EPSON

NEWSLETTER 2000

4

ASSP

NEW LCD CONTROLLER

SED1578

New LCD Controller for Automotive Applications

EPSON announces the SED1578, a new LCD controller/driver solution developed exclusively for the automotive industry. With a 1/17 multiplex rate, the SED1578 supports a resolution of 200 x 17 pixel and is ideally suited for two-line displays with up to 40 characters.

The SED1578 features the fully integrated voltage supply, built-in temperature sensor and n-line inverse function typical in EPSON's SED157x family of LCD controllers/drivers.

SED1578	
Resolution	200 x 17 pixel
MUX Rate	1/17
Memory	200 x 65 bit
Booster	Ext, 2x, 3x, 4x
Package	TCP, Die
Additional	Temperatur sensor n-line inverse

The SED 1578 is scheduled to be available in large quantities from October 2000.

ASMIC

BUILT-IN FLASH MEMORY

E0C88F360

8-bit Microcontroller with built-in flash memory now incorporated into Products

The new generation of microcontrollers based on NOR Flash Technology is now possible to be incorporated into products and already available in mass production.

The E0C88F360 is compatible with the mask ROM version of this microcontroller family, so it is effective for faster start when used at the initial stage of mass production, and for debugging during program development.

The products energy saving features include low voltage operation and low current consumption, especially in stand-by-mode. It has upper compatibility with mask ROM version microcontroller and is programmable up to 1000 times and more (typically). The advantages to companies include faster development times and lower development cost.

The product's applications include Clocks, LCD game equipment and portable equipment that require LCD operation. It is especially suitable for products that need short development time, have small volume or for multiple-variety products. Applications also include program debugging and sample production for each mask ROM version microcontroller.

CMOS

SOI TECHNOLOGY

SOI technology for lower power consumption in ICs

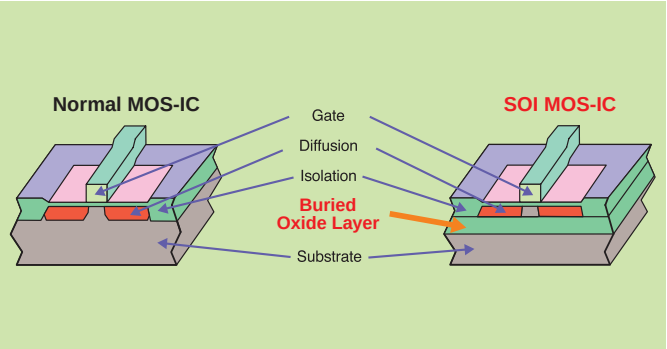
EPSON`s electronic devices and components business is making positive developments based on promoting the business concept "Energy saving" pursuing saving technologies for power saving, space saving and time saving. The semiconductor business especially is making positive advances in the development of CMOS IC products for mobile information equipment with a focus on low-voltage-operation and low-power-consumption ASICs, LCD-drivers/controllers, etc.

With the popularisation and expansion of mobile information equipment in recent years there is a high demands for the creation of faster, lower-power-consumption ICs. For lower power consumption ICs, handling of circuit design and pattern layout as well as handling of devices are important. EPSON decided to develop SOI (Silicon On Insulator) technology taking notice of its usefulness.

As the first step of development, EPSON promoted to develop basic technologies and completed it in spring 1998. As the second step, focusing on the super low voltage operation which is one of the most important features of the SOI technology and allows a reduction of power consumption without losing IC speed, EPSON has done trial design and trial production of ICs to utilize the feature.

EPSON was able to demonstrate that it is possible to carry out mass production manufacturing using similar processes as a normal CMOS IC.

As shown SOI devices have a structure whereby a buried oxide layer is formed under the diffusion. Each transistor is completely isolated by an insulation which makes the following features possible:



- Higher integration
  Latch up does not occur, so the p-n separation interval can be made small
- Lower voltage operation and lower power consumption
- Higher speed operation
  Junction capacitance is small
- Higher radiation resistance

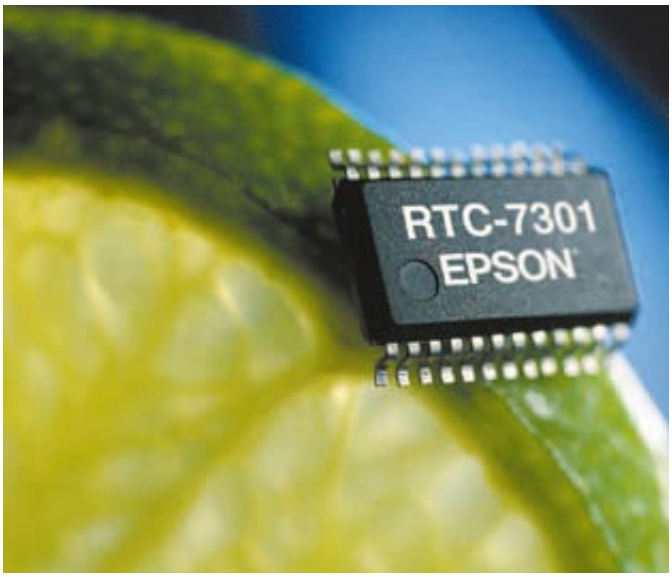
EPSON will proceed using SOI technology for developing ICs for mobile electronic equipment requiring low power consumption such as data banks, cellular phones and watches. Furthermore, EPSON is planning to move forward with finer structures of SOI technology in order to promote higher speed operation and to develop ICs for high frequency regions, an application field for compound semiconductors. The attributes of SOI technology match the ENERGY SAVING strategy EPSON is pursuing throughout its product range.

QD

RTC MODULE

RTC-7301

Mass production of Frequency-adjustable RTC Module started



An RTC (Real Time Clock) module is a device that contains a crystal unit and clock function LSI together in one package. EPSON has started taking mass production orders for an RTC-7301 with 4-bit parallel interface, built-in temperature sensor and digital frequency adjustment function. This adjustment function, with a range of +/-192 x 10^{-6} enables the user to adapt the RTC to his personal application and minimise the integrated time error over long periods. The temperature sensor is a completely independent function with a gain of typically – 7.8 mV/ °C.

The small dimensions of the JF type package make the RTC-7301 suitable for even the most size restricted environments.

This product facilitates more compact packages, higher time accuracy with a clock function and temperature sensor.

HATOGAYA PLANT

Seiko Epson Corporation acquires Texas Instrument`s Hatogaya Plant

Seiko Epson Corporation (EPSON) and Texas Instruments Japan Limited (TI Japan) announced that they reached an agreement for EPSON to acquire Texas Instruments' Hatogaya Plant located at Hatogaya City, Saitama Prefecture, Japan.

Both companies will enter detailed discussions to faciliate a smooth change-over enabling EPSON to commence their manufacturing at Hatogaya from the beginning of October, 2000.

EPSON's semiconductor manufacturing sites will total three with this acquisition. The other two are Fujimi Plant in Nagano Prefecture and Sakata Plant in Yamagata Prefecture. In Hatogaya, EPSON will manufacture LCD driver ICs on response to the rapidly growing market demand. With this new addition, EPSON's monthly manufacturing capability of LCD driver ICs will be increased to 35 million units, which is over 100% increase from last year.

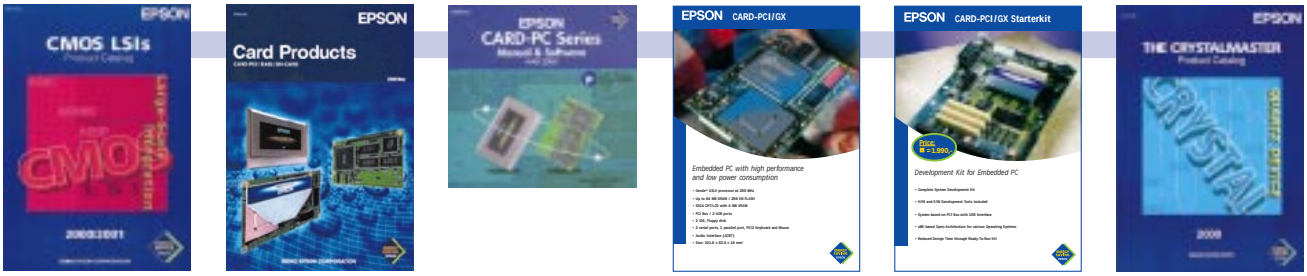
In future, EPSON will investigate into further expansion into 50 million units/month plan.

Hatogaya Plant Fact Sheet

1 Name:	EPSON Hatogaya Corporation
2. Capitalization:	490 million JYEN (100% subsidiary of SEC)
3. Business:	Manufacturing of Semiconductors etc.
4. Employees:	about 300
5. Date of Establishment:	July 19, 2000
6. Start of Operations:	October 01, 2000

Our actual catalogues

Ask for our latest catalogues.



EPSON EUROPE ELECTRONICS

Headquarters Munich	+49-(0)89-14005-0
Office Leverkusen	+49-(0)2171-50450
Office Paris	+33-1-648-623-50
Office London	+44-1344-381-700

www.epson-electronics.de
info@epson-electronics.de

ENERGY SAVING EPSON

THE POWER TO CREATE

EPSON®
ELECTRONIC DEVICES

EPSON CARD-PCI/GX Starterkit

Price:
EUR=1.990,-*

Development Kit for Embedded PC

- **Complete System Development Kit**
- **H/W and S/W Development Tools included**
- **System based on PCI Bus with USB Interface**
- **x86 based Open Architecture for various Operating Systems**
- **Reduced Design Time through Ready-To-Run Kit**

More information at
www.epson-electronics.de/starterkit
or by phone:
0049/89/14005277

*Excluding VAT.
 Offer expires at December 31, 2000.

ENERGY SAVING EPSON

THE POWER TO CREATE

EPSON®
ELECTRONIC DEVICES