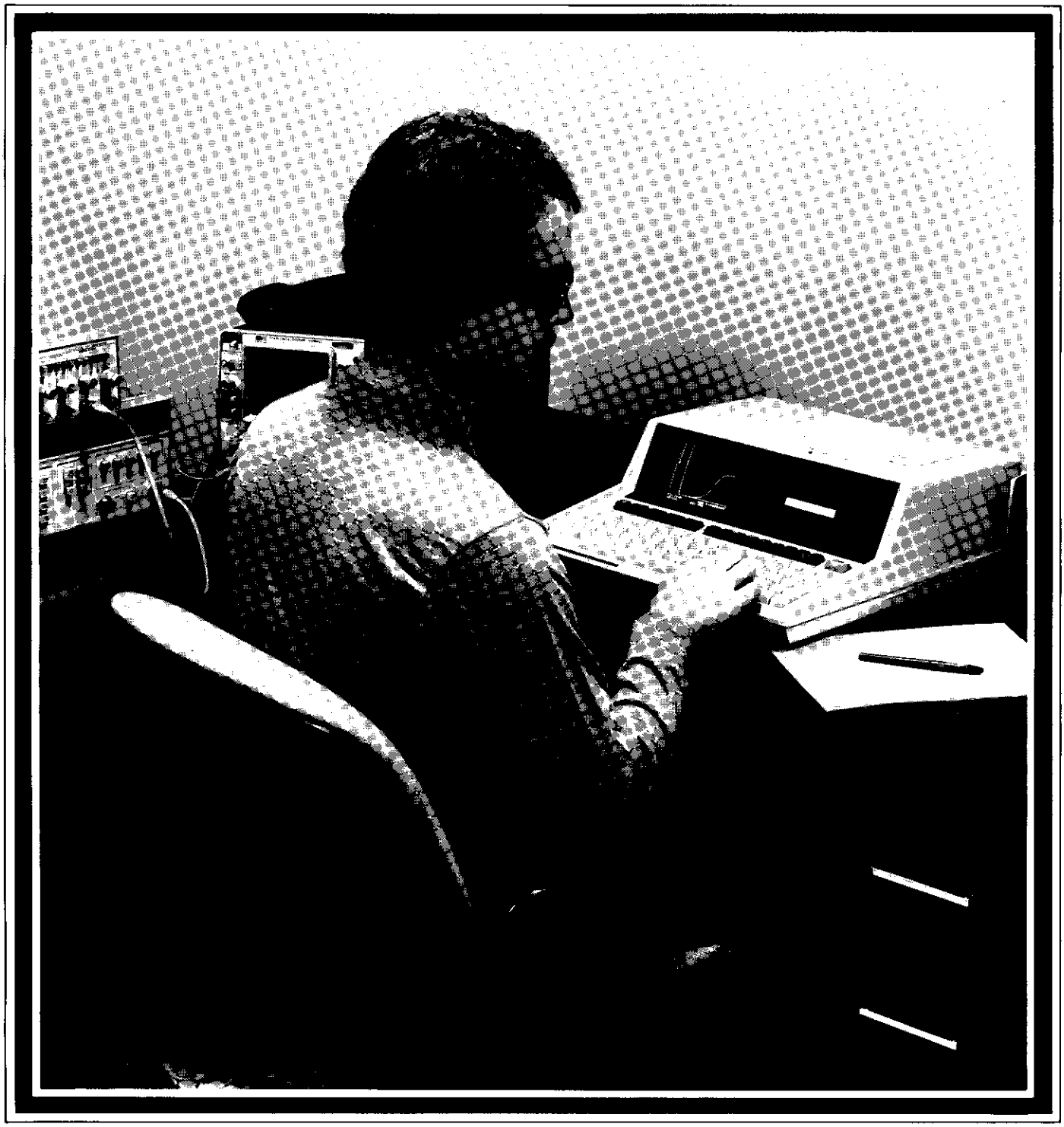
A Hewlett-Packard Software Summary
for the HP-85 Personal Computer

HP-85
AC Circuit Analysis



Recognize design problems early and avoid costly alterations.

Modern Circuit Design

The conventional method for designing circuits involves solving numerous loop equations and generating documented specifications and schematics. Then, before prototypes are fabricated, breadboards are developed for verification that the design is a good one. However, as you may have experienced, design errors are not always caught in the design verification stage. As a result, a great deal of time and money must be spent on design alterations.

With Hewlett-Packard's HP-85 Personal Computer and HP-85 Circuit Analysis Pac, this needn't happen to you. This software package allows you to model your circuit and examine its ac performance quickly, easily and accurately. By simulating your designs on the HP-85, you can recognize design problems early in the development process, before large investments have been made.

Don't Just Settle for the First Working Design

With the HP-85's interactive mode of operation, you can easily design optimal solutions. To evaluate alternative designs, simply input new values for any variables and rerun the simulation until the most desirable response is achieved.

Fully Integrated and Easy To Use

The HP-85 integrates keyboard, memory, central processor, graphics CRT, thermal printer and mass storage into one compact unit small enough to place on your desk or work table. This computer is at your command — ready to do what you need when you need it. You don't lose time waiting for access to computing equipment located outside your work area.

In addition, the HP-85 and the Circuit Analysis Pac have many convenient features built in. Conversational user prompts appear on the CRT to guide you to the solution. And Special Function Keys initiate individual operations to expedite the design process.

To analyze a circuit, first enter the circuit values into the HP-85. Then select frequencies and output parameters. The HP-85 will compute the outputs and display them in either tabular or plotted form, whichever you select. To get a hard copy of your results, simply press the COPY key. All information appearing in the display will be output to the built-in thermal printer.

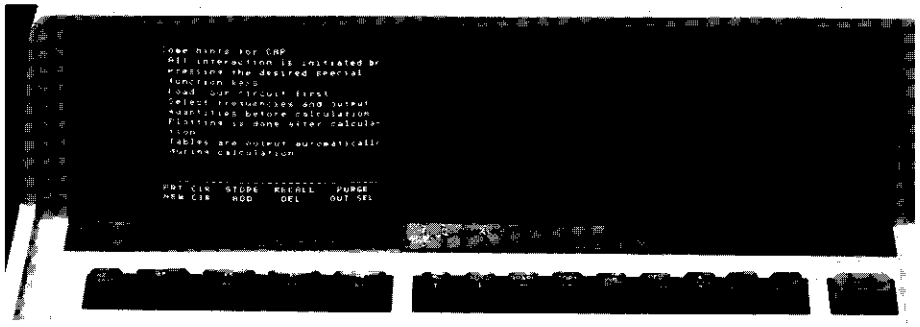


Figure 1. *Special Function Key assignments are either automatically displayed or are available at the touch of a key.*

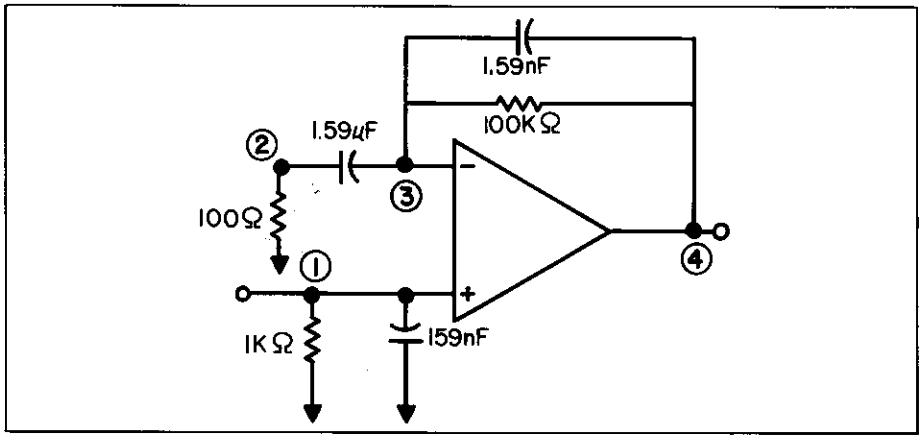


Figure 2. *Schematic shows band-pass filter with gain.*

Circuit Analysis Program Features

Key features of the pac are:

- Up to 9 nodes and 12 components can be analyzed. And you can increase that capacity to as many as 16 nodes and 40 components by adding the optional 16K-byte memory module.
- Components allowed are resistors, capacitors, inductors, voltage-controlled sources and independent current sources.
- Analysis can be either log or linear sweep, or single frequency points. (Refer to Figure 4.)
- The following parameters can be calculated:
  - — Node voltage (magnitude and phase)
  - — Branch voltage (magnitude and phase)
  - — Branch current (magnitude and phase)
  - — Branch power (complex)
  - — Ratio of any two of the above (in dB if desired)
- Calculated values are plotted on the CRT and can also be output to the built-in printer.
- Families of curves may be plotted on the same axis. For instance, you can change a load resistor and then plot a new curve on top of the old one for easy comparison. (Refer to Figure 5.)
- Circuits can easily be stored on tape cartridges for future use.

```
CIRCUIT DESCRIPTION
  1 IS    0 TO 1   1 AMPS
          0 DEG
  2 R     0 TO 1   1000 Ω
  3 C     0 TO 1   1.59 E-7 F
  4 R     0 TO 2   100 Ω
  5 C     2 TO 3   1.59 E-6 F
  6 R     3 TO 4   100000 Ω
  7 C     3 TO 4   1.59 E-9 F
  8 VCIS  1 TO 3 CONTROLLING
          0 TO 4    gm= 1000
```

Figure 3. *Data listing illustrates how schematic in Figure 2 was entered in the HP-85.*

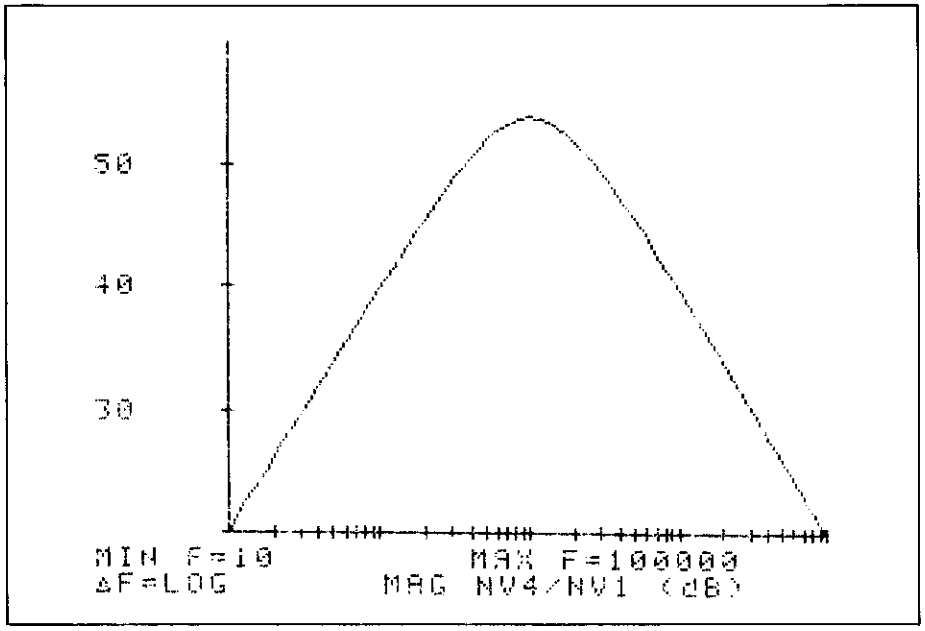


Figure 4. *Magnitude response curve.*

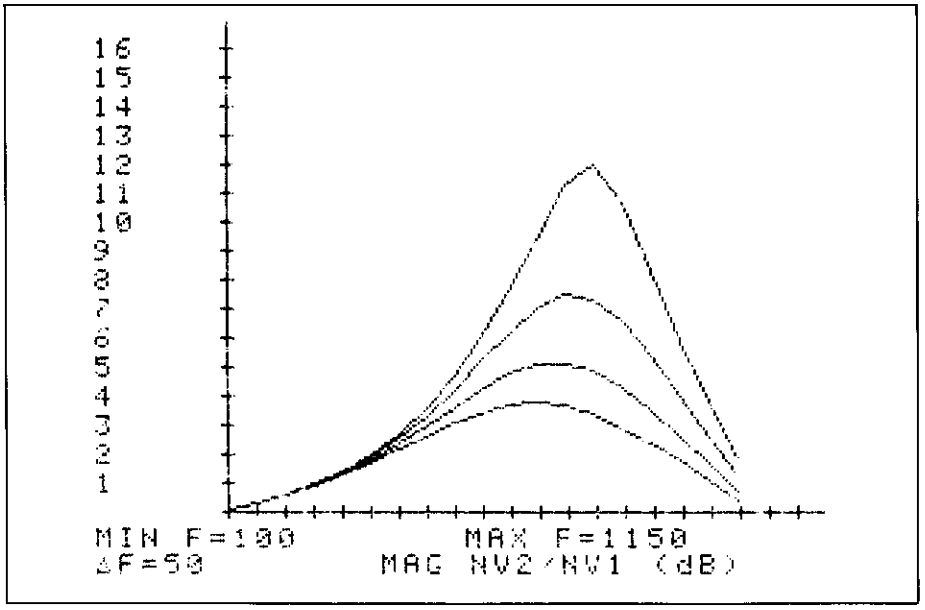


Figure 5. *Printout of a family of curves showing the effects of changing a component in a circuit.*

Ordering Information

The complete HP-85 AC Circuit Analysis Pac is contained in a convenient molded binder and includes:

- A prerecorded cartridge containing the Circuit Analysis programs.
- An instruction manual that describes the programs and gives detailed instructions and examples.

To order the HP-85 AC Circuit Analysis Pac, specify Part No. 00085-13006. For further information on the HP-85 Desktop Computer or the HP-85 Circuit Analysis Pac, contact your nearest Hewlett-Packard Sales Office or authorized HP-85 dealer. To locate the sales office or authorized dealer nearest you, please call 800/648-4711, ext. 1000 (Alaska and Hawaii excluded). In Nevada call 800/992-5710.

1000 N.E. Circle Boulevard, Corvallis, Oregon 97330

Printed in U.S.A.
(9/79) 50M

5953-1076