ROM Programmers

R4945A

Compatible with Remote Control Software

- ■ **Writable Flash ROM**
- ■ **Can be used for EPROMs with up to 16 Mbits**
- ■ **Useful for a Wide Variety of Packages Thanks to the Socket Adapter System**
- ■ **Compatible with Various High-Speed Program Algorithms**
- ■ **Can be used for EPROMs with 4, 8 and 16 Mbits with PIN Arrangement by means of Socket Adapter Exchange**
- ■ **Standard Centronics Interface**
- ■ **Can be Used for Split Programming of 8-Mbit EPROMs**
- ■ **Storage of Initial Settings is Possible**

R4945A

EPROM Programmer

Featuring large-capacity 16-Mbit buffer RAM, the R4945A high-speed EPROM programmer is designed for programming diverse types of EPROMs. The 16-Mbit buffer RAM makes it possible to use the programmer for programming and data editing of large-capacity EPROMs and split writing of 8-Mbit EPROMs. In addition, because the R4945A is a socket adapter type (equipped with 32 pins x 2, 40 pins as standard), it allows programming to a wide variety of devices that have different number of pins and come in different packages.

To facilitate operation, the R4945A comes with an easy-to-see liquid crystal display for operation guidance and the ID-AUTO mode which allows automatic setting of different ROM types. In particular, the function to store the initial settings including the ROM type, device function and serial I/O conditions improves the efficiency of your programming tasks.

The reliability of programming is ensured by various functions to check the device quality after programming, such as V_{CC} margin check (2 points), Voh and Vol level check and sum check.

For input and output operations, the R4945A comes with useful standard features including a serial I/O interface that allows remote control of key operation and the Centronics parallel I/O interface.

Thus, with its flexible expendability and easy operation, the R4945A can be used for diverse applications such as debugging and ROM contents check.

■ Can be Used for EPROMs with Up to 16 Mbits

MOS-type PROM chips with a capacity from 16 Kbits to 16 Mbits can be programmed by simple key operation.

■ Useful for a Wide Variety of Packages Thanks to the Socket Adapter System

In addition to 28- and 32-pin EPROM chips in the DIP package, the programmer can be used for EPROM chips in various types of packages such as LCC, PLCC and SOP by simply changing the socket adapters. Furthermore, the programmer can also be used for single-chip CPUs and IC cards that are program-compatible with PROM chips.

■ Compatible with Various High-Speed Program Algorithms

The R4945A accommodates high-speed program algorithms of various companies including AMD, Fujitsu, Hitachi, Intel, Intel quick, NEC, Sharp, WSI, N.S and so on.

■ Writable Flash ROM

R4945A can write to a Flash ROM by adding the R49451D socket adapter and socket assembly.

The R49451D also supports a 3V Flash ROM, and employs the socket assembly method to enable easy support for a wide variety of packages (TSOP, SOP, etc.). Reliability is assured with connector docking.

■ Can be used for Split Programming of 8-Mbit EPROMs

With the built-in 16-Mbit buffer memory, the R4945A can be used for split programming of 8-Mbit EPROMs.

■ Storage of Initial Settings is Possible

The initial settings such as the ROM type, device functions and serial I/O conditions can be stored in memory. Therefore, when programming the same PROM, programming tasks can be performed efficiently without repeating the initial setting procedure.

ROM Programmers

Specifications

Programmable ROM chips: Various EP/EEPROM chips (described in the socket adapter section)

Buffer memory capacity: 2 Mbytes (16 Mbits)

Program power supply:

V_{CC} power supply: +4.75 V ±0.25 V, 300 mA (max.)
+5 V ±0.25 V, 300 mA (max.)
+5.25 V ±0.25 V, 300 mA (max.)
+6.00 V ±0.25 V, 300 mA (max.)
+6.25 V ±0.25 V, 300 mA (max.)
+6.5 V ±0.25 V, 300 mA (max.)

V_{PP} power supply: +21.0 V ±0.50 V, 100 mA (max.)
+13.0 V ±0.30 V, 200 mA (max.)
+12.75 V ±0.30 V, 200 mA (max.)
+12.5 V ±0.30 V, 200 mA (max.)
+5.0 V ±0.25 V, 50 mA (max.)

Output voltage comparison level:

V_{OL}: +0.50 V ±50 mV (I_{OL} 1.8 mA ±0.2 mA)
V_{OH}: +2.35 V ±100 mV

Standard interface:

Serial I/O interface: RS-232C
Parallel I/O interface: Centronics

Debug I/O interface:

16k- to 512k-bit EPROM emulation is possible by connecting the TR49403 debug RAM (with parallel I/O interface)

Device functions:

Blank check, Programming, Read check, BPR continuous operation, PR continuous operation, Copy/read check, Erase/blank check (EEPROM only), Option, Security

Address mode: Normal mode and page mode

Data mode:

8-bit wide ROM, Normal, 16-bit split
32-bit split (2 split simultaneous write possible)
16-bit wide ROM, normal
32-bit split (data exchange possible)

Program method:

Intel method, Intel quick method, Fujitsu method and other high-speed programming methods

EPROM protection function: Checks for power-down when a device is inserted, opposite direction insertion and erroneous insertion (ON/OFF possible)

Reliability check functions:

V_{CC} margin check (2 points), V_{OL}/V_{OH} level check, Data sum check

Self-diagnostic functions: Internal memory check, System memory check

Manual diagnostic functions:

MUP address check, MUP data check, Program voltage check, Program timing check, Serial I/O check

Alarm functions: Key switch key tone (ON/OFF possible), Pass/fail alarm tone (ON/OFF possible)

Data edit functions: Insert, Delete, Compliment, Block store, Block move, Block search, Block change, RAM clear

Automatic setting functions: ROM type, I/O conditions, Translation format, Various settings (Precheck, Last address stop, Time-out, ID, Alarm ON/OFF), Backedup by EEPROM

Translation format:

DG binary, DEC binary, ASCII HEX, INTELLEC HEX, MOTOROLA S, EXTENDED TEKHEX, ASM-86 HEXADECIMAL, HP64000ABS, TEXTRONIX•HEXADECIMAL

General Specifications

Display: 16 characters × 2 lines

Power requirement: 90 VAC to 250 VAC

Power frequency: 48 to 66 Hz

Enviranment: Temperature 0°C to +40°C, Humidity 85% or less

Storage temperature: -15°C to +60°C

Power consumption: 37 VA or less

Dimensions: Approx. 280(W) × 59(H) × 210(D) mm (excluding socket adapter)

Approx. 280(W) × 78(H) × 210(D) mm (with R49451A mounted)

Mass: 1.5 kg or less (excluding socket adapter)

1.7 kg or less (with R49451A mounted)

Socket Adapter/standard accessory:

R49451A (standard): 32 pin x 2, 40 pin x 1, DIP type

Accessories (Optional)

U-253   UV Eraser

A01242-200 Connection cable for RS-232C (for PC9801)

A01224   Connection cable for Centronics

Options

Major socket adapters for R4945A (optional)
- **R49444A/B**: For LCC
- **R49445A/B/C/D**: For SOP
- **R49446A/B/C**: For PLCC
- **R49451C**: Mask pin arrangement, 40 pins, 42 pins, DIP type
  Applicable devices: Am27C400, HN27C4000G, D27C400, M5M27400AK, M5M27404AK, µPD27C4000DZ, µPD27C8000DZ, MSM27C822ZB, TMS27C400, TC574200D, TC578200D, TC5716200D
- **R49451D**: Flash ROM (TSOP, SOP, etc.)
- **R49455F**: Intel, 56 pins, TSOP type
  Applicable devices: E28F200BX-T, E28F200BX-B, E28F400BX-T, E28F400BX-B
- **R49457D**: Hitachi, H8/532, H8/534, 84 pins, PLCC type
  Applicable devices: HD6475328 (H8/532), HD6475348 (H8/534)
- **R49457E**: Hitachi, H8/536, 84 pins, PLCC type
  Applicable devices: HD6475368 (H8/536)
- **R49452E**: Intel, 87C series, 40 pins, DIP type
  Applicable devices: 87C51 (D step), 87C51FA (D step), 87C51FB (B step), 87C51FC (A step)

For details, see the description of socket adapters for programmers.