

# 2.5V / 3.3Vdc PROGRAMMABLE SPREAD SPECTRUM LOW EMI CLOCK OSCILLATOR

**ASSVP SERIES**



RoHS / RoHS II Compliant



7.0 x 5.0 x 1.4mm

Moisture Sensitivity Level (MSL) – This product is Hermetically Sealed and not Moisture Sensitive - MSL = N/A: Not Applicable

## FEATURES:

- Spread Spectrum LOW EMI Oscillator
- 7.0 x 5.0 x 1.4mm Ceramic package
- Tri-state function
- Suitable for RoHS reflow profile
- Seam sealed ceramic package assures high reliability.

## APPLICATIONS:

- Laptop computer
- PDA
- LCD
- Digital camera
- Wireless LAN
- Mobile phone
- Printer
- Flat TV

**Quick Turn Delivery!**  
Days for small quantities!

## STANDARD SPECIFICATIONS:

### Key Electrical Specifications (Die IC's Part Number PL671-00-A5)

| Parameters                                                               |                        | Minimum                                                            | Typical | Maximum | Units | Notes                                    |
|--------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------|---------|---------|-------|------------------------------------------|
| Frequency Range:                                                         |                        | 10                                                                 |         | 160     | MHz   |                                          |
| Spread Spectrum Type                                                     | Center Spread          | ±0.25 typ. ~ ±2.0 typ.                                             |         |         | %     | See table 3 for options                  |
|                                                                          | Down Spread            | -0.5 typ. ~ -4.0 typ.                                              |         |         |       |                                          |
| EMI Reduction<br>(Reduction is applied to the entire frequency spectrum) | 100MHz at C02          | -7                                                                 |         |         | dBc   | Refer to the dB level when no modulation |
|                                                                          | 100MHz at C04          | -9                                                                 |         |         |       |                                          |
| Operating Temperature:                                                   |                        | -40                                                                |         | +85     | °C    | See options                              |
| Storage Temperature:                                                     |                        | -55                                                                |         | +125    | °C    |                                          |
| Overall Frequency Stability*:                                            |                        | -50                                                                |         | +50     | ppm   | See options                              |
| Supply Voltage (Vdd):                                                    | V <sub>dd</sub> = 3.3V | 2.97                                                               | 3.3     | 3.63    | V     | Standard                                 |
|                                                                          | V <sub>dd</sub> = 2.5V | 2.25                                                               | 2.5     | 2.75    | V     | Option 1                                 |
| Input Current:                                                           | 13.000 to 49.999MHz    |                                                                    | 10      | 20      | mA    | V <sub>dd</sub> = 2.5V                   |
|                                                                          | 50.000 to 79.999MHz    |                                                                    | 15      | 20      |       |                                          |
|                                                                          | 80.000 to 99.999MHz    |                                                                    | 20      | 25      |       |                                          |
|                                                                          | 100.0 to 160.0MHz      |                                                                    | 25      | 30      |       |                                          |
|                                                                          | 13.000 to 49.999MHz    |                                                                    | 15      | 20      | mA    | V <sub>dd</sub> = 3.3V                   |
|                                                                          | 50.000 to 79.999MHz    |                                                                    | 20      | 25      |       |                                          |
|                                                                          | 80.000 to 99.999MHz    |                                                                    | 25      | 30      |       |                                          |
|                                                                          | 100.0 to 160.0MHz      |                                                                    | 30      | 40      |       |                                          |
| Symmetry:                                                                |                        | 45                                                                 | 50      | 55      | %     | @ 1/2Vdd, CL=15pF                        |
| Rise and Fall Time (Tr/Tf)**:                                            | 13.000 to 49.999MHz    |                                                                    | 2.0     | 5.0     | ns    | V <sub>dd</sub> = 2.5V                   |
|                                                                          | 50.000 to 79.999MHz    |                                                                    | 2.0     | 4.0     |       |                                          |
|                                                                          | 80.000 to 99.999MHz    |                                                                    | 1.5     | 3.0     |       |                                          |
|                                                                          | 100.0 to 160.0MHz      |                                                                    | 1.5     | 3.0     |       |                                          |
|                                                                          | 13.000 to 49.999MHz    |                                                                    | 3.0     | 10.0    | ns    | V <sub>dd</sub> = 3.3V                   |
|                                                                          | 50.000 to 79.999MHz    |                                                                    | 2.5     | 8.0     |       |                                          |
|                                                                          | 80.000 to 99.999MHz    |                                                                    | 2.0     | 5.0     |       |                                          |
|                                                                          | 100.0 to 160.0MHz      |                                                                    | 1.5     | 4.0     |       |                                          |
| Output Load:                                                             |                        |                                                                    |         | 15      | pF    | CMOS                                     |
| Output Voltage:                                                          | VOH                    | 0.9*Vdd                                                            |         |         | V     |                                          |
|                                                                          | VOL                    |                                                                    |         | 0.1*Vdd | V     |                                          |
| Start-up Time:                                                           |                        |                                                                    | 2.0     | 10.0    | ms    |                                          |
| Tri-state function (Stand-by) :                                          |                        | "1" (VIH≥0.7*Vdd) or Open: Oscillation<br>"0" (VIH<0.3*Vdd) : Hi Z |         |         |       |                                          |
| Modulation carrier frequency (Dither rate)                               |                        | Programmable dependant<br>( 30kHz to 40kHz )                       |         |         |       |                                          |
| Aging:                                                                   |                        | -3.0                                                               |         | +3.0    | ppm   | @+25°C First year                        |

\* Frequency stability includes initial tolerance, temperature characteristics, load variation, and supply voltage variation,.

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7.0 x 5.0 x 1.4mm

## OPTIONS & PART IDENTIFICATION:

(Left blank if standard)

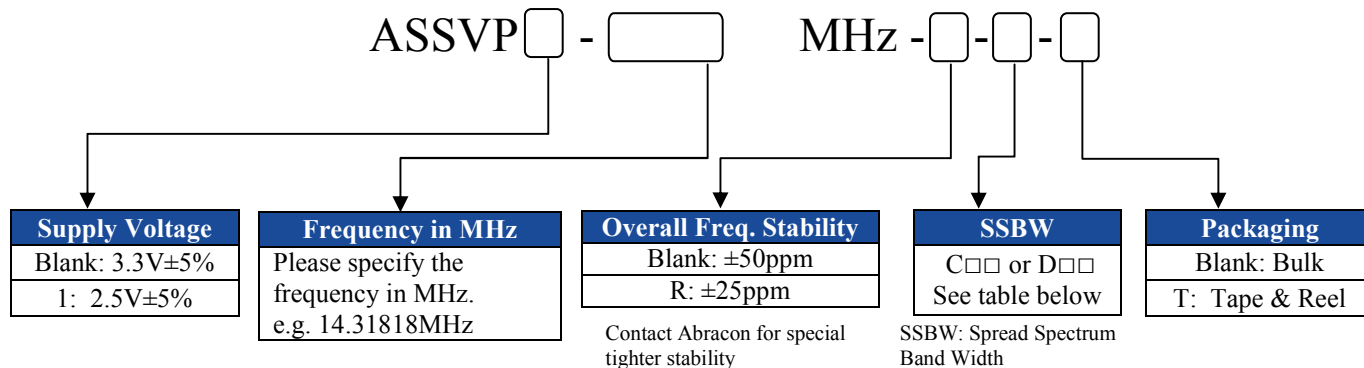


**Table: SPREAD SPECTRUM BANDWIDTH SELECTION TABLE**

| SPREAD SPECTRUM BAND WIDTH OPTIONS * |        |                 |       |
|--------------------------------------|--------|-----------------|-------|
| Center Spread (%)                    |        | Down Spread (%) |       |
| C02                                  | ±0.250 | D02             | -0.50 |
| C04                                  | ±0.50  | D03             | -0.75 |
| C08                                  | ±1.000 | D04             | -1.00 |
| C12                                  | ±1.500 | D06             | -1.50 |
| C16                                  | ±2.000 | D08             | -2.00 |
|                                      |        | D12             | -3.00 |
|                                      |        | D16             | -4.00 |

**Note \*:** All spectrum spread percentage numbers are typical values

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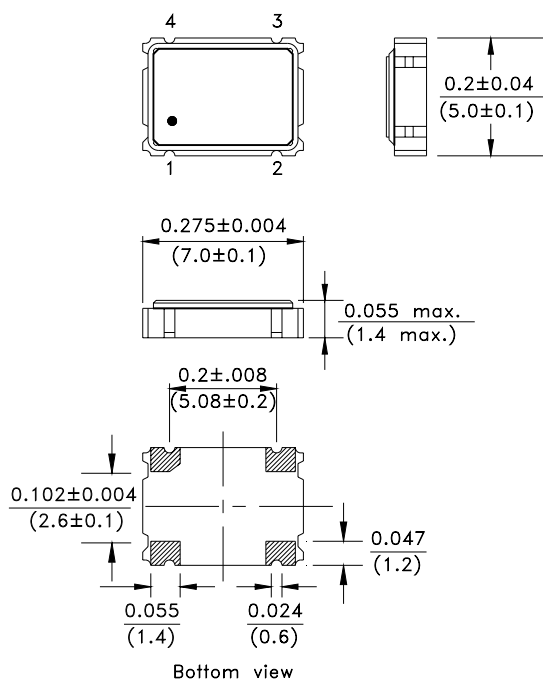


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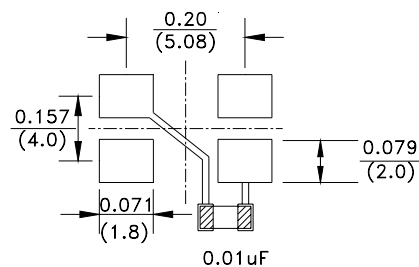


7.0 x 5.0 x 1.4mm

## OUTLINE DRAWING:



Recommended land pattern



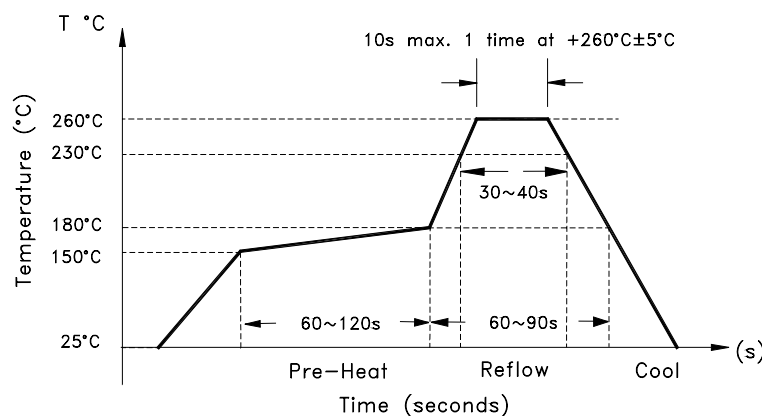
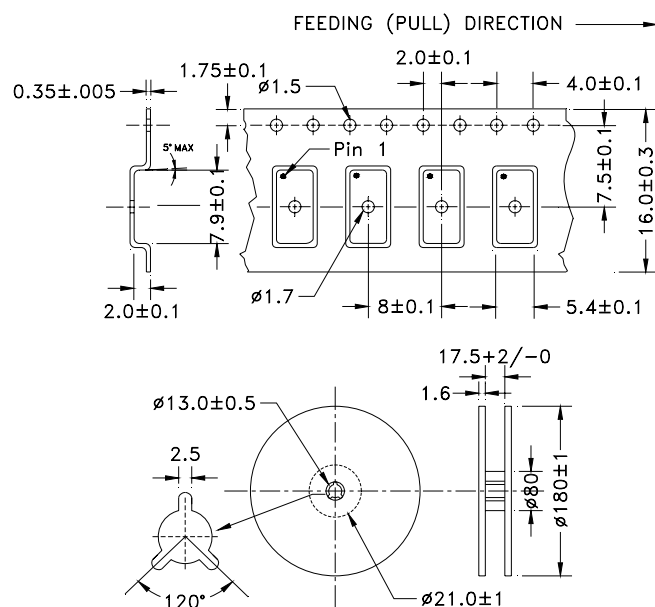
Note: Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

| Pin | Function  |
|-----|-----------|
| 1   | Tri-State |
| 2   | GND/Case  |
| 3   | Output    |
| 4   | Vdd       |

Dimensions: Inches (mm)

## TAPE & REEL: Tape and reel 1,000pcs/reel

## REFLOW PROFILE



Need a test socket for the ASSVP Series?  
To view compatible **PRECISION TEST** and **BURN-IN SOCKETS** for these parts, [click here](#).

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