

TYPES TIL31B, TIL33B, TIL34B P-N GALLIUM ARSENIDE INFRARED-EMITTING DIODES

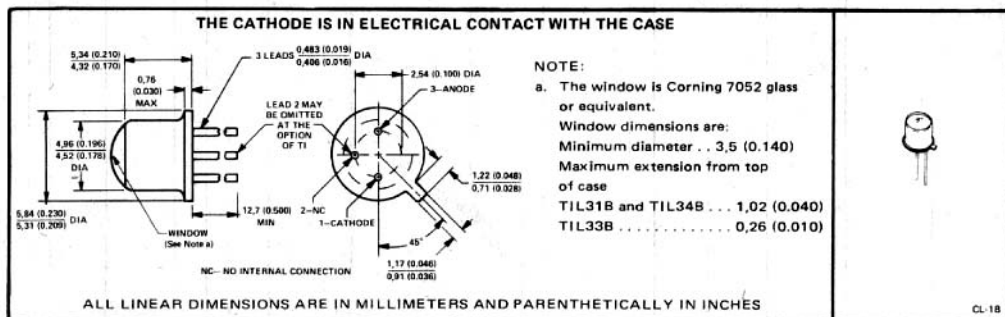
D1934, NOVEMBER 1974—REVISED FEBRUARY 1983

DESIGNED TO EMIT NEAR-INFRARED RADIATION WHEN FORWARD BIASED

- "B" Versions Especially Designed for Low Degradation and are Direct Replacements for the "A" Versions
- Spectrally and Mechanically Compatible with TIL81 and TIL99 Phototransistors
- Typical Applications Include Card Readers, Encoders, Intrusion Alarms, Sector Sensors, Level Indicators, and Beginning-of-Tape/End-of-Tape Indicators
- TIL31HR2* Includes High-Reliability Processing and Lot Acceptance (See Page 3-11 for Summary of Processing)

mechanical data

Each device is in a hermetically sealed welded case similar to JEDEC TO-18 with window. The TIL31B and TIL34B have convex lenses while that of the TIL33B is essentially flat. A coin header is used to increase dissipation capability. All TO-18 registration notes also apply to this outline. Approximate weight is 0.35 gram.



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*On the original TIL31, TIL33, and TIL34, the anode was in electrical contact with the case. Lead 2, which had no internal connection, is omitted on the B-suffix versions.

absolute maximum ratings

Reverse Voltage at 25°C Case Temperature	5 V
Continuous Forward Current at 25°C Case Temperature (See Note 1)	200 mA
Operating Case Temperature Range	-65°C to 150°C
Storage Temperature Range	-65°C to 150°C
Lead Temperature 1,6 mm (1/16 Inch) from Case for 10 Seconds	240°C

operating characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS	TIL31B			TIL33B			TIL34B			UNIT	
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX		
P _O Radiant Power Output	I _F = 100 mA	3.3	6		2.5	5		2	3		mW	
λ _p Wavelength at Peak Emission		915	940	975	915	940	975	915	940	975	nm	
Δλ Spectral Bandwidth			50	75		50	75		50	75	nm	
θ _{HI} Half-Intensity Beam Angle			10°			80°			10°			
V _F Static Forward Voltage			1.4	1.75		1.4	1.75		1.4	1.75		V
t _r Radiant Pulse Rise Time†	I _{FM} = 100 mA,	600			600			600			ns	
t _f Radiant Pulse Fall Time†	t _w ≥ 5 μs	350			350			350				

*All electrical and mechanical specifications for the TIL24 also apply for TIL24HR2.

†Radiant pulse rise time is the time required for a change in radiant intensity from 10% to % of its peak value for a step change in current; radiant pulse fall time is the time required for a change in radiant intensity from 90% to 10% of its peak value for a step change in current.

NOTE 1: Derate linearly to 150°C case temperature at the rate of 1.6 mA/°C.

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