PA711D3-44(Z) Data Sheet
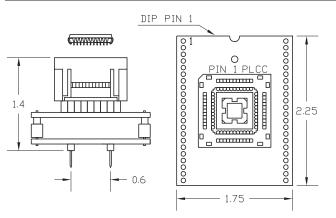## 44 pin PLCC socket/28 pin DIP 0.6" plug

Supported Device/Footprints

Using this adapter, the Motorola MC68HC711D3 in its 44 pin PLCC or CLCC package can be programmed in a 27C256 footprint.

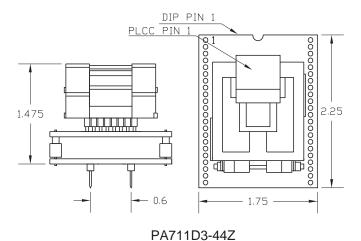| Device			Footprint	
Mfgr	Device	Package	Device	Plug
Motorola	MC68HC711D3	PLCC	27C256	28 pin DIP

This adapter puts the 'D3 in PROG Mode. In PROG Mode the 'D3 emulates a 27C256. Early releases of the 'D3 did not support PROG Mode. Mask C45A is not compatible with this adapter. Beginning with mask 1C67S PROG mode works and this adapter can be used.

Adapter Dimensions

DIP PIN 1

PIN 1 PLCC

1.4

0.6

2.25

1.75

Press rim to open socket, Press device to close

PA711D3-44

DIP PIN 1

PLCC PIN 1

1.475

0.6

2.25

1.75

PA711D3-44Z

Adapter Parts & Part Numbers

The following chart shows the various socket and board part numbers that make up these adapters.

Adapter	Test Socket	Top Board	Bottom Board
PA711D3-44	44-106 or 44-306	44PL2-1 or 44PL2-3	PA711D3
PA711D3-44Z	44-400	44PL2-Z	PA711D3

Adapter Construction

The adapter is made up of 3 sub-assemblies. They assemble via connectors making the adapter modular. This way the sub-assemblies can be replaced when they wear out.

When disassembling the adapter take care not to bend the pins. When reassembling the adapter note the pin 1 indicators to align the parts correctly.

Test Socket
PLCC Auto-Eject test socket:
   Yamaichi Part #: IC120-0444-106   LSC Part #: 44-106
   Yamaichi Part #: IC120-0444-306   LSC Part #: 44-306
ZIF Lidded socket:
   Yamaichi Part #: IC51-0444-400   LSC Part #: 44-400

44PL2-1, -3, -Z
Accepts the test socket and connects to the bottom board.

PA711D3
Performs the wiring shown in the Adapter Wiring section.

Adapter Wiring

This adapter connects an MC68HC711D3 to the footprint of a 27C256 as shown below. The chart shows the 27C256 signal names as the 'D3 is emulating a 27C256.

DEVICE	SIGNAL	PLUG	PLUG	SIGNAL	DEVICE
1	GND	14	-	N/C	44
2	GND	14	14	GND	43
3	A0	10	-	N/C	42
4	A1	9	14	GND	41
5	A2	8	14	GND	40
6	A3	7	25	A8	39
7	A4	6	24	A9	38
8	A5	5	21	A10	37
9	A6	4	23	A11	36
10	A7	3	2	A12	35
11	VPP	1	14	GND	34
12	D7	19	14	GND	33
13	D6	18	26	OE	32
14	GND	14	-	N/C	31
15	CE	20	14	GND	30
16	D0	11	14	GND	29
17	D1	12	14	GND	28
18	D2	13	14	GND	27
19	D3	15	-	N/C	26
20	D4	16	-	N/C	25
21	D5	17	-	N/C	24
22	VCC	28	14	GND	23

PROG Mode Compatability

While PROG mode makes the 'D3 look like a 27C256, it is not a perfect emulation. If the EPROM programmer's algorithm does not accomodate the 'D3's requirements, programming errors will occur. In that case there are three solutions.

1. A different programmer.
2. The programmer's manufacturer could add or change an algorithm to accomodate the 'D3.
3. The adapter may be returned for a refund.

The technical reason for this compatibility problem is that the 27C256 is a fully asynchronous device. Address and control signal inputs may change at any time.

The 'D3 is a synchronous device. It may be thought of as a 27C256 with internal address latches. The latches are updated when A0 or CE(OE on older die) changes. For example: if CE and OE are low and an address bit is changed a 27C256 would soon output the contents of a new address. The 'D3 would not. The 'D3 will not recognize the new address until the address latch is updated by a logic change at either A0 or the proper control signal (OE or CE).

Logical Systems has written a memo about this. It is intended to assist EPROM programmer manufacturers who wish to support the 68HC11 family. Copies are available, just ask for one.

EPROM Address Mapping

During normal operation the 4K bytes of EPROM in a 'D3 is accessed at addresses F000 through FFFF. In PROG MODE the same EPROM accessed by the programmer at addresses 0000 through 0FFF.

On the EPROM programmer, data for address F000 will have to be programmed into address 0000. When installed and run the 'D3 will fetch that byte from address F000.

The executable/load address translation may be made at compile/assemble time or during EPROM programming. Some assemblers and linkers provide a PHASE command to generate HEX files where the EPROM addresses and executable addresses are not the same. Most programmers either allow the HEX file to be loaded with an offset or the EPROM to be programmed from anywhere in the RAM. Either method will do.

In PROG MODE A12, A13, and A14 are don't cares. The programmer will access the same EPROM location in the 'D3 at addresses 0000, 1000, 2000, ... 7000. To prevent this from being a problem, limit the programming range to 0000 through 0FFF.