

# High-Q, programmable notch filter

A logarithmic amplifier such as the TL441 may be used as a multiplier to give an output  $V_o = X_1 X_2$ , as in Fig. 1. It may also be used to give the  $n$ th root or  $n$ th power of an input, depending on the resistance

values. If  $R_2 = R_3 = nR_1$ , the output is, for  $n=1$ , a multiplier; for  $n>1$  the  $n$ th power output and, for  $n<1$ , the  $n$ th root.

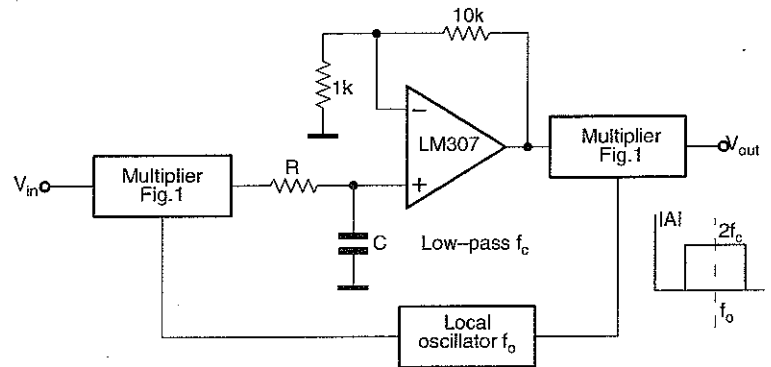
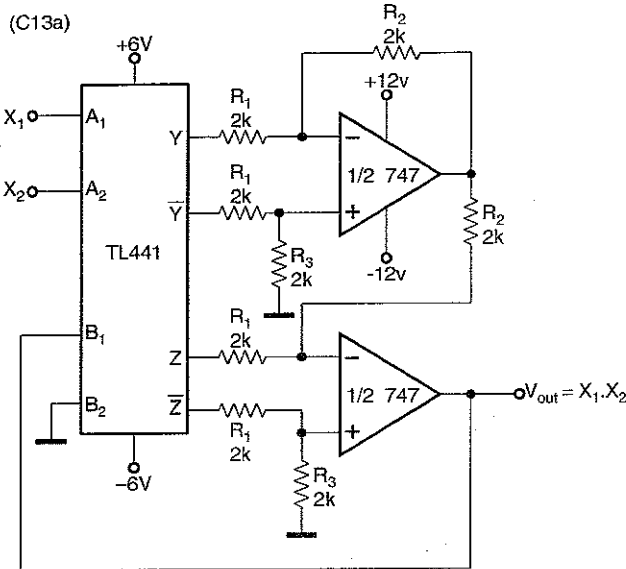
This arrangement is used in the circuit shown in Fig. 2 to give a programmed notch at high  $Q$ . One multiplier provides a dc output and the other takes the dc as input and converts it back to the input frequency.

The low-pass filter and a 5MHz local oscillator then form a band-pass filter having an effective  $Q$  of 5000

and a 5MHz centre frequency, the low-pass section determining the bandwidth of  $2f_c$ .

**Kamil Kraus**  
Rokycany  
Czech Republic  
C13

Fig. 1. A logarithmic amplifier used as a multiplier, which will also provide  $n$ th root or  $n$ th power output. Two such circuits are used in Fig. 2 to form a very high- $Q$  notch filter, which is programmable.



## Ten-year indexes now to May '98

### Hard copies and floppy-disk databases both available

Whether as a PC data base or as hard copy, SoftCopy can supply a complete index of *Electronics World* articles going back over the past ten years.

The index covers from 1988 to May 1998, volumes 94 to 102 inclusive. It contains almost 2000 references to articles, circuit ideas and applications – including a synopsis for each.

The EW index data base is easy to use and very fast. It runs under Windows 3.1, 95 or NT4 (Dos available by request).

The 3.5in disk-based index price is still only £20 inclusive. Please specify whether you need DD or HD format. Existing users can obtain an upgrade for £16 excluding postage by quoting their serial number with their order.

A **hard copy of all ten years** is available for £10 excluding postage.

**TABLE OF CONTENTS**

- Applications
  - Applications by description
  - Applications by part numbers
  - Company addresses
- Author Index
- Books
- Circuit Ideas
- Information
- Subject Index
- Analogue Design
- Audio
- Avenics
- Broadcast
- Communications
- Components
- Computing
- Consumer Electronics
- Control Electronics
- Digital & DSP Design
- History
- Instrumentation & Test

The *Electronics World* SoftIndex runs from January 1988 to May 1998 and contains references to 1300 articles and 800 circuit ideas. There is a separate author index with full cross-references. Reprints can be obtained for all the articles in this index - see the information section for more details. For up to date information about *Electronics World* see our website at <http://www.softcopy.co.uk>

[www.softcopy.co.uk](http://www.softcopy.co.uk)

### Ordering details

The EW index data base price of £20 includes UK postage and VAT. Add an extra £1 for overseas EC orders or £5 for non-EC overseas orders

Postal charges on hard copy indexes and on photocopies are 50p UK, £1 for the rest of the EC or £2 worldwide.

For enquires about photocopies, etc., please send a sae to Softcopy Ltd. **Send your orders to Softcopy Ltd, 1 Vineries Close, Cheltenham GL53 0NU.**

Cheques payable to SoftCopy Ltd, please allow 28 days for delivery.

**e-mail at [SoftCopy@compuserve.com](mailto:SoftCopy@compuserve.com), tel 01242 241455**

Printed copies of *Electronics World* articles from 1988 to 1998 are available at a flat rate of £3.50 per article, 50p per circuit idea, excluding postage.

Hard copy *Electronics World* indexes on paper for volumes 100, 101, and 102 are available at £2 each, excluding postage.