

IBM Industrial SLT Modules

(30 Nanoseconds Medium Speed)

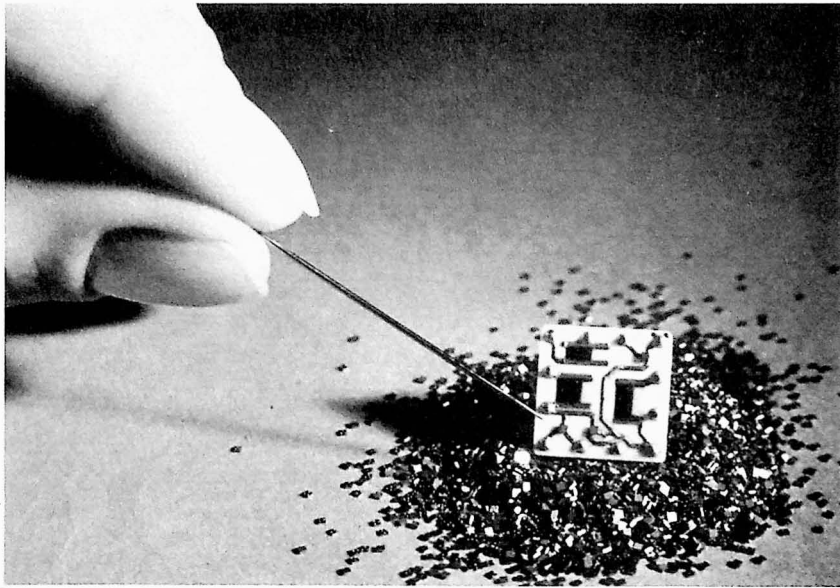
R. Erickson

IBM
INDUSTRIAL
PRODUCTS

IBM Industrial SLT (Solid Logic Technology) is a hybrid integrated circuit packaging technique combining compact size, increased speed and improved reliability. Basic circuit elements are planar glass-encapsulated transistors and diodes, each 28-thousandths of an inch square. Module circuitry is based on diode-transistor logic.

Features

- High fan-in, fan-out
- Good noise margin and immunity
- Low power dissipation
- Paralleled modules double fan-out
- Internal circuit flexibility...plus test points
- Building block modularity allows use of the same SLT modules in different functional configurations
- "dot-OR" second logic level
- Minimum parasitic interactions
- High performance characteristics



Typical Industrial SLT module shown with cap removed and surrounded by chip transistors and diodes (28-thousandths of an inch square).

General Information

IBM manufactures SLT modules at its Components Division plants at East Fishkill, New York, and Burlington, Vermont. During the final test, the acceptable modules are classified on the basis of their electronic performance into computer grade and industrial grade. Only the industrial grade modules are being offered for sale by IBM Industrial Products Marketing.

The industrial SLT modules described herein are not interchangeable with modules used on IBM systems logic cards.

No representation is made by IBM that the interconnection of SLT modules in the manner described herein will not infringe any existing or future patent rights. Nor do the descriptions contained herein imply the granting of a license to make, use or sell equipment connected in accordance therewith.

Circuit Voltages

Voltage levels for each of the circuit families are:

30 ns family

+0.0v, most negative; +3.0v, most positive

700 ns family

+0.0v, most negative; +12.0v, most positive

Transitions

Transition (Figure 1A) is the time a transistor output takes to switch from one logic state to the other. The voltage levels at which the transitions are measured for the different families are:

FAMILY	TRANSITION POINTS
30 ns, medium speed	+0.30v & 1.8v
700 ns, low speed	+0.29v & 2.0v

Switching times include turn-on transition, turn-off transition, turn-on delay, and turn-off delay. The different transition times are turn-on-transition, and turn-off transition. These values are basically the same for each of the circuit families. The major difference is that the transition points and voltage levels vary for each family.

Turn-on transition (Figure 1B) is the switching time from an off state to an on state. Turn-on transition is measured on the output waveform from a specified value in the nonconducting state, to a specified value in the conducting state.

Turn-off transition (Figure 1C) is the switching time from an on state to an off state. Turn-off transition is measured on the output waveform from a specified value in the conducting state to a specified value in a nonconducting state.

Turn-on-delay (Figure 1D) or **turn-off delay** (Figure 1E) is the time the circuit takes to change its output state due to a change in the state of the input. Switching time is measured from a point where the input waveform has reached a specified value to a point where the output waveform has reached a specified value.

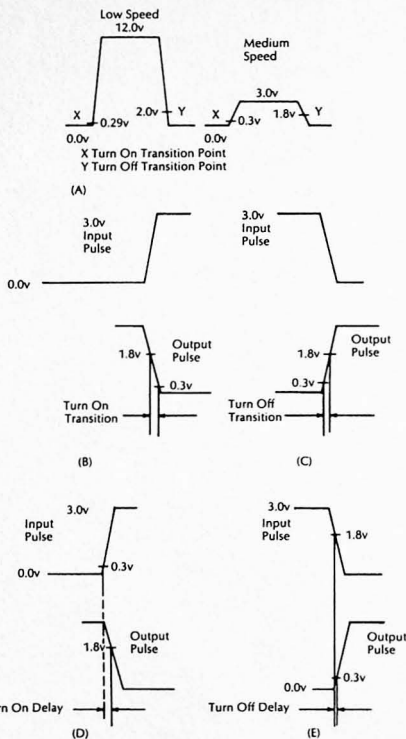


Fig. 1. Transitions and Circuit Measurements

Humidity

OPERATING—95% Maximum, Wet Bulb 30°C

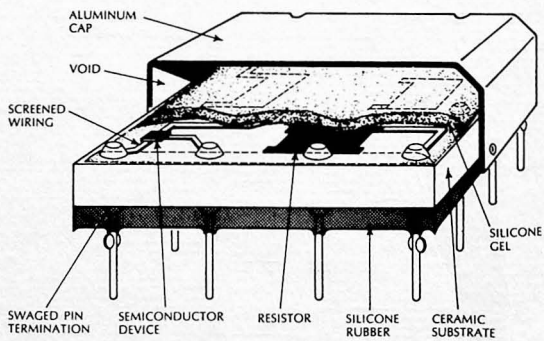
STORAGE —5% to 80%, Wet Bulb 0°C to 30°C
(No condensation permitted)

SHIPPING —5% to 100% Wet Bulb 0°C to 30°C
(Includes condensation but no rain)

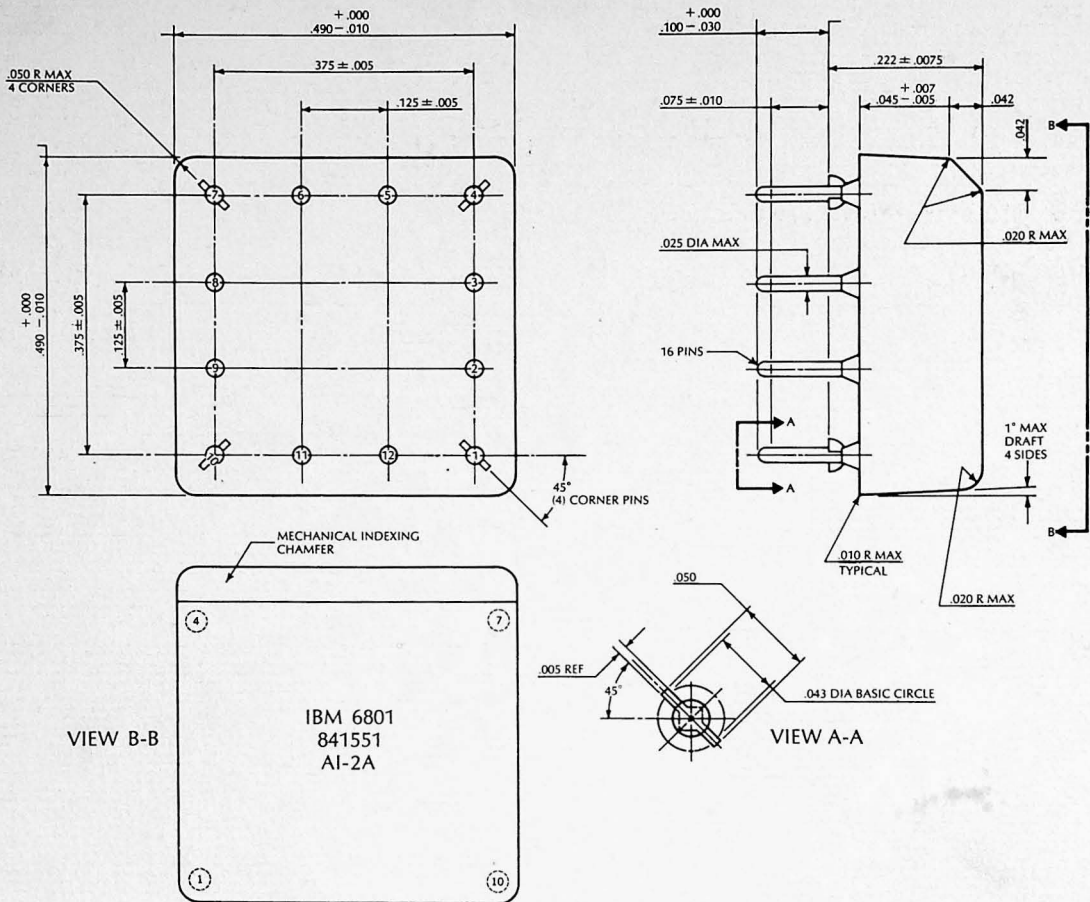
Temperature Range

OPERATING—0°C to a Maximum Junction Temperature of 75°C

STORAGE —Two months, 54°C to 65°C



Section drawing indicating design features of module. Silicone rubber provides additional protective seal from the environment.



Ordering Information

Order Point

Requests for price quotations and other inquiries should be directed to IBM Industrial Products, 1000 Westchester Avenue, White Plains, N. Y. 10604.

IBM reserves the right to make changes in specifications, prices and performance. Furthermore, because of the nature of its production, IBM cannot guarantee the indefinite availability of any of its modules. Prices are subject to change without notice.

Terms

Net thirty days, f.o.b. East Fishkill, New York

Conditions

1. If for any reason IBM discontinues a part number, all potential users will be notified at least one year in advance.

2. All written quotations are effective for thirty days from date of quotation.

3. A single order may be distributed over a twelve-month period from the first to the final shipment, for application of mixed quantity discount. Minimum order—\$25.00.

4. Decreases in quantity of acknowledged orders will subject the entire order to the applicable price on the revised quantity. Supplemental billing on invoices already issued may be required.

General

Please specify:

1. IBM part number, module type
2. Method of shipment
3. Required delivery date
4. Special instructions including tax exemption qualifications