

GENERAL ELECTRIC

COMPANY

■ **PRESS RELATIONS..Nela Park, Cleveland, Ohio 44112.. Area Code: 216**
L. F. Muehling Tel. 266-2258

NEW YORK, N. Y. MARCH 20 -- The General Electric Company announced today it has begun production of tiny "solid state" lamps with the ability to operate indefinitely as indicator and action-triggering lamps in space ships, aircraft and computers.

A spokesman for the company's Miniature Lamp Department said, "Laboratory samples of our first solid state lamp, the SSL-1, have operated continuously for more than 10,000 hours... a little more than a year... and so far show no sign of deteriorating. Theoretically, they might operate at full brightness for years, perhaps a lifetime, in applications such as earth-orbiting weather stations."

The announcement coincided with the opening here of the Institute of Electrical and Electronics Engineering exhibition where the new lamps were demonstrated today.

Heart of the SSL-1 is a pinhead-size crystal "grown" at high temperature in industrial ovens from powdered silicon carbide. Resulting crystals have a hardness that rivals diamonds. When lighted at low voltage, they glow brightly with a whitish yellow light.

GE engineers described the SSL-1 as a "high visibility" lamp with more usable light than any other solid state lamp. Its peak light wavelength (about 5,900 Angstroms) is very close to that to which the human eye is most responsive. Visibility is also enhanced by the fact that the entire top surface of the lamp, an area one millimeter square, is used as the light source.

The edges of the SSL-1 give off even brighter light, and this narrow but more concentrated brightness may make them useful as "readout" lamps, seven-part lamps which can form any letter or number.

The SSL-1 is "just a beginning in a series of possible types of solid state lamps or light emitting diodes which will be offered by the General Electric Company," according to Gomer F. Davis, Marketing Manager of the company's Miniature Lamp Department.

"Subsequent models will be built around different packaging concepts for the crystal chips; some will look like sub-miniature lamps, but others will look even less like conventional lamps than the SSL-1.

"For use in card reader computers, for instance, the chip might be mounted vertically in order to use the edge light to best advantage. This would be true, too, of readout lamps," the GE spokesman said.

Unlike any other lamp the crystal chips operate effectively in any environment, even when they are unenclosed. This feature and their shock and vibration resistance make them ideal for aerospace applications, he said.

The new GE SSL-1 lamp is mounted on a standard transistor base and capped by a "tophat" capsule and a lens. Individual sample lamps that will fit any standard transistor socket are available at \$9.50, while lamps in production quantities will be priced at about \$6.60.

Each sample lamp is tested photometrically, and its own unique and slightly different electrical "personality" rating is given to the purchaser to facilitate design work of equipment using the lamp. Information includes the light output, intensity and color, and electrical characteristics. The latter are particularly important, according to GE engineers, since most SSL-1's will be used with solid state circuits.

Production of the GE lamp begins when silicon carbide granules are heated in a high temperature furnace. Temperatures up to 2600°C cause the granules to vaporize then crystalize into a form somewhat like rock candy.

The resulting crystals are ground smooth on both sides and coated with a semi-conductor layer. The crystals are then diced into tiny chips, each about the size of a pinhead. Finally, gold lead wires are attached top and bottom to each chip and a lamp is born.