

HCMOS 8-BIT MICROCOMPUTER**PRELIMINARY INFORMATION****HARDWARE FEATURES**

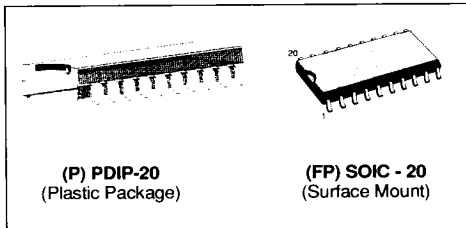
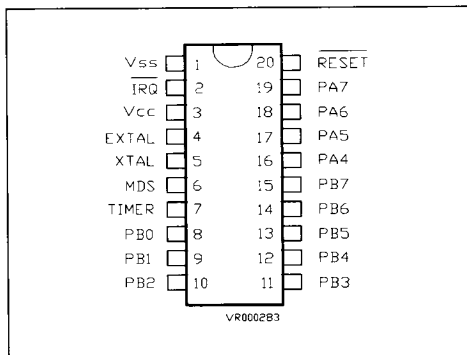
- Low power HCMOS
- Power saving stop and wait modes
- Single 2.0 to 6.0 volt power supply
- 8-bit architecture
- Fully static operation
- Pin compatible with the EF6804J2
- 124 bytes of on-chip RAM with standby mode
- 2 Kbytes of program ROM including 356 bytes for self-check program
- 72 bytes of user data ROM for look-up tables
- 12 TTL/CMOS compatible bidirectional I/O lines
- On-chip clock generator
- Extensive self-check capability allowing complete functional test of the chip (including ROM content)
- Master reset and power-on-reset
- 8-bit timer with software programmable 7-bit prescaler
- Timer pin programmable as input or output
- Complete development system support

SOFTWARE FEATURES

- Similar to EF6800 family
- Byte efficient instruction set
- Easy to program
- True bit manipulation
- Stop, wait and bit manipulation instructions
- Bit test and branch instructions
- Versatile interrupt handling
- Separate flags for normal and interrupt processing
- True LIFO 4-level stack eliminating stack pointer
- Maskable timer interrupt
- Versatile indirect registers
- Conditional branches
- Single instruction memory examine/change
- 9 powerful addressing modes

USER SELECTABLE OPTIONS

- Crystal or low-cost resistor oscillator option
- Mask selectable internal clock generator options
- Mask selectable edge or level sensitive interrupt pin
- Program rom protection option
- Optional pull-down devices on I/O lines

**PIN CONNECTIONS****INTRODUCTION**

The EF68HC04J3 microcomputer unit (MCU) is a member of the EF68HC04 family of very low cost and low power single chip microcomputers. This 8 bit microcomputer contains a CPU, on-chip clock, ROM, RAM, I/O, and timer. It is designed for the user who needs an economical microcomputer with the proven capabilities of the EF6800 based instruction set. The following are some of the hardware and software highlights of the EF68HC04J3 MCU.

APPENDIX A

The EF68HC04J3 MCU is similar to the EF68HC04P3 but has fewer I/O pins. Apart from the following memory, I/O, selftest and packaging details the entire EF68HC04P3 data sheet applies to the EF68HC04J3.

A.1 Memory

The EF68HC04J3 contains 124 bytes of data space RAM and 1696 bytes of program space ROM (including 8 bytes reserved for vectors). Figure A-1 shows the memory map of the EF68HC04J3.

A.2 Input/Output

Unlike EF68HC04P3 MCU the EF68HC04J3 has 12 I/O lines consisting of one 8 bit port (Port B) and one 4 bit port (Port A). All port lines are software programmable as either inputs or outputs.

A.2.1 Port Registers

The port registers for the EF68HC04J3 are memory mapped in data space as follows :

7	0
MSB	LSB

Port A Data Register Address = \$00 (Bits 4-7)
Port B Data Register Address = \$01
Port A Data Direction Register Address = \$04 (Bits 4 - 7)
Port B Data Direction Register Address = \$05

A.2.2 Pull Down Device Option

The following pulldown device options are available as manufacturing mask options on the EF68HC04J3 :

Pins PA4, PA5, PA6, PA7
Pins PB3, PB4, PB5, PB6, PB7
Pins PB1, PB2
Pins PB0

A.3 Self check and ROM verify

These 2 self test modes are similar in operation to those of the EF68HC04P3 but the hardware used to implement the tests is different (see Fig. A2, A3,).

Figure A0 : MCU Block Diagram.

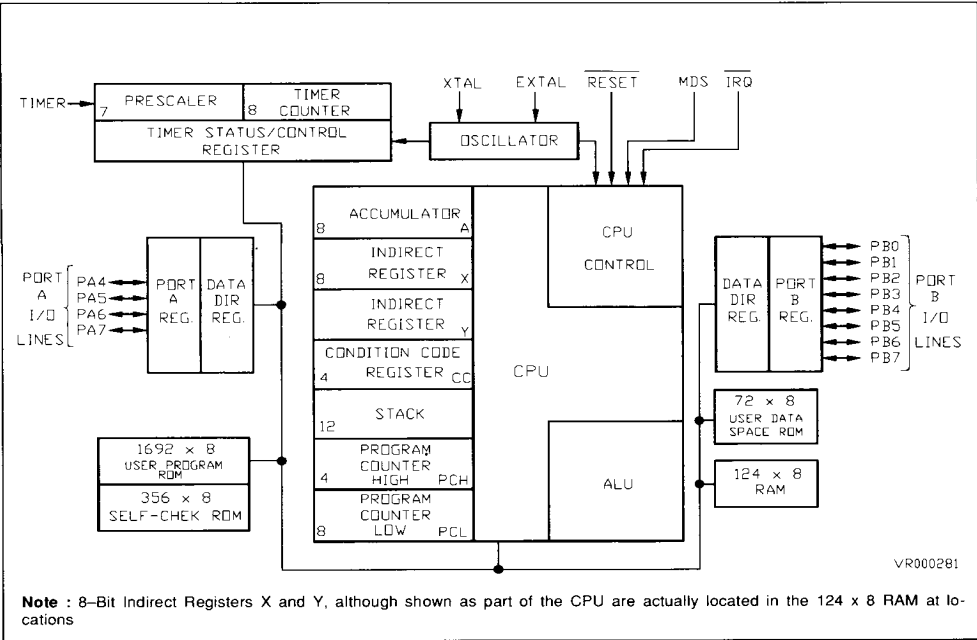


Figure A1 : MCU Address Map

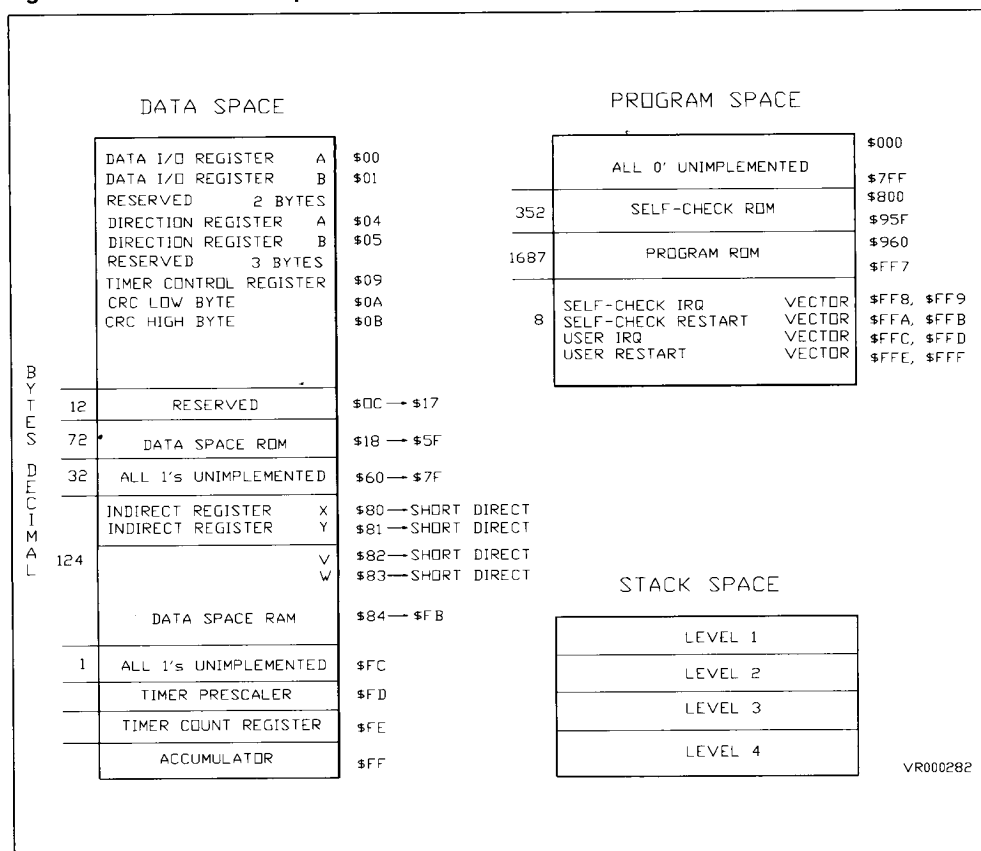
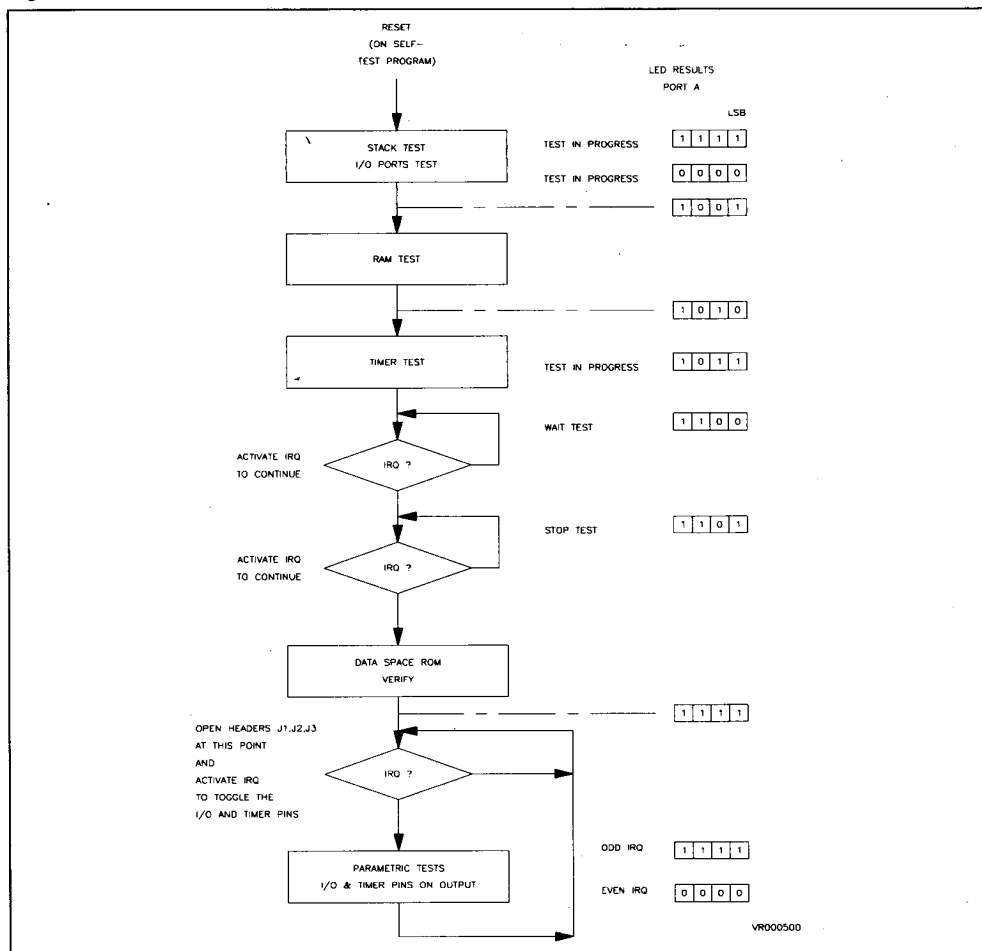
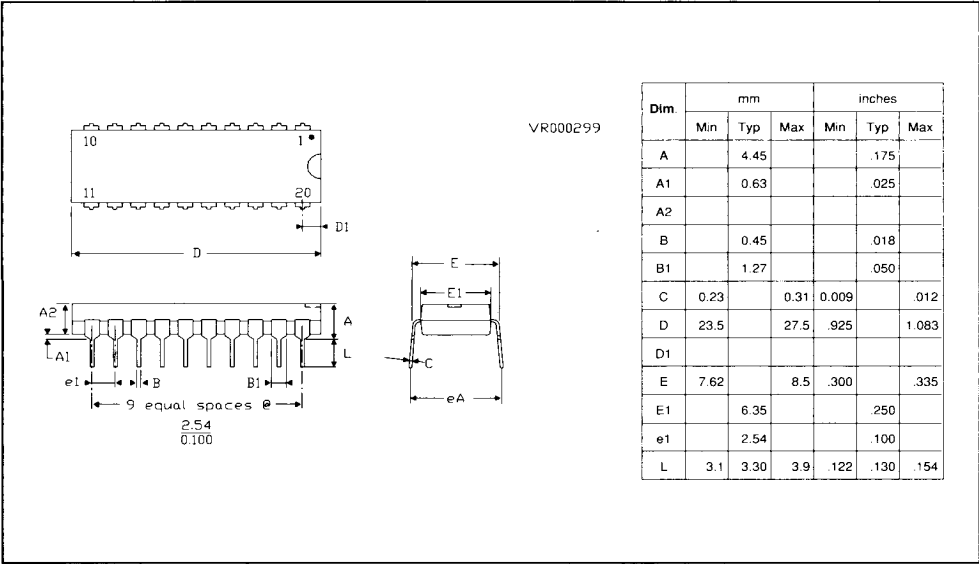


Figure A4 : Self-Check Flowchart

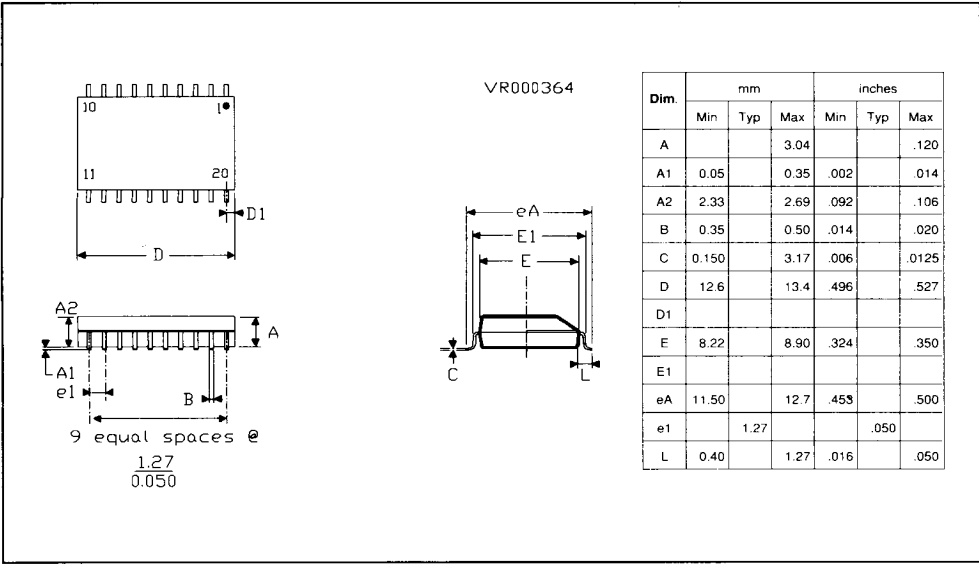


MECHANICAL AND PACKAGING DATA

20 PIN PLASTIC DIP (P) - 300 MIL



20 LEAD PLASTIC MICROPACKAGE (FP)



EF6804 FAMILY - MCU CUSTOMER ORDERING SHEET

Commercial reference : Customer name : Customer's marking : Company : Application : Address : Phone :

Specification reference :

☐ SGS-THOMSON Microelectronics reference : ☐ Special customer data reference : ROM capacity required : bytes

Quality level :

☐ STD☐ D☐ Other* (customer's quality specification ref.) :

Temperature range :

☐ 0°C/+70°C☐ -40°C/+85°C

Package : (plastic)

☐ DIL☐ SOIC

Software developed by :

☐ SGS-THOMSON Microelectronics application lab.☐ External lab.☐ Customer

PATTERN MEDIA (a listing may be supplied in addition for checking purpose) :

☐ EPROM Reference☐ Other*

TECHNICAL OPTIONS

☐ Frequency = MHz☐ Voltage Supply : ($\pm 10\%$)☐ 2.2V☐ 3.0V☐ 5.0V☐ 2.2V - 5.0V☐ 3.0V - 5.0V☐ I/O pull-down selection☐ PA47 = on PA4 to P7☐ PB37 = on PB3 to PB7☐ PB12 = on PB1 and PB2☐ PB0☐ PT = on Timer Pin☐ NPRO Program ROM protection disable☐ Interrupt trigger :☐ EM = Edge-sensitive☐ LEM = Level & edge-sensitive☐ LM = Level sensitive☐ I/O pull-up selection :☐ RE = on reset pin☐ IN = on interrupt pin☐ Oscillator divider :☐ D1 = 2**0 ☐ D2 = 2**1 ☐ D4 = 2**1

OPTION LIST

☐ Oscillator input :☐ Xtal ☐ RC

* Requires prior factory approval

Yearly Quantity Forecast :

RVU Approval Waived - ☐ Yes, ☐ No

Waived Quantity :

☐ start of production date :☐ for a shipment period of :

CUSTOMER CONTACT NAME :

DATE :

SIGNATURE :