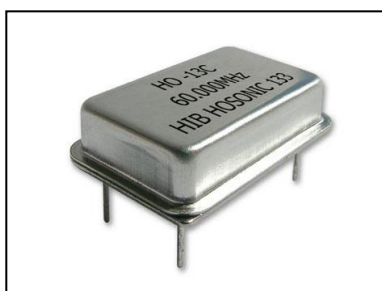


## HO-13C / 16C Series

0.5 to 150MHz



This type of oscillator is a full size tri-state Enable/Disable control. The metal package with pin #7 case ground acts as shielding to minimize EMI radiation.

### FEATURES

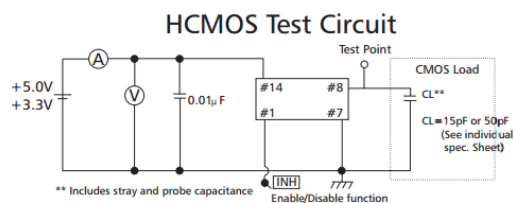
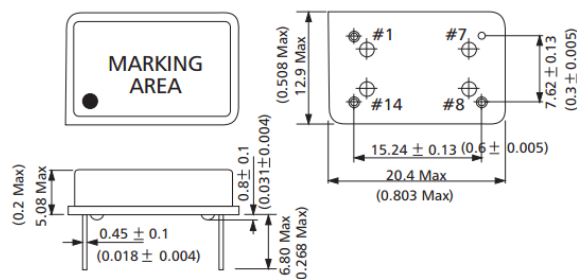
- 14 Pin Full size
- Tri-State Enable/Disable
- Industry Standard
- Wide Frequency Range
- Low Cost

### Electrical Specifications

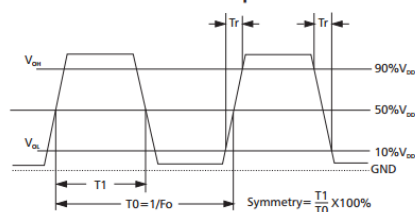
| Parameter                   | Symbol     | Condition                    | HO-13C                                                        | HO-16C          |
|-----------------------------|------------|------------------------------|---------------------------------------------------------------|-----------------|
| Frequency Range             | $F_0$      |                              | 0.5 to 150.0MHz                                               |                 |
| Frequency Stability *       |            | All Condition *              | $\pm 25\text{PPM}$ , $\pm 50\text{PPM}$ , $\pm 100\text{PPM}$ |                 |
| Operating Temperature Range | $T_{OPR}$  |                              | 0°C to 70°C (-40°C to 85°C option)                            |                 |
| Storage Temperature Range   | $T_{STG}$  |                              | -55°C to 125°C                                                |                 |
| Power Supply Voltage        | $V_{DD}$   |                              | 5.0V $\pm 10\%$                                               | 3.3V $\pm 10\%$ |
| Aging (first year)          |            | 25°C $\pm 3^\circ\text{C}$   | $\pm 5\text{PPM}$                                             |                 |
| Supply Current              | $I_{DD}$   | 0.5 to 23.999MHz             | 20mA Max                                                      | 15mA Max        |
|                             |            | 24.000 to 49.999MHz          | 30mA Max                                                      | 20mA Max        |
|                             |            | 50.000 to 69.999MHz          | 40mA Max                                                      | 30mA Max        |
|                             |            | 70.000 to 150.000MHz         | 60mA Max                                                      | 45mA Max        |
| Output Symmetry             | Sym        | $\frac{1}{2} V_{DD}$         | 40/60% (45/55% option)                                        |                 |
| Rise Time                   | $T_r$      | 10% $V_{DD}$ to 90% $V_{DD}$ | 10ns Max                                                      | 8ns Max         |
| Fall Time                   | $T_f$      | 90% $V_{DD}$ to 10% $V_{DD}$ | 10ns Max                                                      | 8ns Max         |
| Output Voltage              | $V_{OH}$   |                              | 90% $V_{DD}$ Min                                              |                 |
|                             | $V_{OL}$   |                              | 10% $V_{DD}$ Max                                              |                 |
|                             | TTL Load   |                              | 1 to 10 TTL                                                   | 1 to 5 TTL      |
| Output Load                 | HCMOS Load |                              | ~50MHz: 50pF                                                  | ~50MHz: 30pF    |
|                             |            |                              | ~70MHz: 30pF                                                  | ~150MHz: 15pF   |
|                             |            |                              | ~150MHz: 15pF                                                 |                 |
| Startup Time                | $T_S$      |                              | 10ms Max                                                      |                 |
| Pin 1, tristate function    |            |                              | Pin 1= High or Open, output active at Pin 8                   |                 |
|                             |            |                              | Pin 1= Low, high impedance at Pin 8                           |                 |

\* Include 25°C tolerance, operating temperature range, input voltage change, aging, load change, shock and vibration

### Mechanical Dimensions – mm (inch)



### HCMOS Output Waveform



| Enable/Disable Function  |               | Pin | Connection   |
|--------------------------|---------------|-----|--------------|
| Input (Pin1)             | Output (Pin8) | 1   | Tri-state/NC |
| Open                     | Enable        | 7   | GND          |
| $V_{IH} \geq 2.2 V_{DC}$ | Enable        | 8   | Output       |
| Low                      | Disable       | 14  | $V_{DD}$     |