TYPE TIL149
SOURCE AND SENSOR ASSEMBLY

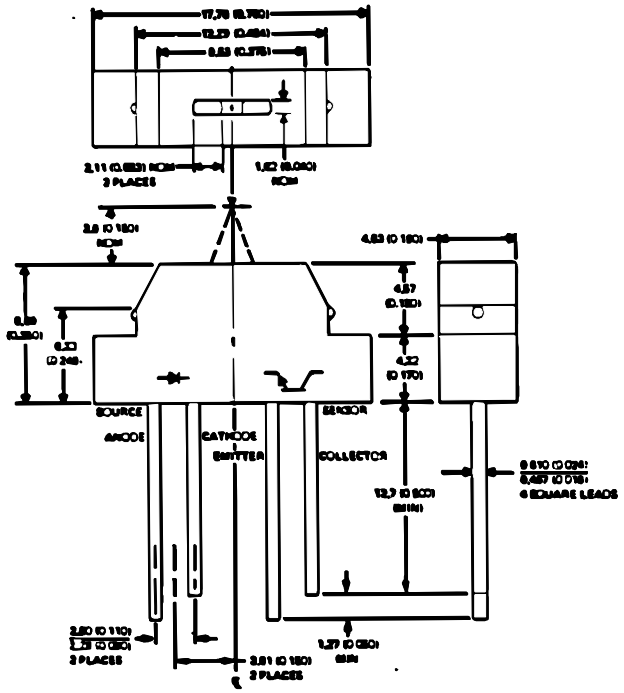
BULLETIN NO. DL-S 12385, MARCH 1976–REVISED MARCH 1976

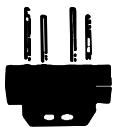
OPTOELECTRONIC MODULE FOR REFLECTIVE SENSING APPLICATIONS

- Adaptable for Printed Circuit Board Mounting
- Designed for Sensing Applications such as Line Finders, Batch Counters, Level Indicators, and Beginning-of-Tape/End-of-Tape Indicators

mechanical data

The assembly consists of a TIL32 gallium arsenide infrared-emitting diode and an n-p-n silicon phototransistor similar to TIL78 mounted in a molded ABS† plastic housing. The assembly will withstand soldering temperature with no deformation and device performance characteristics remain stable when operated in high-humidity conditions. Total assembly weight is approximately 0.9 grams.





NOTES a. All dimensions are in millimeters and parenthetically in inches.
b. Tolerance is ±0.013 mm (0.005 inch) unless otherwise noted.

absolute maximum ratings at 25°C free-air temperature (unless otherwise noted)

Source Reverse Voltage	2 V
Source Continuous Forward Current (See Note 1)	40 mA
Sensor Collector-Emitter Voltage	30 V
Sensor Emitter-Collector Voltage	7 V
Sensor Continuous Dissipation at (or below) 25°C Free-Air Temperature (See Note 2)	50 mW
Storage Temperature Range	−40°C to 85°C
Lead Temperature 1.6 mm (1/16 Inch) Inch from Assembly for 5 Seconds	240°C

NOTES: 1. Derate linearly to 80°C free-air temperature at the rate of 0.73 mA/°C.
2. Derate linearly to 80°C free-air temperature at the rate of 0.91 mW/°C.

†ABS thermoplastics are derived from acrylonitrile, butadiene, and styrene

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electrical characteristics at 25°C free-air temperature

PARAMETER		TEST CONDITIONS†	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 100 μA, I_F = 0	30			V
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	I_E = 100 μA, I_F = 0	7			V
$I_{C(off)}$	Off-State Collector Current	V_{CE} = 15 V, I_F = 0			100	nA
$I_{C(on)}$	On-State Collector Current	V_{CE} = 5 V, I_F = 40 mA, See Note 3	25	275		μA
V_F	Input-Diode Static Forward Voltage	I_F = 40 mA		1.2	1.6	V

†Stray irradiation outside the range of device sensitivity may be present. A satisfactory condition has been achieved when the parameter being measured approaches a value that cannot be altered by further irradiation shielding.

NOTE 3: Reflective surface is aluminum foil typical of beginning-of-tape/end-of-tape strips. It is 0,026 mm (0.001 inch) thick and placed 3,81 mm (0.150 inch) from the read head.

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