NOTICE

Any person who duplicates copyright material without the consent of the copyright owner may be subject to civil action under federal copyright laws.


EPROMs

EPROMs are MOS devices and as such must be handled with care. Static discharges, reverse polarity or improper programming techniques are sure to destroy the device.

EPROMs, to be programmed, should be first checked on a ROM TEST I, or ROM TEST II, using the correct personality module. The signature on a blank EPROM is the same as the Vcc signature for the personality module. Any other signature indicates an un-erased or defective device.

Selection of the PP-400 programming module must be correct or the EPROM could be damaged or if it took a program, would not contain a usable correct program.

Programmed EPROMs can be erased and if not defective, reprogrammed. A good eraser can be obtained from many sources, one of which is:

TPI Distribution
R.R. #2, Box 10
Catoosa, OK 74015

call collect:
(918) 663-5100

When selecting the programming module, be careful to use the one specified for the device manufacturer, as well as the device number. (see page 2 for further details)

Access time is important when selecting a blank. You can use a blank with an access time the same as or smaller than the master.

A device with an access time of say 450nS may not work in place of one with a 350nS access time.

Do everything right and you can successfully duplicate 100%, do anything wrong and you will have problems ranging from an inexact duplicate to a ruined blank and possibly a ruined master.

## USING THE PP-400 CROSS REFERENCE GUIDE

By reading this step-by-step explanation, one should understand how to choose the proper EPROM and programming module for each individual duplication requirement. Pages 4-11, of this booklet contain the reference guide needed to make the proper choices.

1. Look through the guide to find the part number of the ROM that has the valid information in it to be duplicated. (master part)

2. When the part number, (paragraph 1, above) is found along with the correct manufacturer, look under the Programming Module column to see which program module is needed.

3. Any EPROM with the same program module number may be used as the blank part. The column labeled TYPE specifies whether the part is a ROM or an EPROM (E=EPROM, R=ROM). The blank part (copy) being the destination of the data from the original or "master" ROM or EPROM, must be an EPROM. The PP-400 will not program into any part specified as an "R" (ROM or PROM).

4. The last requirement that must be considered before choosing the proper EPROM is access time! Blank parts that have equal or faster access times compared to the "master" part will be compatible, but, if the master is faster than the blank, it is possible that after the blank is programmed it may not work in the circuit it was designed for.

The following examples illustrate the correct selection of a program module and compatible EPROM.

Example #1 (see page 5)

Master=AM2716 1DC  Access Time = 350 nS

| | | | |
|---|---|---|---|
| Program Module = | 0100 | | |
| Blank EPROM = | AM2716 1DC | (AMD) | |
| | MBM2716 H | (Fujitzu) | 350 nS |
| | 2716-1 | (Intel) | Access Time |
| | MK 2716-6 | (Mostek) | |

In this example the blank part must be an EPROM with a 350nS access time or less and uses the programming module 0100. Thus the program module is 0100.

Example #2 (see page 8)

Master=MCM68A332 Access Time = 350nS

| | | | |
|---|---|---|---|
| Program Module = 0103 | | | |
| Blank EPROM = | MCM2532-35 | (Motorola) | 350nS |
| | MCM2532-25 | (Motorola)---- | 250nS |

In example #2, the "master" is a ROM, therefore, that part number can not be used as the blank. Remember a blank must be an EPROM! The program module for this example would be 0103, and the blank part is any of those listed in the example plus any EPROM in the reference guide that has an access time of 350nS or less and uses the same program module, 0103.

If you have any further questions about picking the proper EPROM and Programming Module, contact the factory.

## PP-400---PROGRAMMING MODULES

| CONFIGURATION | MANUFACTURER | PART NUMBER | TYPE (E-EPROM) (R-ROM) | ACCESS TIME (nS) | PROGRAMMING MODULE (PP-400) | ROM TEST I & ROM TEST II PERSONALITY BOARD |
|---|---|---|---|---|---|---|
| 1024 x 8--24 pin | AMD | AM 2708 | E | 450 | 0101 | H24M** |
| | | AM 2708 1DC | E | 350 | 0101 | H24M |
| | | AM 9708 | E | 350 | 0101 | H24M |
| | Fairchild | F 2708 | E | 450 | 0101 | H24M |
| | | F2708-1 | E | 350 | 0101 | H24M |
| | Intel | 2708 | E | 450 | 0101 | H24M |
| | | 2708-1 | E | 350 | 0101 | H24M |
| | | 2708-6 | E | 550 | 0101 | H24M |
| | Motorola | MCM 2708 | E | 450 | 0101 | H24M |
| | | MCM 27A08 | E | 350 | 0101 | H24M |
| | | MCM 68708 | E | 450 | 0101 | H24M |
| | | MCM 68A708 | E | 350 | 0101 | H24M |
| | | MCM 68A308 | R | 350 | 0104 | I24M |
| | | MCM 68B308 | R | 250 | 0104 | I24M |
| | National Semiconductor | MM2708 | E | 450 | 0101 | H24M |
| | | MM2708-1 | E | 350 | 0101 | H24M |
| | | MM 2758A | E | 450 | 0105 | I24M |
| | | MM 2758B | E | 450 | 0106 | I24M |
| | NEC | PD 2308A | R | 450 | 0104 | I24M |
| | RCA | CDP 1834 | R | 350 | 0104 | I24M |

## PP-400---PROGRAMMING MODULES

| CONFIGURATION | MANUFACTURER | PART NUMBER | TYPE (E-EPROM) (R-ROM) | ACCESS TIME (nS) | PROGRAMMING MODULE (PP-400) | ROM TEST I & ROM TEST II PERSONALITY BOARD |
|---|---|---|---|---|---|---|
| 1024 x 8--24 pin | Texas Instrument | TMS 2508-25 | E | 250 | 0104 | I24M** |
| | | TMS 2508-35 | E | 350 | 0104 | I24M |
| | | TMS 2758JL0 | E | 450 | 0105 | |
| | | TMS 2758JL1 | E | 450 | 0106 | |
| | | TMS 2708 | E | 450 | 0101 | H24M |
| | | TMS 2708-35 | E | 350 | 0101 | H24M |
| 2048 x 8--24 pin | AMD | AM 2716 DC | E | 450 | 0100 | I24M |
| | | AM 2716 1DC | E | 350 | 0100 | I24M |
| | | AM 2716 2DC | E | 390 | 0100 | I24M |
| | | AM 2716 6DC | E | 450 | 0100 | I24M |
| | | AM 4716 DC | E | 450 | 0100 | I24M |
| | | AM 4716 6DC | E | 650 | 0100 | I24M |
| | | AM 9218 | R | 450 | 0100 | I24M |
| | | AM 8316 | R | 450 | 0100 | I24M |
| | | AM 9218 CPC | R | 350 | 0100 | I24M |
| | | AM 9218 CCC | R | 350 | 0100 | I24M |
| | | AM 9218 CDC | R | 350 | 0100 | I24M |
| | AMI | S68316 | R | 450 | 0100 | I24M |
| | | S68A316 | R | 350 | 0100 | I24M |
| | Fujitzu | MBM 2716 | E | 450 | 0100 | I24M |
| | | MBM 2716 H | E | 350 | 0100 | I24M |
| | General Instrument | 9316 A | R | 850 | ( 0115 ) | I24M |
| | | 9316 B | R | 450 | ( 0115 ) | I24M |
| | | 9316 C | R | 350 | ( 0115 ) | I24M |
| | | | | | (use 0100 blanks) | |

## PP-400---PROGRAMMING MODULES

| CONFIGURATION | MANUFACTURER | PART NUMBER | TYPE (E-EPROM) (R-ROM) | ACCESS TIME (nS) | PROGRAMMING MODULE (PP-400) | ROM TEST I & ROM TEST II PERSONALITY BOARD |
|---|---|---|---|---|---|---|
| 2048 x 8--24 pin | Hitachi | HN 462716 | E | 450 | 0100 | I24M** |
| | Intel | 2716 | E | 450 | 0100 | I24M |
| | | 2716-1 | E | 350 | 0100 | I24M |
| | | 2716-2 | E | 390 | 0100 | I24M |
| | | 2716-5 | E | 490 | 0100 | I24M |
| | | 2716-6 | E | 650 | 0100 | I24M |
| | Intersil | IM 6316 | R | 350 | 0100 | I24M |
| | Mostek | MK 34000 | R | 350 | 0100 | I24M |
| | | MK 2716-8 | E | 450 | 0100 | I24M |
| | | MK 2716-7 | E | 390 | 0100 | I24M |
| | | MK 2716-6 | E | 350 | 0100 | I24M |
| | | MK 2716-5 | E | 300 | 0100 | I24M |
| | | MK 2716-12 | E | 650 | 0100 | I24M |
| | Motorola | MCM 2716 | E | 450 | 0100 | I24M |
| | | MCM 2716-35 | E | 350 | 0100 | I24M |
| | | MCM 2716-25 | E | 250 | 0100 | I24M |
| | | MCM 68A316E | R | 350 | 0100 | I24M |
| | National Semiconductor | MM 2716 | E | 450 | 0100 | I24M |
| | | MM 2716-1 | E | 350 | 0100 | I24M |
| | | MM 2716-2 | E | 390 | 0100 | I24M |

| CONFIGURATION | MANUFACTURER | PART NUMBER | TYPE (E-EPROM) (R-ROM) | ACCESS TIME (nS) | PROGRAMMING MODULE (PP-400) | ROM TEST I & ROM TEST II PERSONALITY BOARD |
|---|---|---|---|---|---|---|
| 2048 x 8--24 pin | NEC | PD 2316E | R | 450 | 0100 | I24 M** |
| | | PD 2316E-1 | R | 350 | 0100 | I24 M |
| | | PD 2716 | E | 450 | 0100 | I24 M |
| | Texas Instrument | TMS 2516 | E | 450 | 0100 | I24 M |
| | | TMS 2516-35 | E | 350 | 0100 | I24 M |
| | Toshiba | TMM 334P | R | 450 | 0100 | I24M |
| | | TMM 323D | E | 450 | 0100 | I24M |
| | | TMM 323D-1 | E | 350 | 0100 | I24M |
| 4096 x 8--24 pin | AMD | AM 2732 DC | E | 450 | 0102 | M24 M |
| | | AM 2732-6DC | E | 550 | 0102 | M24 M |
| | | AM 9732 | E | 450 | 0102 | M24 M |
| | | AM 9232 | R | 450 | 0103 | L24 M |
| | | AM 9232-CPC, CCC, CDC | R | 300 | 0103 | L24 M |
| | | AM 9233 | R | 450 | 0102 | M24 M |
| | | AM 9233-CPC, CCC, CDC | R | 300 | 0102 | M24 M |
| | AMI | S68332 | R | 450 | 0103 | L24 M |
| | | S68A332 | R | 350 | 0103 | L24 M |
| | | S 2333 | R | 350 | 0102 | M24 M |
| | Fairchild | F 2732 | E | 450 | 0102 | M24M |
| | Fujitzu | MBM 2732-45 | E | 450 | 0102 | M24 M |
| | | MBM 2732-35 | E | 350 | 0102 | M24 M |
| | | *MBM 2732A-30 | E | 300 | *0109 | M24 M |
| | | *MBM 2732A-25 | E | 250 | *0109 | M24 M |
| | | *MBM 2732A-20 | E | 200 | *0109 | M24 M |

## PP-400---PROGRAMMING MODULES

| CONFIGURATION | MANUFACTURER | PART NUMBER | TYPE (E-EPROM) (R-ROM) | ACCESS TIME (nS) | PROGRAMMING MODULE (PP-400) | ROM TEST I & ROM TEST II PERSONALITY BOARD |
|---|---|---|---|---|---|---|
| 4096 x 8--24 pin | General Instrument | 9332A | R | 850 | 0103 | L24M** |
| | | 9332B | R | 450 | 0103 | L24M |
| | | 9332C | R | 350 | 0103 | L24M |
| | Hitachi | HN 462532 | E | 450 | 0103 | L24M |
| | | HN 462732 | E | 450 | 0102 | M24M |
| | Intel | 2732 | E | 450 | 0102 | M24M |
| | | 2732-6 | E | 550 | 0102 | M24M |
| | | *2732A | E | 200 | 0109* | M24M |
| | Motorola | MCM 2532 | E | 450 | 0103 | L24M |
| | | MCM 2532-35 | E | 350 | 0103 | L24M |
| | | MCM 2532-25 | E | 250 | 0103 | L24M |
| | | MCM 68732 | E | 450 | 0103 | L24M |
| | | MCM 68732-35 | E | 350 | 0103 | L24M |
| | | MCM 68A332 | R | 350 | 0103 | L24M |
| | National Semiconductor | NMC 2532 | E | 450 | 0103 | L24 M |
| | | NMC 2732 | E | 450 | 0102 | M24 M |
| | NEC | PD 2332A | R | 450 | 0103 | L24 M |
| | | PD 2332A-1 | R | 350 | 0103 | L24 M |
| | | PD 2332B | R | 450 | 0102 | M24 M |
| | | PD 2332B-1 | R | 350 | 0102 | M24 M |
| | | PD 2732 | E | 450 | 0102H | M24 M |
| | Texas Instrument | TMS 2532 | E | 450 | 0103 | L24 M |
| | | TMS 4732 | R | 450 | 0103 | L24 M |

| CONFIGURATION | MANUFACTURER | PART NUMBER | TYPE (E-EPROM) (R-ROM) | ACCESS TIME (nS) | PROGRAMMING MODULE (PP-400) | ROM TEST I & ROM TEST II PERSONALITY BOARD |
|---|---|---|---|---|---|---|
| 4096 x 8--24 pin | Toshiba | TMM 333P | R | 450 | 0103 | L24M** |
| | | TMM 2332P | R | 350 | 0102 | M24M |
| | | TMM 2732D | E | 350 | 0102 | M24M |
| 8192 x 8--24 pin | AMI | S68A364 | R | 350 | 0110 | PD2364-24/MCM68766 |
| | Harris | HM 6388 | R | 550 | 0110 | PD2364-24/MCM68766 |
| | Intersil | IM 6364 | R | 300 | 0110 | PD2364-24/MCM68766 |
| | Mostek | MK 36000-4 | R | 250 | 0110 | PD2364-24/MCM68766 |
| | | MK 36000-5 | R | 300 | 0110 | PD2364-24/MCM68766 |
| | Motorola | MCM 68764 | E | 450 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68764-35 | E | 350 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68766 | E | 450 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68766-35 | E | 350 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68A364 | R | 350 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68B364 | R | 350 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68B364 | R | 250 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68365-35 | R | 350 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68365-25 | R | 250 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68366-35 | R | 350 | 0110 | PD2364-24/MCM68766 |
| | | MCM 68366-25 | R | 250 | 0110 | PD2364-24/MCM68766 |
| | NEC | PD 2364 | R | 450 | 0110 | PD2364-24/MCM68766 |
| | Texas Instrument | TMS 4764 | R | 450 | 0110 | PD2364-24/MCM68766 |

## PP-400---PROGRAMMING MODULES

| CONFIGURATION | MANUFACTURER | PART NUMBER | TYPE (E-EPROM) (R-ROM) | ACCESS TIME (nS) | PROGRAMMING MODULE (PP-400) | ROM TEST I & ROM TEST II PERSONALITY BOARD |
|---|---|---|---|---|---|---|
| 8192 x 8--28 pin | Fujitzu | MBM 2764-20 | E | 200 | 0111 | Intel 2764 |
| | | MBM 2764-25 | E | 250 | 0111 | Intel 2764 |
| | | MBM 2764-30 | E | 300 | 0111 | Intel 2764 |
| | Harris | HM 6389 | R | 550 | 0112 | TMS 2564 |
| | Intel | 2764 | E | 200 | 0111 | Intel 2764 |
| | Mostek | MK 37000 | R | 300 | 0114 | Intel 2764 |
| | | MK 2764 | E | 450 | 0114 | Intel 2764 |
| | National Semiconductor | NMC 2564 | E | 450 | 0112 | TMS 2564 |
| | Texas Instrument | TMS 2564 | E | 450 | 0112 | TMS 2564 |
| | Toshiba | TMM 2364 | R | 250 | 0111 | + 2364 |

+ TMM2364board has 2 switches to select polarity for pins 26 & 27.

*2732A (Intel) is pin compatible with ROMs and EPROMs using programming module 0102, but takes a special programming module to program it----(0109).

NOTE: Information given by KURZ-KASCH in this publication is believed to be accurate and reliable.

However, we cannot be held responsible for any damage to devices which has been a result of using this reference sheet.

ROMs (mask programmed) chip enables may be programmed either high or low. This makes a universal module impossible--check the device for enable polarity and tie enables to proper voltage (out of socket) to program or read devices.

** "M" after number signifies "MOS". Letter may not be on board.