

TYPE TIL139 SOURCE AND SENSOR ASSEMBLY

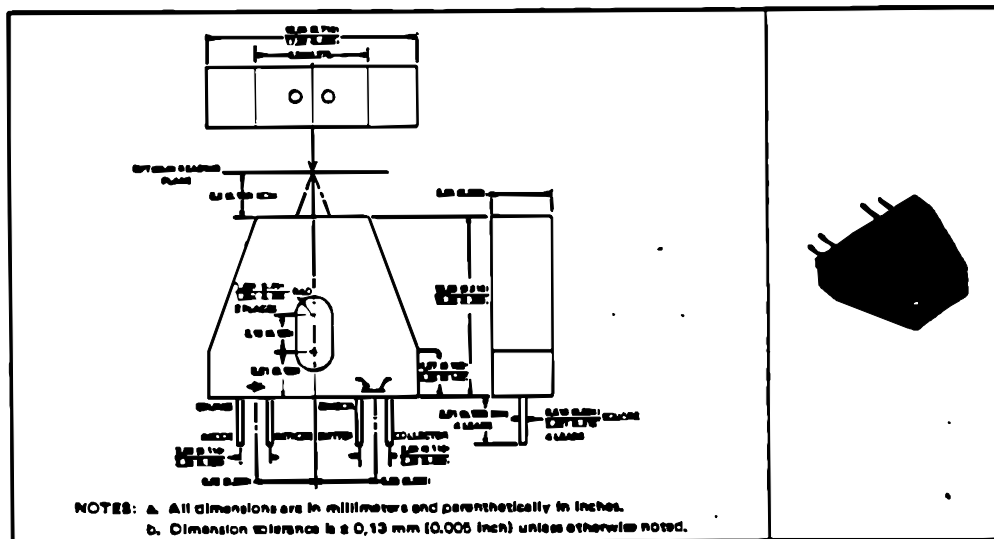
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OPTOELECTRONIC MODULE FOR REFLECTIVE SENSING APPLICATIONS

- 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 a TIL78 n-p-n silicon phototransistor 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 1.2 grams.



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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	50 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 0.81 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 ¹	MIN	TYP	MAX	UNI
V _{(BR)CEO} Collector-Emitter Breakdown Voltage	I _C = 100 μA, I _F = 0	60			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} = 30 V, I _F = 0				
I _{C(on)} On-State Collector Current	V _{CE} = 5 V, I _F = 40 mA, See Note 3	10	125		μA
	V _{CE} = 5 V, I _F = 40 mA, See Note 4	5	60		
	V _{CE} = 5 V, I _F = 40 mA, See Note 5	100	1100		
V _F Input-Diode Static Forward Voltage	I _F = 40 mA	1.2	1.6		V

¹Stray irradiation outside the range of device sensitivity may be present. A satisfactory condition has been achieved when the parameter being measured approaches a value which cannot be altered by further irradiation shielding.

NOTES 3. Reflective surface is Eastman Kodak (or equivalent) neutral white paper with 90% diffuse reflectance placed 3.81 mm (0.150 inch) from read head.

4. Reflective surface is Mylar[‡] (or equivalent) magnetic tape placed 3.81 mm (0.150 inch) from read head.

5. Reflective surface is aluminum foil typical of beginning-of-tape/end-of-tape strips. It is 0.025 mm (0.001 inch) thick and placed 3.81 mm (0.150 inch) from read head.

[‡]Trademark of E. I. duPont de Nemours, Inc.