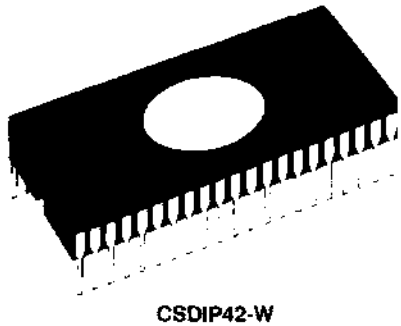
SGS-THOMSON MICROELECTRONICS

ST92E93
ST92T93

48K/32K EPROM AND OTP HCMOS MCUs WITH ON SCREEN DISPLAY AND CLOSED-CAPTION DATA SLICER

PRELIMINARY DATA

- Register oriented 8/16 bit CORE with RUN, WFI and HALT modes
- Minimum instruction cycle time: 500ns (12MHz internal)
- 48K/32K bytes of EPROM, 768/640 bytes of RAM, 224 general purpose registers available as RAM, accumulators or index registers (Register File)
- 42-lead Window Ceramic Shrink DIP package for ST92E93
- 42-lead Plastic Shrink DIP package for ST92T93
- Interrupt handler and Serial Peripheral Interface as standard features
- 31 fully programmable I/O pins
- 34 character x15 rows software programmable On Screen Display module with colour, italic, underline, flash, transparent and fringe attribute options
- 16 bit Timer with 8 bit Prescaler, able to be used as a Watchdog Timer
- 16-bit programmable Slice Timer with 8-bit prescaler
- 4 channel Analog to Digital Converter, with integral sample and hold, fast 5.75µs conversion time, 6-bit guaranteed resolution
- Rich Instruction Set and 14 Addressing modes
- Division-by-Zero trap generation
- Versatile Development tools, including assembler, linker, C-compiler, archiver, graphic oriented debugger and hardware emulators
- Real Time Operating System
- Compatible with ST9293 ROM device



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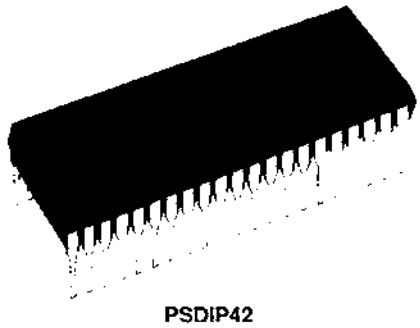


PSDIP42

May 1993

GENERAL DESCRIPTION

The ST92E93 is an EPROM member in windowed ceramic (E) and plastic OTP (T) packages of the ST9 family of microcontrollers, completely developed and produced by SGS-THOMSON Microelectronics using a n-well proprietary HCMOS process.

The EPROM parts are fully compatible with their ROM versions and this datasheet will thus provide only information specific to the EPROM based devices.

THE READER IS ASKED TO REFER TO THE DATASHEET OF THE ST9293 ROM-BASED DEVICE FOR FURTHER DETAILS.

The EPROM ST92E93 may be used for the prototyping and pre-production phases of development.

The nucleus of the ST92E93 is the advanced Core which includes the Central Processing Unit (CPU), the Register File, a 16-bit Timer/Watchdog with 8-bit Prescaler, a Serial Peripheral Interface supporting S-bus, I^2C-bus and IM-bus Interface, plus two 8-bit I/O ports. The Core has independent memory and register buses allowing a high degree of pipelining to add to the efficiency of the code execution speed of the extensive instruction set.The powerful I/O capabilities demanded by microcontroller applications are fulfilled by the ST92E93 with up to 31 I/O lines dedicated to digital Input/Output.

These lines are grouped into up to six I/O Ports and can be configured on a bit basis under softwarecontrol to provide timing, status signals, timer inputs and outputs, analog inputs, external interrupts and serial or parallel I/O.

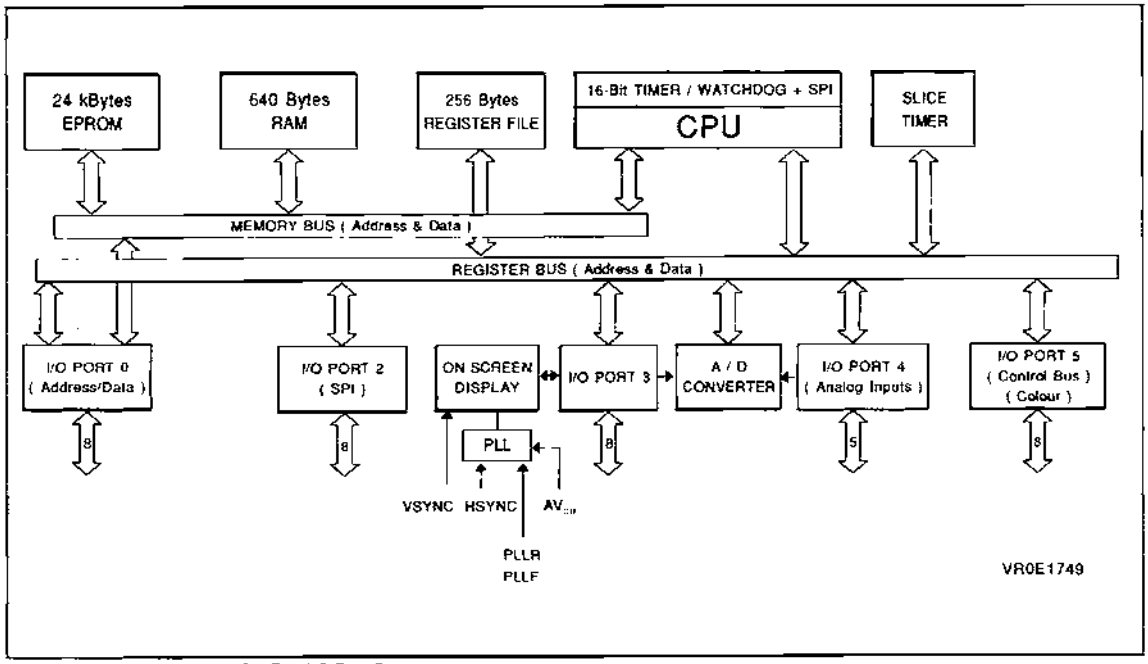
Three basic memory spaces are available to support this wide range of configurations: Program Memory, Data Memory and the Register File, which includes the control and status registers of the on-chip peripherals.

The 16-bit Slice Timer with an 8-bit Prescaler and 6 operating modes allows simple use for waveform-generation and measurement, PWM functions and many other system timing functions.

The human interface is provided by the On Screen Display module, this can produce up to 8 lines of of up to 34 characters from a ROM defined 128 character set. The 9x13 character can be modified by 4 different pixel sizes, with character rounding, and formed into words with colour and format attributes.

In addition there is a 4 channel Analog to Digital Converter with integral sample and hold, fast 5.5µs conversion time and 6-bit guaranteed resolution.

Figure 2.ST92E93 Block Diagram



Note : Refer to Table 1 for ST92E94 I/O Port Summary