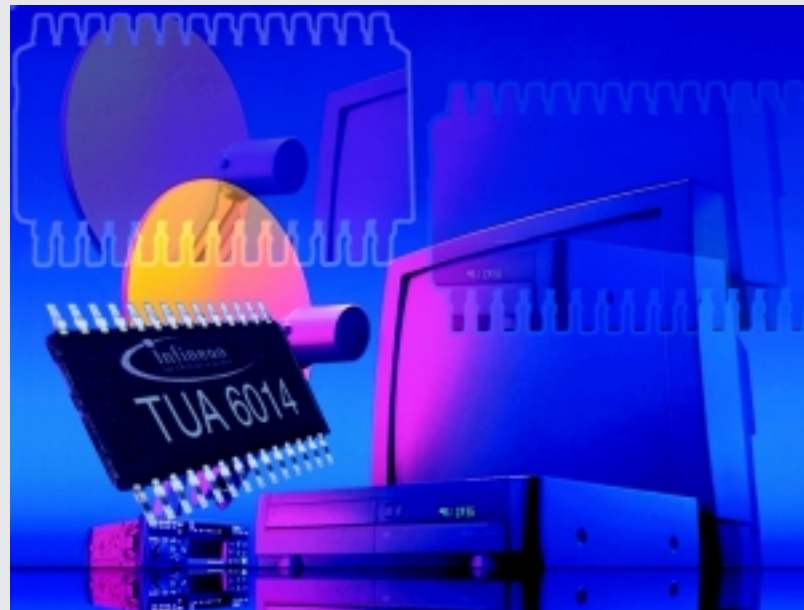


Mixer, Oscillator, PLL IC for PAL and NTSC tuners. Due to its 25 GHz technology it combines wide dynamic range with good decoupling of the integrated RF and PLL blocks. The PLL system with dual - modulus - prescaler offers quick channel access and low phase noise. The heart of a tuner is the one chip Mixer-Oscillator-PLL IC TUA 6014. In this IC the analog tuner functions and the digital PLL part are combined. The Tuner IC meets the high demands for the PAL standard.



### Potential Applications

- TV
- Videorecorder
- Cable set-top-boxes for analog TV

### Features

- Double balanced mixer with wide dynamic range and high-impedance input for the VHF low or VHF high and a low-impedance input pair for the UHF frequency range
- Frequency and amplitude-stable balanced oscillators for the VHF low, VHF high and UHF frequency range
- Optimum decoupling of input frequency from oscillator
- PLL with short lock-in time; no asynchronous divider stage
- Short pull-in time for quick channel access and optimized loop stability
- High voltage VCO tuning output (35 V)
- Fast I<sup>2</sup>C-Bus mode possible

- 4 programmable chip addresses
- 4 high current switch outputs
- 5-level A/D converter
- Lock-in flag
- Power-down flag
- Few external components
- Internal band switch
- Internal low noise reference voltage source
- Full ESD protection

### Price Projection

- Standard price list
- For Key and Focus accounts or high volumes you may contact your regional Infineon sales partner

### Development and Support Tools

- Evaluation Board TUA 6014
- Reference Design PAL-Tuner
- I<sup>2</sup>C-Bus-Interface & DOS or Windows 3.11 control-software

| Features                          | Benefits                               |
|-----------------------------------|--|
| High-ohmic VHF input              | Simplified interstage filter design    |
| Low-ohmic UHF input               | No adjacent channel problem (N+/-1)    |
| Quick dynamic range               | Quick channel access                   |
| Fast dual modulus prog. divider   | More suitable for digital TV reception |
| Expensive foil cap in loop filter | Not necessary (lower BOM)              |
| Package                           | Space saving                           |

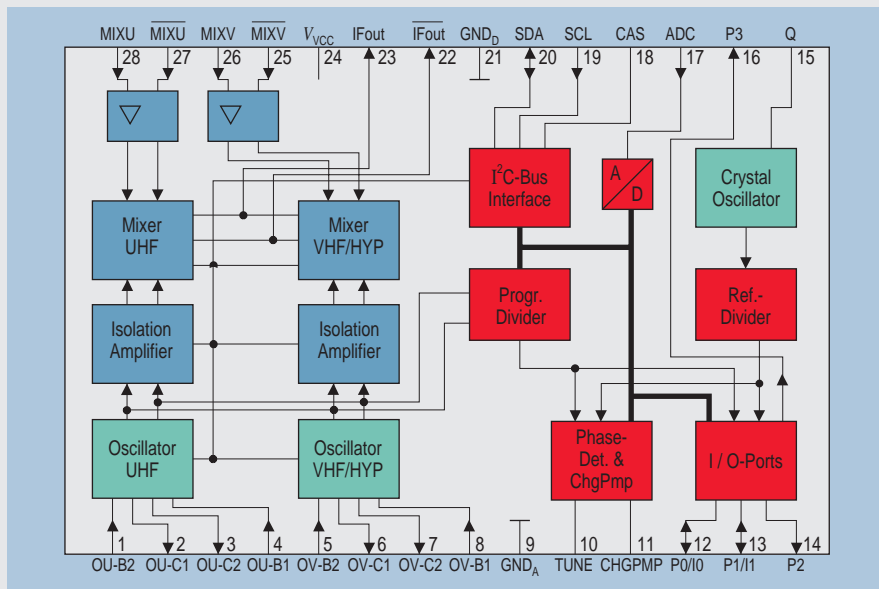
### Packing

| Type       | Ordering Code     | Package      |
|------------|-------------------|--------------|
| TUA 6014XS | Q67036-A1001-A701 | P-TSSOP-28-1 |
| TUA 6014-K | Q67036-A1006-A702 | P-TSSOP-28-1 |
| TUA 6014-S | Q67036-A1020-A701 | P-TSSOP-28-1 |

T U A 6 0 1 4 X S , - S , - K  
Single Chip for Terrestrial  
Television



## Block Diagram



## Feature Requirements

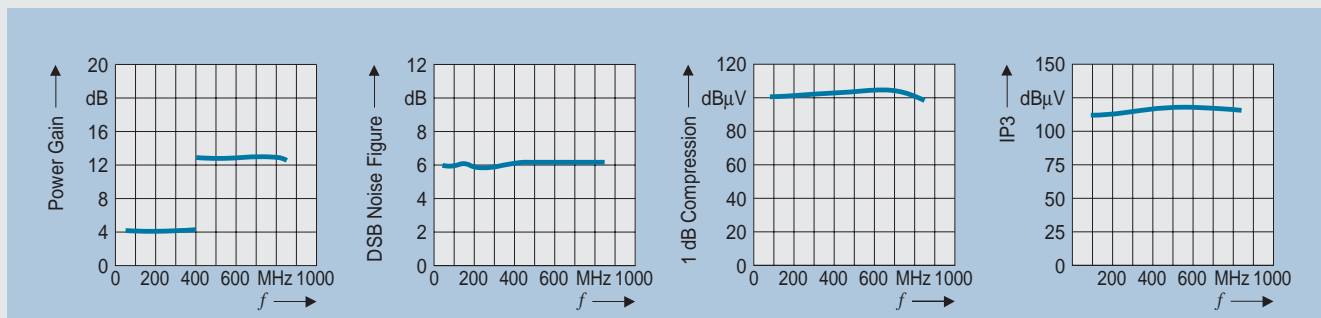
| PAL  | NTSC   |
|--|--|
| 3 Ports<br>(VHF low, VHF high, UHF)                | 4 Ports<br>(VHF low, VHF high, FM trap, UHF) |
| Balanced (or unbalanced) IF output<br>to drive SWF | Unbalanced 75 $\Omega$ IF output             |
| 4-Pin VHF Oscillator                               | 2-Pin VHF Oscillator                         |
| 4-Pin UHF Oscillator                               | 4-Pin UHF Oscillator                         |
| I²C Bus  | I²C Bus                                      |

## Availability

**ES available;  
Mass Production status**

| Documentation  | Date of Issue/Version |
|--|-----------------------|
| Specification  | 2000                  |
| Application Note (Tuner)   | 2000                  |
| Articles/Press Releases<br>– Components (p. 43)<br>– Components (p. 23-25) | 3/97<br>4/97          |

## Test on EVA Boards



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