

# E2791/E2791LF GR-1244 and GR-253-Core Stratum 3 Minature Surface Mount TCXO

ISSUE 2 ; 13 JUNE 2005

## Nominal Frequency, $F_o$

- 20.0MHz

## Supply Voltage

- 3.3V  $\pm 5\%$

## Input Current

- $\leq 6\text{mA}$

## Output

- Type : HCMOS
- Load : 15pF max
- Vol :  $\leq 0.1 * V_s$
- VoH :  $\geq 0.9 * V_s$
- Duty Cycle @ 50%: 45% to 55%
- Rise Time, 10% to 90%:  $\leq 9\text{ns}$
- Fall Time, 90% to 10%:  $\leq 9\text{ns}$

## Holdover Stability [ $\pm(F_{\text{max}} - F_{\text{min}}) / 2.F_o$ ]

- Temperature, -20 to 70°C:  $\pm 0.28\text{ppm}$
- Temperature, -20 to 70°C, inclusive of Supply Voltage, 3.3V  $\pm 5\%$  and Ageing 24 hours:  $\leq \pm 0.32\text{ppm}$

## Free-Run Accuracy, incl.

- Calibration @ 25°C, Temperature -20 to 70°C, Supply Voltage 3.3V  $\pm 5\%$ , Load 15pF  $\pm 5\%$ , Reflow Soldering and Ageing 20 years:  $\leq \pm 4.6\text{ppm}$  ref. to  $F_o$

## Phase Noise

- 10Hz  $\leq -85\text{dBc/Hz}$
- 100Hz  $\leq -110\text{dBc/Hz}$
- 1kHz  $\leq -125\text{dBc/Hz}$
- $\geq 10\text{kHz}$   $\leq -135\text{dBc/Hz}$

## Tri-state

- Pad 8 open circuit or  $\geq 0.6\text{Vs}$  : Output Enabled
- Pad 8  $\leq 0.2\text{Vs}$  : Output in Tri-state mode
- When in tri-state mode, the output is disabled but the oscillator and compensation circuit are still active (Current consumption  $\leq 1\text{mA}$ ).

## Marking (laser)

- Manufacturers ID (RAKON)
- Manufacturers identifier (xx)
- Pad 1 / Static Sensitivity Identifier ( $\Delta$ )
- Abbreviated Part Number (2791)
- Oscillator's Date of Manufacture (YW)

RAKON xx  
 $\Delta$ 2791 YW

Note: Production parts will be marked in this format. Sample marking may vary.

## Environmental Specification

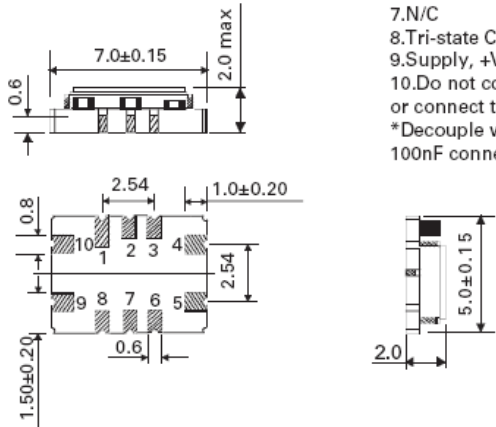
- Storage Temperature Range: -55 to 125°C
- Vibration: IEC 60068-2-6 Test Fc Procedure B4, 10-60Hz 1.5mm displacement, at 98.1 m/s<sup>2</sup>, 30 minutes in each of three mutually perpendicular axes at 1 octave per minute.
- Shock: IEC 6006-2-27 Test Ea, 980m/s<sup>2</sup> acceleration for 6ms duration, 3 shocks in each direction along three mutually perpendicular axes.
- Solderability: MIL-STD-202, Method 208, Category 3.
- RoHS/Soldering : Parts with the suffix 'LF' on the part number are fully compliant with the European Union directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment. Note: The RoHS compliant parts are suitable for assembly using both Lead-free solders (see Lead-free Reflow soldering profile) and Tin / Lead solders (see Tin / Lead Reflow soldering profile)

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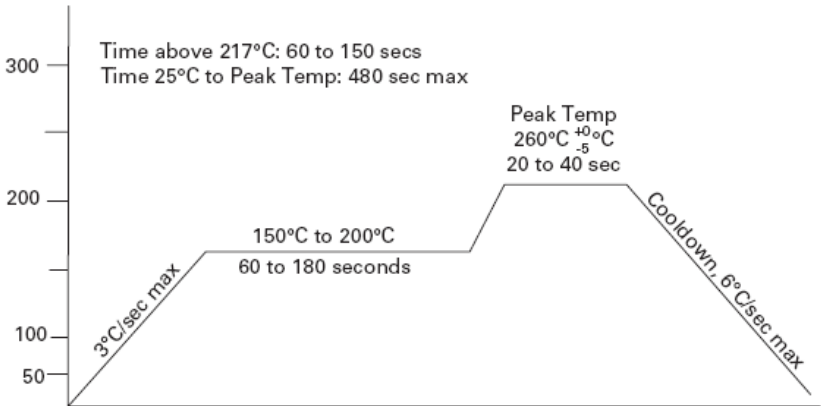
**Outline in mm**



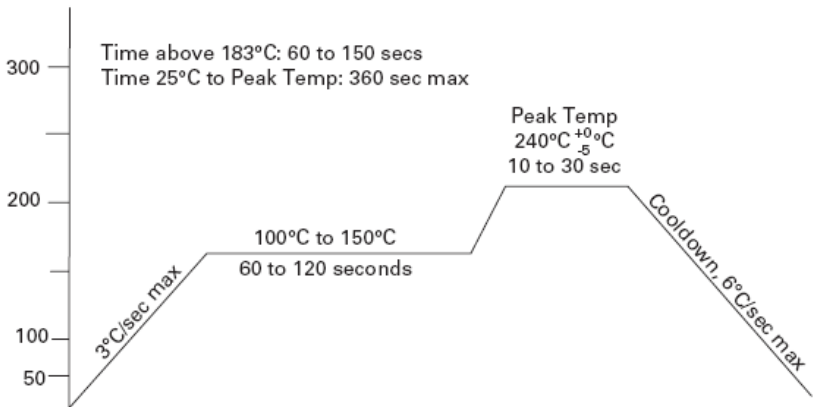
**Pin Connections**

- 1.Do not connect
  - 2.N/C
  - 3.Do not connect
  - 4.GND
  - 5.Output
  - 6.N/C
  - 7.N/C
  - 8.Tri-state Control\*
  - 9.Supply, +Vs
  - 10.Do not connect, or connect to GND
- \*Decouple with capacitor  
100nF connected to GND

**Lead Free Reflow Soldering Profile \***



**Tin / Lead Reflow Soldering Profile \***



**\*Note:**  
These profiles were used during the qualification testing of the product and therefore represent worst case conditions. They are not recommended for use by the customer in the actual assembly of these parts

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