-2.7	-1.9	-1.7	-0.6	39.06 – 46.88 kHz
24 – 28	±1.2	±0.9	±0.5	±0.4	-2.5	-1.8	-1.5	-0.6	46.88 – 54.69 kHz
28 - 32	±1.1	±0.9	±0.4	±0.3	-2.3	-1.7	-1.4	-0.5	54.69 – 62.50 kHz
32 – 40	±1.4	±1.2	±0.6	±0.5	-3.0	-2.2	-1.9	-0.7	31.25 – 39.06 kHz
40 - 48	±1.3	±1.1	±0.5	±0.4	-2.7	-1.9	-1.7	-0.6	39.06 – 46.88 kHz
48 – 56	±1.2	±0.9	±0.5	±0.4	-2.5	-1.8	-1.5	-0.6	46.88 – 54.69 kHz
56 - 64	±1.1	±0.9	±0.4	±0.3	-2.3	-1.7	-1.4	-0.5	54.69 – 62.50 kHz
64 - 80	±1.4	±1.2	±0.6	±0.5	-3.0	-2.2	-1.9	-0.7	31.25 – 39.06 kHz
80 - 96	±1.3	±1.1	±0.5	±0.4	-2.7	-1.9	-1.7	-0.6	39.06 – 46.88 kHz
96 - 112	±1.2	±0.9	±0.5	±0.4	-2.5	-1.8	-1.5	-0.6	46.88 – 54.69 kHz
112 - 128	±1.1	±0.9	±0.4	±0.3	-2.3	-1.7	-1.4	-0.5	54.69 – 62.50 kHz

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**ABRACON**  
  
**CORPORATION**

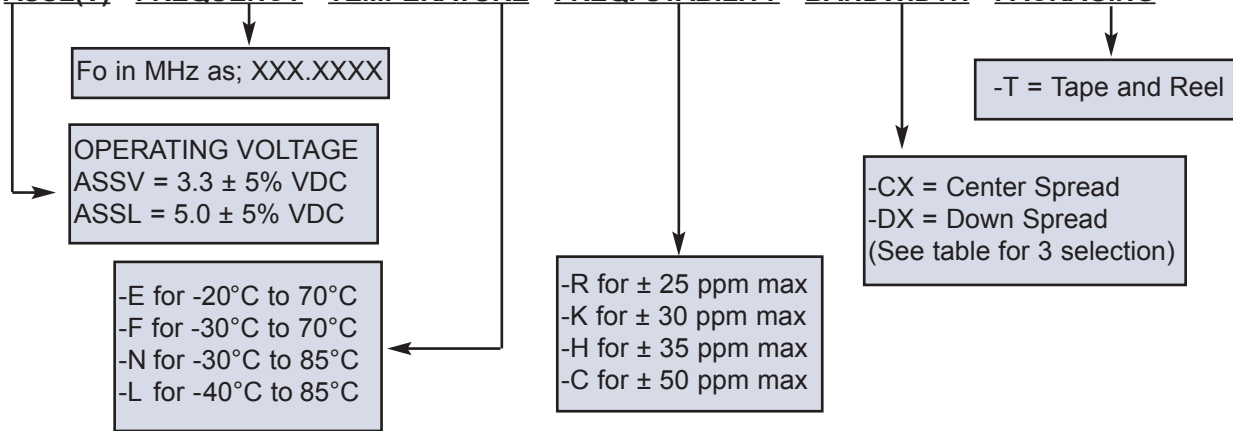
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# ASSL and ASSV

### ORDERING OPTIONS

#### ASSL(V) - FREQUENCY - TEMPERATURE - FREQ. STABILITY - BANDWIDTH - PACKAGING



**Example:** ASSV-048.0000-E-C-C1-T

Would be the part number for a 48.0000MHz, ±1.2% center spread with a +/-50ppm center frequency accuracy

**Note:**

As of June 2003, this product is under development. Please contact Abracon Corporation for availability.

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