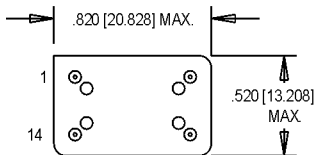
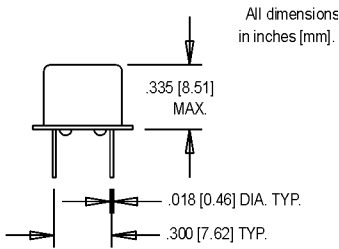
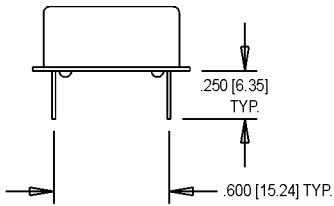


# K1528D Series

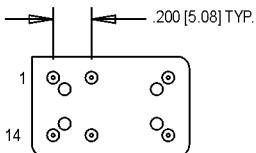
14 pin DIP, 5.0 Volt, CMOS, VCXO



- Former **Champion** product
- Phase-Locked Loops (PLL's), Clock Recovery, Reference Signal Tracking, Synthesizers, Frequency Modulation/Demodulation



OPTIONAL 6-PIN PACKAGE WITH TRISTATE



### Pin Connections

| PIN | FUNCTION           |
|-----|--------------------|
| 1   | Voltage Control    |
| 7   | Ground/Case Ground |
| 8   | Output             |
| 14  | +Vdd               |

### Ordering Information

|                                |                         |   |   |   |   |    |             |
|--------------------------------|-------------------------|---|---|---|---|----|-------------|
| Product Series                 | K1528D                  | X | X | X | X | -R | 00.0000 MHz |
| Model Selection                |                         |   |   |   |   |    |             |
| B:                             | ±100 - ±150 ppm Pull    |   |   |   |   |    |             |
| D:                             | ±60 - ±110 ppm Pull     |   |   |   |   |    |             |
| Symmetry/Logic Compatibility   |                         |   |   |   |   |    |             |
| Blank:                         | CMOS 40%/60%            |   |   |   |   |    |             |
| S:                             | CMOS 45%/55%            |   |   |   |   |    |             |
| Temperature Range              |                         |   |   |   |   |    |             |
| Blank:                         | 0°C to +70°C            |   |   |   |   |    |             |
| M:                             | -40°C to +85°C          |   |   |   |   |    |             |
| Tri-State Option               |                         |   |   |   |   |    |             |
| Blank:                         | No Tristate             |   |   |   |   |    |             |
| E:                             | Tristate Option         |   |   |   |   |    |             |
| RoHS Compliance                |                         |   |   |   |   |    |             |
| Blank:                         | non-RoHS compliant part |   |   |   |   |    |             |
| -R:                            | RoHS compliant part     |   |   |   |   |    |             |
| Frequency (customer specified) |                         |   |   |   |   |    |             |

|                               | PARAMETER                      | Symbol  | Min.  | Typ.  | Max.   | Units                      | Condition/Notes          |  |
|-------------------------------|--------------------------------|---|---|-------|--------|----------------------------|--------------------------|--|
| Electrical Specifications     | Frequency Range                | F   | 35  |       | 85     | MHz                        |                          |  |
|                               | Operating Temperature          | T <sub>A</sub>  | (See ordering information)                                      |       |        |                            |                          |  |
|                               | Storage Temperature            | T <sub>S</sub>  | -40   |       | +125   | °C                         |                          |  |
|                               | Frequency Stability Overall    | ΔF/F  | Inclusive of Calibration, Temperature, Voltage, Load, and Aging |       |        |                            |                          |  |
|                               |                                |   | 0°C to 70°C   |       | ±25    | ppm                        |                          |  |
|                               |                                |   | -40°C to +85°C  |       | ±50    | ppm                        |                          |  |
|                               | Aging 1 <sup>st</sup> Year     |   | -5  |       | +5     | ppm                        |                          |  |
|                               | Thereafter (per year)          |   | -2  |       | +2     | ppm                        |                          |  |
|                               | Pullability/APR                |   | (See ordering information)                                      |       |        |                            |                          |  |
|                               | Control Voltage                | V <sub>c</sub>  | 0.5   | 2.5   | 4.5    | V                          |                          |  |
|                               | Linearity                      |   |   |       | 15     | %                          | Positive Monotonic Slope |  |
|                               | Modulation Bandwidth           | f <sub>m</sub>  | 20  |       |        | kHz                        | ±3dB                     |  |
|                               | Input Impedance                | Z <sub>in</sub>   | 50k   |       |        | Ohms                       | @ 10 kHz                 |  |
|                               | Input Voltage                  | V <sub>dd</sub>   | 4.75  | 5.0   | 5.25   | V                          |                          |  |
|                               | Input Current                  | I <sub>dd</sub>   |   |       | 40     | mA                         |                          |  |
|                               | Output Type                    |   |   |       |        |                            | HCMOS/TTL                |  |
|                               | Load                           |   | 5 TTL or 15 pF HCMOS  |       |        |                            | See Note 1               |  |
|                               | Symmetry (Duty Cycle)          |   | (See ordering information)                                      |       |        |                            |                          |  |
| Logic "1" Level               | V <sub>oh</sub>                | 4.5   |   |       | V      |                            |                          |  |
| Logic "0" Level               | V <sub>ol</sub>                |   |   | 0.5   | V      |                            |                          |  |
| Output Current                |                                |   |   | ±16   | mA     |                            |                          |  |
| Rise/Fall Time                | T <sub>r</sub> /T <sub>f</sub> |   |   | 4     | ns     |                            |                          |  |
| Start Up Time                 |                                |   |   | 10    | ms     |                            |                          |  |
| Phase Jitter @ 40 MHz         | Ö <sub>J</sub>                 |   | 2   |       | ps RMS | Integrated 12 kHz – 20 MHz |                          |  |
| Phase Noise (Typical) @40 MHz |                                | 10 Hz   | 100 Hz  | 1 kHz | 10 kHz | Offset from Carrier        |                          |  |
|                               |                                | -65   | -95   | -115  | -140   | dBc/Hz                     |                          |  |
| Environmental                 | Mechanical Shock               | Per MIL-STD-202, Method 213, Condition C (100 g's, 6 mS duration, ½ sinewave)         |   |       |        |                            |                          |  |
|                               | Vibration                      | Per MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)                            |   |       |        |                            |                          |  |
|                               | Hermeticity                    | Per MIL-STD-202, Method 112, (1x10 <sup>-8</sup> atm. cc/s of Helium)                 |   |       |        |                            |                          |  |
|                               | Thermal Cycle                  | Per MIL-STD-883, Method 1010, Condition B (-55°C to +125°C, 15 min. dwell, 10 cycles) |   |       |        |                            |                          |  |
|                               | Solderability                  | Per EIAJ-STD-002  |   |       |        |                            |                          |  |
| Soldering Conditions          | +240°C max. for 10 secs.       |   |   |       |        |                            |                          |  |

1. TTL load - see load circuit diagrams #1 and #2
2. Symmetry is measured at 1.4 V with TTL load, and at 50% V<sub>dd</sub> with HCMOS load.

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