

# 64 X 64 CROSSBAR

# HX9100

## FEATURES

- Fabricated with RICMOS™ IV Silicon on Insulator (SOI) 0.8 μm Process ( $L_{eff} = 0.65 \mu\text{m}$ )
- CMOS Compatible I/O
- Single 5V ± 10% Power Supply
- Full Complement of Screening Flows
- Supports System Speeds Beyond 100 MHz
- Skew <2 ns
- Total Dose Hardness of  $\geq 1 \times 10^6 \text{ rad}(\text{SiO}_2)$
- Dose Rate Upset Hardness  $\geq 1 \times 10^{11} \text{ rad}(\text{Si})/\text{sec}$  (5V)
- Dose Rate Survivability  $\geq 1 \times 10^{12} \text{ rad}(\text{Si})/\text{sec}$
- SEU Immunity  $\leq 1 \times 10^{-11} \text{ Errors/Bit-Day}$
- Neutron Fluence Hardness to  $1 \times 10^{14}/\text{cm}^2$
- No Latchup

## GENERAL DESCRIPTION

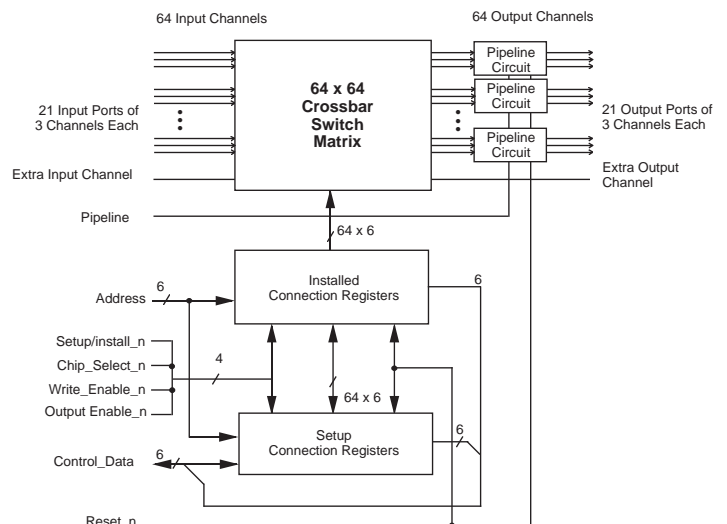
The HX9100 is a radiation hardened 64 x 64 crossbar switch that allows connecting any of 64 output channels to any of 64 input channels. Switching is controlled by a set of Connection Registers whose value can be set or read out by using the control lines.

There is an installed Connection Register for each output channel which determines which input channel is connected through the crossbar switch matrix to that output channel. There is also a Setup Connection Register for each output channel that may be used to setup the next connection to be made for that simultaneously into the Installed Connection Registers into change the routing through the crossbar switch matrix. This two-stage design allows a number of Setup Connection Registers to be changed sequentially and then moved simultaneously to the Installed Connection Registers so all of the new connections are made at the same time. If no change has been made to the Setup Connection Register for a channel, there is no change in the connection of that output channel when the Setup Connection Register contents are transferred to the Installed Connection Registers.

Data\_In and Data\_Out channels are each divided into a set of 21 three wire ports, each port consisting of a Clock channel, a Data channel and a Sync channel. One designated “extra” input channel and output channel are not considered part of any port. There is also a set of 21 two-bit Pipeline Registers, one for each output port, which optionally allows resynchronizing the Data and Sync

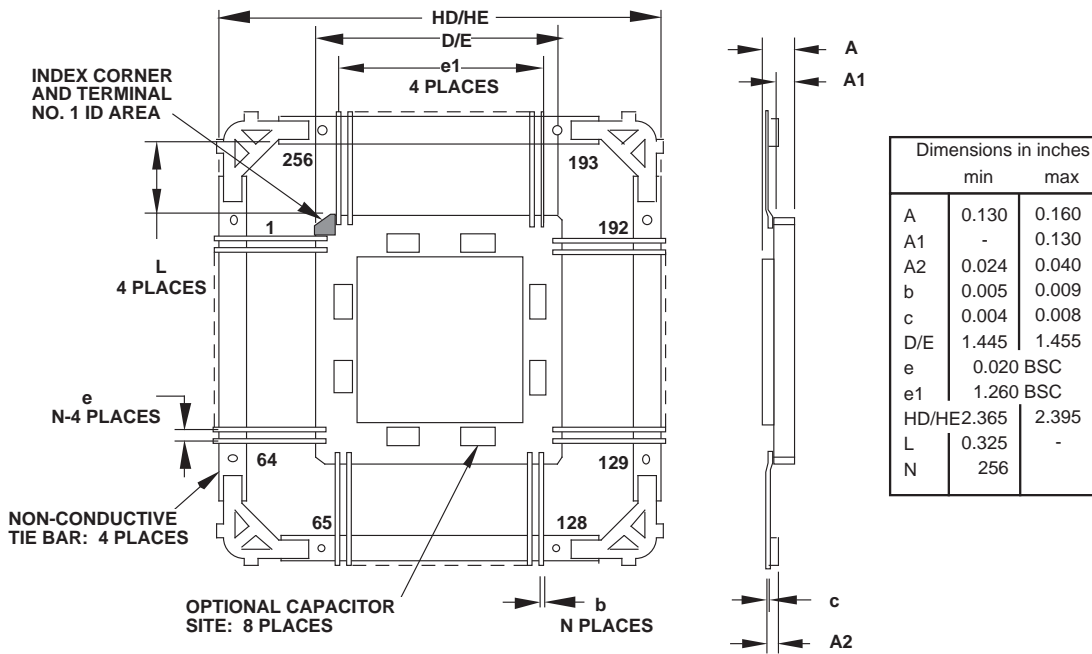
channels of a port to the Clock channel for that port. When pipelining is activated, using the Pipeline control line, the contents of the Data and Sync lines are latched in the Pipeline Register on the negative-going transition of the Clock channel for that port. When pipelining is not activated, the Clock, Data and Sync channels are passed directly to the Data\_Out lines without being latched.

## Functional Diagram

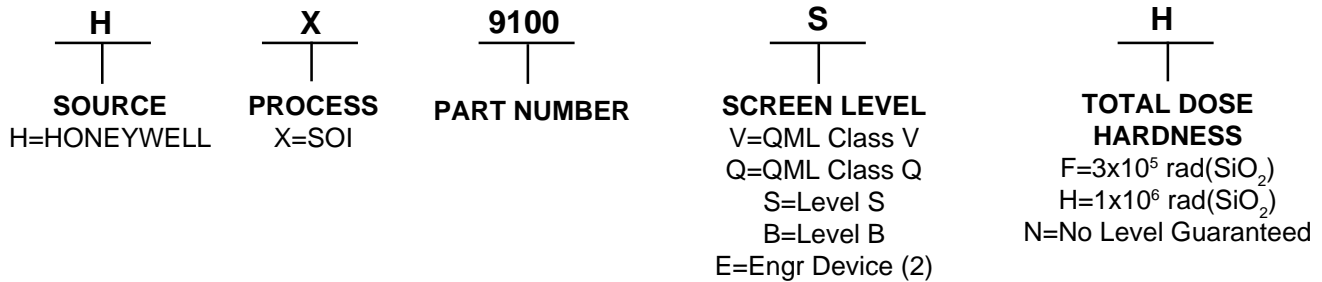


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## 256-LEAD FLAT PACK PACKAGE



### ORDERING INFORMATION (1)



(1) Orders may be faxed to 612-954-2051. Please contact our Customer Logistics Department at 612-954-2888 for further information.  
 (2) Engineering Device description: Parameters are tested from -55 to 125°C, 24 hr burn-in, no radiation guaranteed.  
 Contact Factory with other needs.

**To learn more about Honeywell Solid State Electronics Center, visit our web site at <http://www.ssec.honeywell.com>**

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