

## Typical Applications

CDMA2000 and UMTS Base Stations  
 Test and Measurement Equipment

## Features

Ultra-High Stability  
 Excellent Temperature Stability  
 SC-Cut Crystal Crystal



## Previous Vectron Model Numbers

4895

## Frequency range

4 MHz – 15 MHz

## Standard frequencies

5; 10; 15MHz

## Frequency stabilities<sup>1</sup> [SC Cut Crystal – Standard]

| Parameter   | Min          | Typ | Max.         | Units      | Operating temp range  | Ordering Code |
|---|--------------|-----|--------------|------------|---|---------------|
| vs. operating temperature range<br>(peak to peak stability) | -0.4<br>-0.2 |     | +0.4<br>+0.2 | ppb<br>ppb | 0 ... +70°C<br>0 ... +70°C  | C049<br>C029  |
| Parameter   | Min          | Typ | Max.         | Units      | Condition   |               |
| Initial tolerance   | -50          |     | +50          | ppb        | at time of shipment, nominal EFC<br>V <sub>S</sub> ± 5%<br>Load ± 5%<br>after 72 hours of operation<br>after 7 days of operation<br>after 72 hours of operation |               |
| vs. supply voltage change                                   | -0.2         |     | +0.2         | ppb        |   |               |
| vs. load change   | -0.1         |     | +0.1         | ppb        |   |               |
| vs. aging /1 day  | -0.5         |     | +0.5         | ppb        |   |               |
| vs. aging /1 day  | -0.2         |     | +0.2         | ppb        |   |               |
| vs. aging /1 Year   | -20          |     | +20          | ppb        |   |               |
| vs. aging / year (following years)                          | -10          |     | +10          | ppb        |   |               |
| Warm-up Time  |              |     | 5            | minutes    | to ± 10ppb of final frequency (1 hour reading) @ +25°C  |               |

## Supply voltage (Vs)

| Parameter                 | Min  | Typ  | Max.       | Units          | Condition                              | Ordering Code |
|---------------------------|------|------|------------|----------------|--|---------------|
| Supply voltage [Standard] | 11.4 | 12.0 | 12.6       | VDC            |  | SV120         |
| Power consumption         |      |      | 4.5<br>1.0 | Watts<br>Watts | during warm-up<br>steady state @ +25°C |               |

## RF output

| Parameter          | Min  | Typ  | Max. | Units | Condition     | Ordering Code |
|--------------------|------|------|------|-------|---------------|---------------|
| Signal [Standard]  |      |      |      |       | HCMOS         | RFH           |
| Load               |      | 15   |      | pF    |               |               |
| Signal Level (Vol) |      |      | 0.5  | VDC   | 15pF load     |               |
| Signal Level (Voh) | 4.5  |      |      | VDC   | 15pF load     |               |
| Duty cycle         | 45   |      | 55   | %     | @ (Voh-Vol)/2 |               |
| Signal [Option]    |      |      |      |       | Sinewave      | RFS           |
| Load               |      | 50   |      |       |               |               |
| Output Power       | +3.0 | +5.5 | +8.0 | dBm   | 50 Ohm load   |               |
| Harmonics          |      |      | -30  | dBc   | 50 Ohm load   |               |
| Sub-Harmonics      |      |      | -40  | dBc   | 50 Ohm load   |               |

## Frequency Tuning (EFC)

| Parameter             | Min   | Typ   | Max. | Units | Condition |
|-----------------------|-------|-------|------|-------|-----------|
| Tuning Range          | ±0.50 | ±0.75 | ±1.0 | ppm   |           |
| Linearity             |       |       | 20   | %     |           |
| Tuning Slope          |       |       |      |       | Positive  |
| Control Voltage Range | 0.0   | 2.5   | 5.0  | VDC   |           |

Vectron International · [www.vectron.com](http://www.vectron.com)

v.2005-02-04 · page 1 of 4

**Vectron International**  
**Headquarters**  
 267 Lowell Road  
 Hudson, New Hampshire 03051  
 +1-888-328-7661 tel  
 +1-888-329-8328 fax

**Vectron International LLC.**  
 100 Watts Street  
 Mount Holly Springs, PA 17065  
 USA  
 +1 717-486-3411 tel  
 +1 717-486-5920 fax

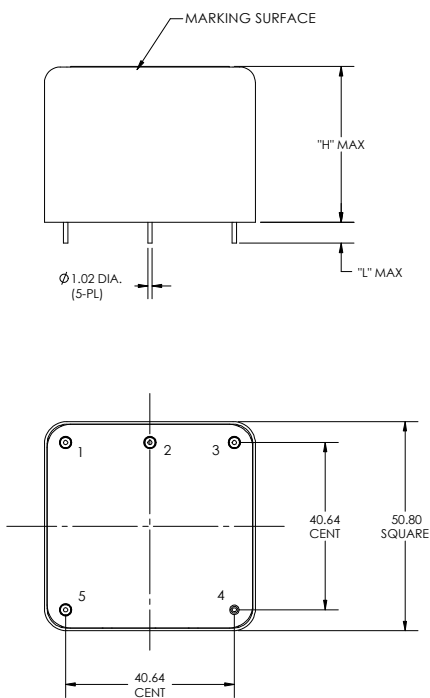
**Vectron international GmbH & Co. KG**  
 Landstrasse  
 D-74924 Neckarbischofsheim  
 Germany  
 +49-07268-801-0 tel  
 +49-07268-801-281 fax

**Vectron Asia Pacific Sales Office**  
 Unit 3119 31st Floor, Jin Mao Tower, 88  
 Century Boulevard, Shanghai,  
 P.R. China 200120  
 +86 21 28909740 tel.  
 +86 21 28909240 fax

## Reference Voltage Output (Vref)

| Parameter         | Min | Typ | Max. | Units | Condition |
|-------------------|-----|-----|------|-------|-----------|
| Reference Voltage | 4.9 | 5.0 | 5.1  | VDC   |           |

## Enclosures

| Type A   |                              |                                |
|--|------------------------------|--------------------------------|
| Package Codes:   |                              |                                |
| Code<br>A1<br>A2 <sup>5</sup>  | Height "H"<br>25.40<br>19.00 | Pin Length "L"<br>6.35<br>6.35 |
|  <p>MARKING SURFACE</p> <p>"H" MAX</p> <p>"L" MAX</p> <p>Ø 1.02 DIA. (5-PL)</p> <p>40.64 CENT</p> <p>40.64 CENT</p> <p>50.80 SQUARE</p>                   |                              |                                |
| Dimensions: mm   |                              |                                |
| <h3>Pin Connections</h3> <ol style="list-style-type: none"> <li>1 Electronic Frequency Control Input (EFC)</li> <li>2 Reference Voltage Output</li> <li>3 RF Output</li> <li>4 Ground (Case)</li> <li>5 Supply Voltage Input (Vs)</li> </ol> |                              |                                |

## Additional parameters

| Parameter                | Min                        | Typ | Max. | Units  | Condition |           |
|--------------------------|----------------------------|-----|------|--------|-----------|-----------|
| Phase Noise <sup>3</sup> |                            |     | -90  | dBc/Hz | 1 Hz      | at 10 MHz |
|                          |                            |     | -120 | dBc/Hz | 10 Hz     |           |
|                          |                            |     | -135 | dBc/Hz | 100 Hz    |           |
|                          |                            |     | -140 | dBc/Hz | 1 kHz     |           |
|                          |                            |     | -140 | dBc/Hz | >10 kHz   |           |
| Weight                   |                            |     | 140  | g      |           |           |
| Processing & Packing     | Handling & processing note |     |      |        |           |           |

## Absolute Maximum Ratings

| Parameter                  | Min | Typ | Max.     | Units      | Condition                                 |
|----------------------------|-----|-----|----------|------------|---|
| Supply voltage (Vs)        |     |     | 28       | V          |   |
| Output Load                |     |     | 50<br>25 | pF<br>Ohms | with HCMOS signal<br>with Sinewave signal |
| Operable temperature range | -55 |     | +85      | °C         |   |
| Storage temperature range  | -55 |     | +125     | °C         |   |

## How to Order this Product:

| Step 1                                     | Use this worksheet to forward the following information to your factory representative: |                     |                |              |           |
|--|---|---------------------|----------------|--------------|-----------|
| Model                                      | Stability Code  | Supply Voltage Code | RF Output Code | Package Code | Frequency |
| C4700                                      |   | SV120               |                |              |           |
| Example: C4700 C049 SV120 RFH A1 10.000Mhz |   |                     |                |              |           |

| Step 2 | The factory representative will then respond with a Vectron Model Number in the following configuration: |      |                                    |  |
|--------|--|------|------------------------------------|--|
| Model  | Package Code   | Dash | Dash Number                        |  |
| C4700  | [Customer Specified Package Code]  | -    | [Factory Generated 4 digit number] |  |

Typical P/N = C4700A1-0001

### Notes:

- 1 Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
- 2 Unless otherwise stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C)
- 3 Phase noise degrades with increasing output frequency.
- 4 Subject to technical modification.
- 5 Contact factory for availability.

[ THIS PAGE INTENTIONALLY BLANK ]