

1. Scope :

This specification applies to NPN silicon phototransistor chips,
Device No. ST-0139B.

2. Structure :

- 2-1. Planar type.
- 2-2. Electrodes :
 - N (Collector) side : Gold alloy.
 - P (Base) side : Aluminum alloy.
 - N (Emitter) side : Aluminum alloy.

3. Size :

- 3-1. Chip size(including scribe lane) : 16.93 mils × 25.98 mils (0.430 mm × 0.660 mm).
- 3-2. Real chip size : 16.14 mils × 25.20 mils ± 1 mils (0.410 mm × 0.640 mm ± 0.025 mm).
- 3-3. Chip thickness : 7.5 ± 1.5 mils (0.191 ± 0.038 mm).
- 3-4. Active area : 11.25 mils × 20.31 mils (0.286 mm × 0.516 mm).
- 3-5. Pattern drawing : refer to the attached drawing.

4. Electrical characteristics (Ta = 25 °C)

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|-------------|------------------------------|------|------|------|------|
| Collector-emitter Breakdown Voltage | BV_{CEO} | $I_C=100\mu A$ $I_B=0$ | 70 | | | V |
| Emitter-collector Breakdown Voltage | BV_{ECO} | $I_E=10\mu A$ $I_B=0$ | 7 | | | V |
| Collector dark current | I_{CEO} | $V_{CE}=20V$ $H=0mw/cm^2$ | | | 60 | nA |
| Collector-emitter Saturation Voltage | $V_{CE(S)}$ | $I_C=2mA$ $I_B=100\mu A$ | | | 0.2 | V |
| Current gain | h_{FE} | $V_{CE}=5V$ $I_C=2mA$ | 200 | | | |

