

## E2799/E2799LF SONET Minimum Clock

ISSUE 4 ; 13 JUNE 2005

### Nominal Frequency, Fo

- 12.8MHz

### Supply Voltage

- 3.3V  $\pm 5\%$

### Input Current

- $\leq 4\text{mA}$

### Output

- Type: HCMOS
- Load: 15pF max
- VoL:  $\leq 0.1\text{Vs}$
- VoH:  $\geq 0.9\text{Vs}$
- 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 $[\pm(F_{\text{max}}-F_{\text{min}})/2F_0]$

- Temperature,  $-40$  to  $85^\circ\text{C}$ , inclusive of Supply Voltage,  $3.3\text{V} \pm 5\%$  and Ageing, 24 hours:  $\leq \pm 4.6\text{ppm}$

### Free-Run Accuracy, incl.

- Calibration @  $25^\circ\text{C}$ , Temperature  $-40$  to  $85^\circ\text{C}$ , Supply Voltage  $3.3\text{V} \pm 5\%$  Load  $15\text{pF} \pm 5\%$ , Reflow Soldering and Ageing 20 years:  $\leq \pm 20\text{ppm}$  ref. to Nominal Frequency

### Phase Noise

- 10Hz  $\leq -90\text{dBc/Hz}$
- 100Hz  $\leq -115\text{dBc/Hz}$
- 1kHz  $\leq -127\text{dBc/Hz}$
- 10kHz  $\leq -137\text{dBc/Hz}$
- $\geq 100\text{kHz}$   $\leq -143\text{dBc/Hz}$

### 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
- In Tri-state mode, the output stage is disabled but the oscillator and compensation circuit are still active (current consumption  $\leq 1\text{mA}$ )

### Environmental Specification

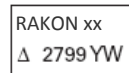
- Storage Temperature Range:  $-55$  to  $125^\circ\text{C}$
- Vibration: IEC 60068-2-6 Test Fc procedure B4, 10-60Hz 1.5mm displacement, at  $98.1\text{m/s}^2$ , 30 minutes in each of three mutually perpendicular axes at 1 octave per minute
- Shock: IEC 60068-2-27 Test Ea,  $980\text{m/s}^2$  acceleration for 6ms duration, 3 shocks in each direction along three mutually perpendicular axes
- Solderability: MIL-STD-202, Method 208, Category 3
- Resistance to Soldering Heat:  $260^\circ\text{C}$  / 10s exposure
- Marking: Laser Marked

- 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).

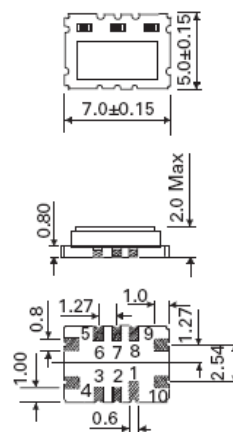
### Marking

- Manufacturers ID (RAKON)
- Manufacturing Identifier (xx)
- Pad 1 / Static Sensitivity Identifier ( $\Delta$ )
- Abbreviated Part Number (2799)
- Oscillator's Date of Manufacture (YW)



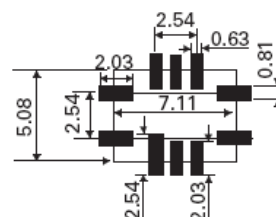
Note: Production parts will be marked in this format. Sample marking may vary

### Outline in mm



- Pad Connections
- Do not Connect
  - N/C
  - DC Coupled Output (do not connect)
  - GND
  - Output
  - N/C
  - N/C
  - Tri-state Control\*
  - +Vs
  - Do not connect, or connect to GND
- \*see text

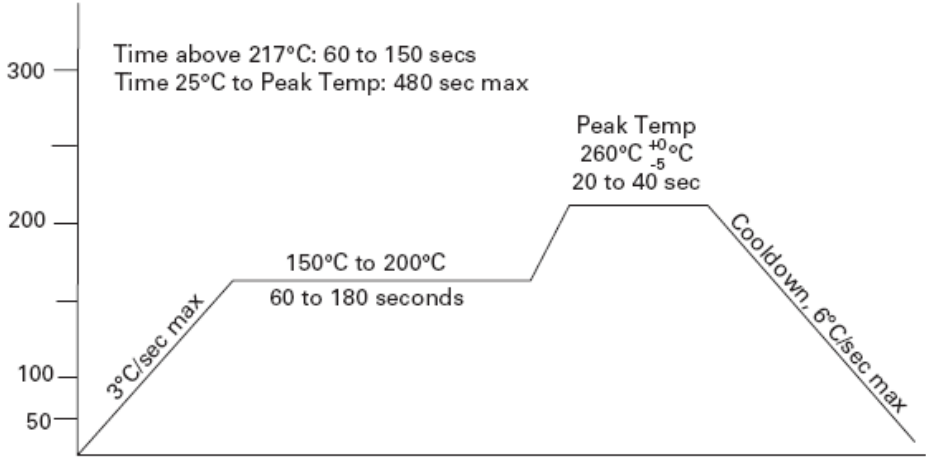
### Solder pad layout



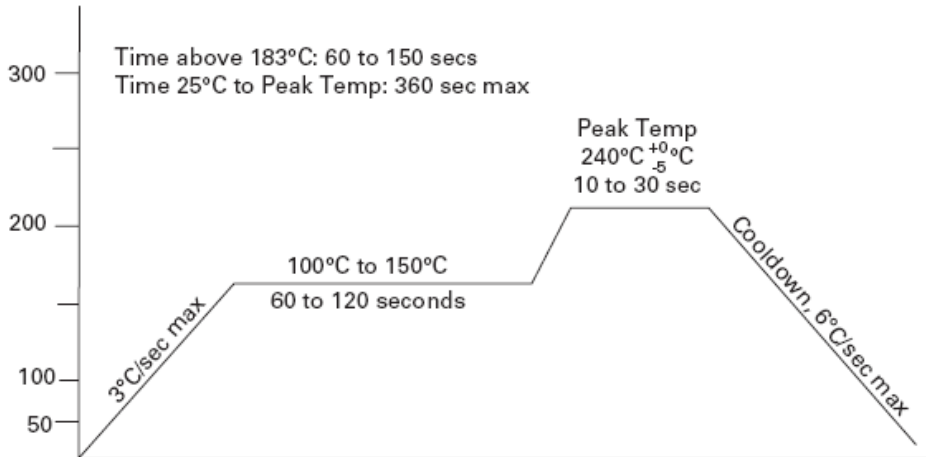
### Rakon Limited

T +64 9 573 5554, F +64 9 573 5559  
1 Pacific Rise, Mt Wellington, Auckland 1060, New Zealand  
Private Bag 99943, Newmarket, Auckland 1149, New Zealand

**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