

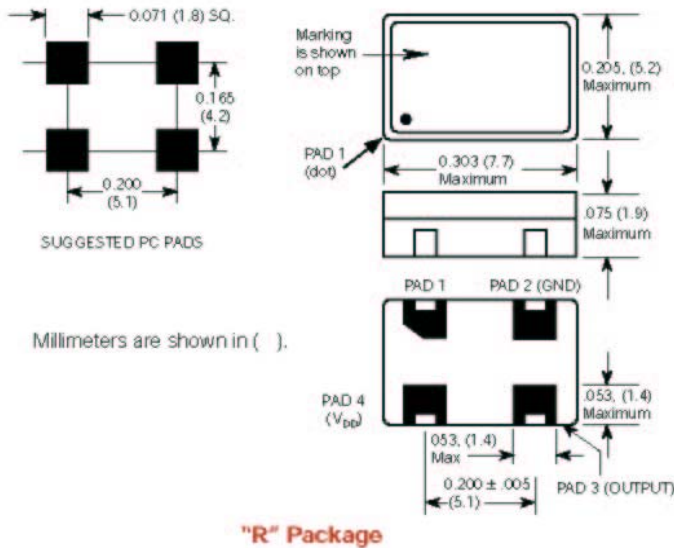
**R1800, R1801, R1802**  
**R3800, R3801, R3802**  
**5X7 mm Surface Mount**  
**HCMOS 1.8V 850KHz to 165 MHz**

**Features**

- Fixed frequency or tristate
- Very low power when tristated
- Start up time less than 5 ms.
- Stability options from +/-100 ppm to +/-25ppm
- Guaranteed start-up with ramping DC supply

**Typical Applications**

- Any surface mount PCB that requires a standard HCMOS/TTL 1.8V clock, including microprocessors and microcontrollers

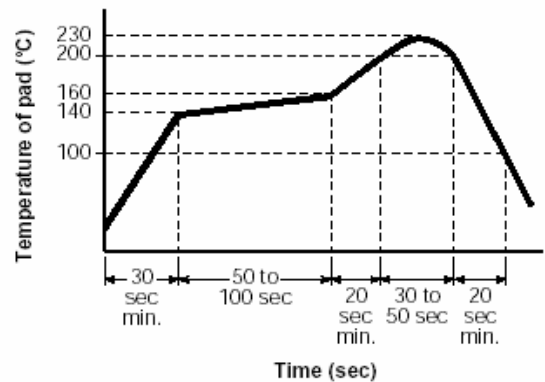


**Description**

Valpey Fisher's R models surface mount (SMD) oscillators provide clock waveforms needed to clock standard HCMOS circuits.

**CONNECTIONS**

|              | Fixed Output Models    | Tristate Models                                      |
|--------------|------------------------|--|
| <b>Pad 1</b> | NOT USED               | Floating or 1: Oscillator runs Ground or 0: Tristate |
| <b>Pad 2</b> | Ground and Case        |  |
| <b>Pad 3</b> | Output                 |  |
| <b>Pad 4</b> | +1.8V, V <sub>DD</sub> |  |



**Recommended Reflow Soldering Profile**

**R1800, R1801, R1802**  
**R3800, R3801, R3802**  
**5X7 mm Surface Mount**  
**HCMOS 1.8V 850KHz to 165 MHz**

**ELECTRICAL SPECIFICATIONS**

**Frequency Range** 850 KHz to 165 MHz

**Frequency Stability** Includes calibration at 25°C, operating temperature change of input voltage, change of load, shock and vibration

|                                   | MIN | TYP  | MAX  | UNITS |
|-----------------------------------|-----|------|------|-------|
| <b>Input Voltage</b>              | 1.7 | 1.8  | 1.9  | volts |
| <b>Load</b>                       |     |      | 15   | pf    |
| <b>Input Current</b>              |     |      |      |       |
| 850 KHz to 70 MHz, with 15pf load |     | 7.0  | 10.0 | mA    |
| 70.1 to 165.0 MHz with 15pf load  |     | 15.0 | 18.0 | mA    |

**Output Levels**

|           |                     |  |                     |       |
|-----------|---------------------|--|---------------------|-------|
| "0" Level |                     |  | 10% V <sub>DD</sub> | volts |
| "1" Level | 90% V <sub>DD</sub> |  |                     | volts |

**Rise and Fall Times**

|                                     |  |  |    |        |
|-------------------------------------|--|--|----|--------|
| <b>Jitter</b>                       |  |  | 5  | ns     |
| From positive edge to positive edge |  |  | 10 | ps RMS |

**Symmetry**

|  |       |       |         |
|--|-------|-------|---------|
| 850 KHz to 70MHz, @ 50% V <sub>DD</sub>  | 48/52 | 45/55 | percent |
| 70.1 to 165.0 MHz, @ 50% V <sub>DD</sub> | 45/55 | 40/60 | percent |

**Aging**

|                  |   |        |
|------------------|---|--------|
| First year       | 3 | ppm    |
| After first year | 1 | ppm/yr |

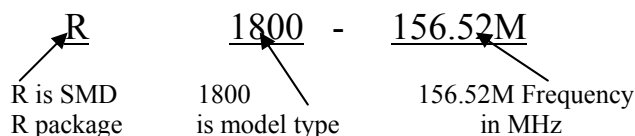
**Input Requirements for Pin 1:**

"1": On-Pin 1 may float or 90% V<sub>DD</sub> min.

"0": Tristate-Pin 1 requires 10% V<sub>DD</sub>

**HOW TO ORDER**

For part Number, put package type before model number, and add frequency in MHz, for example:



**ENVIRONMENTAL SPECIFICATIONS**

**Temperature**

|            |                |
|------------|----------------|
| *Operating | 0° to 70°C     |
| Storage    | -55° to +125°C |

**Shock**-1000 Gs, 0.35 ms, ½ sine wave, 3 shocks in each plane

**Vibration**- 10-2000 Hz of .06" d.a. or 20 Gs, whichever is less

**Humidity**-Resistant to 85° R.H. at 85°C

**MECHANICAL SPECIFICATIONS**

**Leak**- MIL STD 883, Method 1014, Condition A1

**Case**- Hermetically sealed package

**Pads**- 60 microinch of gold over nickel

**Marking**- Epoxy ink or laser engraved

**Resistance to solvents**- MIL STD 202, Method 215

\*Operating -40 to +85°C also available.

| NON-TRISTATE |                     | TRISTATE |                     |
|--------------|---------------------|----------|---------------------|
| MODEL        | Frequency Stability | MODEL    | Frequency Stability |
| R1800        | +/-100ppm           | R3800    | +/-100ppm           |
| R1801        | +/-25ppm            | R3801    | +/-25ppm            |
| R1802        | +/-50ppm            | R3802    | +/-50ppm            |

\*See Marking Specification

**MARKING SPECIFICATION**

The format for the marking is:

