

## ULTRA MINIATURE CERAMIC SMD VCXO (5.0 x 3.2 x 1.3mm)

### FEATURES:

- ULTRA MINITURE VCXO WITH HCMOS OUTPUT
- WIDE FREQUENCY RANGE UPTO 200.0MHz
- ENABLE/DISABLE ON PIN #2 OR PIN #5

### APPLICATIONS:

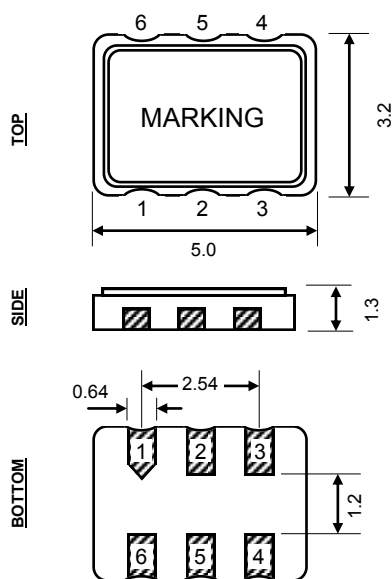
- DVD, STB, Digital TV
- PND, Media player
- Optical transmission device etc..



### ■ SPECIFICATION

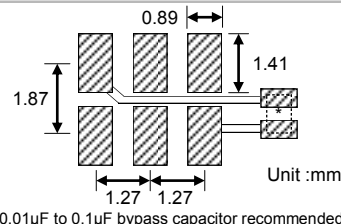
| PARAMETER                   |                                    | MIN.                  | TYP.                | MAX.                  | UNIT            | NOTE                            |
|-----------------------------|------------------------------------|-----------------------|---------------------|-----------------------|-----------------|---------------------------------|
| FREQUENCY RANGE             |                                    | 1                     |                     | 200                   | MHz             |                                 |
| FREQUENCY STABILITY         |                                    | ±10                   |                     | ±50                   | ppm             | See P/N guide for other options |
| OPERATING TEMPERATURE RANGE |                                    | -40                   |                     | 85                    | °C              | See P/N guide for other options |
| STORAGE TEMPERATURE RANGE   |                                    | -55                   |                     | 125                   | °C              |                                 |
| SUPPLY VOLTAGE ±10%         |                                    | 2.5                   |                     | 5.0                   | V               | See P/N guide for other options |
| SUPPLY CURRENT              |                                    |                       |                     | 60                    | mA              |                                 |
| OUTPUT                      | LOGIC FAMILY                       | HCMOS                 |                     |                       |                 |                                 |
|                             | LOAD                               | 15pF                  |                     |                       |                 |                                 |
|                             | LEVEL LOGIC '1' (V <sub>OH</sub> ) | 0.9 x V <sub>DD</sub> |                     |                       | V               |                                 |
|                             | LEVEL LOGIC '0' (V <sub>OL</sub> ) |                       |                     | 0.1 x V <sub>DD</sub> | V               |                                 |
|                             | SYMMETRY (DUTY CYCLE)              | 40                    | 50                  | 60                    | %               | See P/N guide for other options |
|                             | RISE AND FALL TIME (Tr/Tf)         |                       |                     | 5                     | nS              |                                 |
| STAND BY VOLTAGE            | START-UP TIME                      |                       |                     | 5                     | mS              |                                 |
|                             | ENABLE (V <sub>IH</sub> )          | 0.7 x V <sub>DD</sub> |                     |                       | V <sub>DD</sub> |                                 |
|                             | DISABLE (V <sub>IL</sub> )         |                       |                     | 0.3 x V <sub>DD</sub> | V <sub>DD</sub> |                                 |
| ENABLE DELAY TIME           |                                    |                       |                     | 100                   | nS              |                                 |
| DISABLE DELAY TIME          |                                    |                       |                     | 100                   | nS              |                                 |
| FREQUENCY DEVIATION         |                                    | ±50                   |                     |                       | ppm             | See P/N guide for other options |
| CONTROL VOLTAGE             |                                    | 0                     | 1/2 V <sub>DD</sub> | V <sub>DD</sub>       | V               |                                 |
| SLOPE                       |                                    | Positive              |                     |                       |                 |                                 |
| LINEARITY                   |                                    |                       |                     | ±10                   | %               |                                 |
| MODULATION BANDWIDTH @ -3dB |                                    | 10                    |                     |                       | kHz             |                                 |
| INPUT IMPEDANCE             |                                    | 100                   |                     |                       | kΩ              |                                 |
| AGING @ 25°C + 3°C          |                                    |                       |                     | ±3                    | ppm             | @ for 1 <sup>st</sup> year      |
| PERIOD JITTER (Pk-Pk)       |                                    |                       |                     | 25                    | pS              |                                 |
| PHASE JITTER RMS            |                                    |                       |                     | 100                   | pS              | @ 12kHz ~ 20MHz offset          |

### ■ PACKAGE DIMENSIONS

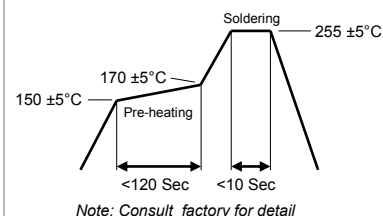


| Pin Configuration |                 |
|-------------------|-----------------|
| 1                 | V <sub>C</sub>  |
| 2                 | En/Dis or N.C.  |
| 3                 | GND             |
| 4                 | Output          |
| 5                 | En/Dis or N.C.  |
| 6                 | V <sub>DD</sub> |

### ■ SOLDER PATTERN



### ■ REFLOW PROFILE



### ■ PART NUMBERING GUIDE

TSMV5 - H 50 HM 33 S T C - 12.000M - TR

|                                                    |                                                                                                             |                                                                                                                                                                            |                                                                                                       |                                                          |                            |                                  |                                           |                                                                       |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------|----------------------------------|-------------------------------------------|-----------------------------------------------------------------------|
| <b>Product series</b><br><b>Output</b><br>H: HCMOS | <b>Stability</b><br>50: ± 50ppm<br>25: ± 25ppm<br>15: ± 15ppm<br>10: ± 10ppm<br>XX: Two digit for Stability | <b>Operating Temperature</b><br>A: -55 F: -20 M: 70 S: 100<br>B: -50 G: -10 N: 75 T: 105<br>C: -40 H: 0 P: 80 U: 125<br>D: -35 J: 50 Q: 85 X: custom<br>E: -30 K: 60 R: 90 | <b>Pull ability</b><br>A: ±50ppm<br>B: ±75ppm<br>C: ±100ppm<br>D: ±125ppm<br>E: ±150ppm<br>F: ±200ppm | <b>Tape and Reel</b><br>TR: 1000/reel<br>Blank: Cut tape | <b>Frequency</b><br>M: MHz | <b>Tristate</b><br>T: En/Disable | <b>Symmetry</b><br>R: 40/60%<br>S: 45/55% | <b>Supply Voltage</b><br>25: 2.5 Volt<br>33: 3.3 Volt<br>50: 5.0 Volt |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------|----------------------------------|-------------------------------------------|-----------------------------------------------------------------------|

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