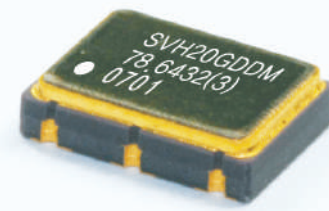


# CERAMIC SMD TYPE SVH

- Ceramic SMD package
- Voltage Controlled Crystal Oscillator
- 5.0 / 3.3 / 2.5 supply voltage
- HCMOS/TTL output
- Stability to  $\pm 20$ ppm
- Tri-state function available
- Reflow soldering is possible
- Available on tape and reel
- Fund or Multi available



## ELECTRICAL SPECIFICATIONS

|   |  |   |
|---|--|---|
| Frequency Range                             | 1.000 to 80.000MHz(Fund)   | 80.001 to 300.000MHz(Multi)                           |
| Operating Temperature Range                 | 0 to +70 °C or -40 to +85 °C   |   |
| Storage Temperature Range                   | -55 to +125 °C   |   |
| Frequency Stability                         | Inclusive of Operating Temperature Range, Supply Voltage and Load  | $\pm 50, \pm 25, \pm 20$ ppm                          |
| Supply Voltage(V <sub>DD</sub> )            | 5.0V <sub>DC</sub> $\pm 5\%$ , 3.3V <sub>DC</sub> $\pm 5\%$ , 2.5V <sub>DC</sub> $\pm 5\%$   | 3.3V <sub>DC</sub> $\pm 5\%$                          |
| Input Current                               | 1.000 to 20.000MHz 10mA max.<br>20.001 to 40.000MHz 20mA(5V), 15mA(3.3V / 2.5V)max.<br>40.001 to 80.000MHz 30mA(5V), 25mA(3.3V / 2.5V)max. | 80.001 to 300.000MHz, 50mA max.                       |
| Frequency Deviation / Pin 1 Control Voltage | 2.5 $\pm$ 2.0V <sub>DC</sub> (or 2.5V)<br>1.65 $\pm$ 1.35V(or 1.65V)<br>1.25 $\pm$ 1.05V(or 1.25V)   | $\pm 80, \pm 100$ (STD), $\pm 150$ ppm(optional) min. |
| Linearity                                   | $\pm 20, \pm 15, \pm 10\%$   |   |
| Output Voltage Logic High(V <sub>OH</sub> ) | HCMOS Load   | 90% of V <sub>DD</sub> min.                           |
| Output Voltage Logic Low(V <sub>OL</sub> )  | HCMOS Load   | 10% of V <sub>DD</sub> max.                           |
| Rise / Fall Time                            | 1.000 to 20.000MHz 10ns max.<br>20.001 to 40.000MHz 8ns max.<br>40.001 to 80.000MHz 5ns max.   | 80.001 to 300.000MHz, 10ns max.                       |
| Duty Cycle                                  | 50% of Waveform w/HCMOS Load   | 50 $\pm$ 10% (STD)<br>50 $\pm$ 5% (Optional)          |
| Load Drive Capability                       | 15pF HCMOS Load(STD)   |   |
| Pin 2 Tri-state Input Voltage               | V <sub>IH</sub> : $\geq 0.7V_{DD}$<br>V <sub>IL</sub> : $\leq 0.3V_{DD}$   | Enable Output   |
| Pin 5 Tri-state Input Voltage               | No Connection  | Enable Output<br>Disable Output : High Impedance      |
| Aging (at 25 °C)                            | $\pm 3$ ppm, $\pm 5$ ppm/year max.   |   |
| Start-up Time                               | 10ms max.  |   |
| Period Jitter : pk-pk                       | 100ps max.   |   |
| Period Jitter : One Sigma                   | 25ps max.  |   |

## Part Numbering Guide

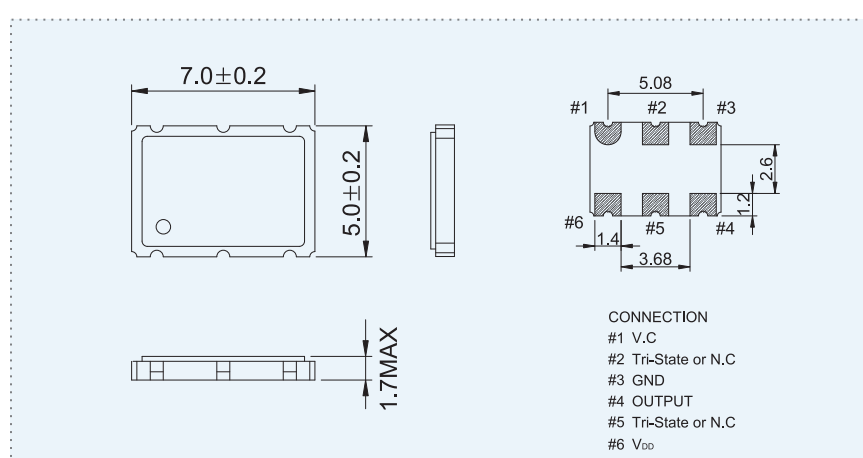
| MODEL (PKG TYPE) | SUPPLY VOLTAGE           | FREQUENCY STABILITY | OPER-TEMP RANGE  | DUTY CYCLE                     | DEVITION   | PACKING                         | FREQUENCY (MHZ)          |
|------------------|--------------------------|---------------------|------------------|--------------------------------|--|---------------------------------|--------------------------|
| SVH              | BLANK : 5.0V<br>3 : 3.3V | TABLE1 REFERENCE    | TABLE1 REFERENCE | D : 45 : 55<br>BLANK : 40 : 60 | A : $\pm 10$ ppm min.<br>B : $\pm 30$ ppm min.<br>C : $\pm 50$ ppm min.<br>D : $\pm 100$ ppm min.<br>E : $\pm 150$ ppm min.<br>F : $\pm 200$ ppm min.<br>G : $\pm 300$ ppm min.<br>SPH : ONLY<br>A ~ E<br>SP,SL : ONLY<br>C, D | BLANK : BULK<br>R : TAPE & REEL | xx.xxx(STD)<br>xx.xxxxxx |

Table1.

|             |           | FREQUENCY STABILITY vs. TEMPERATURE RANGE |              |              |              |              |              |               |
|-------------|-----------|---|--------------|--------------|--------------|--------------|--------------|---------------|
| Temp        | Stability | $\pm 10$ ppm                              | $\pm 15$ ppm | $\pm 20$ ppm | $\pm 25$ ppm | $\pm 30$ ppm | $\pm 50$ ppm | $\pm 100$ ppm |
|             |           | 10  | 15           | 20           | 25           | 30           | 50           | 100           |
| 0 ~ 50 °C   | A         | *   | *            | *            | *            | *            | *            | *             |
| 0 ~ 60 °C   | B         | *   | *            | *            | *            | *            | *            | *             |
| -10 ~ 60 °C | C         | *   | *            | *            | *            | *            | *            | *             |
| 0 ~ 70 °C   | D         |   | *            | *            | *            | *            | *            | *             |
| -10 ~ 70 °C | E         |   | *            | *            | *            | *            | *            | *             |
| -20 ~ 70 °C | F         |   | *            | *            | *            | *            | *            | *             |
| -40 ~ 85 °C | G         |   |              |              | *            | *            | *            | *             |

## MECHANICAL DIMENSIONS

(mm)



## LAND PATTERN

(mm)

