



Slotted Photointerrupters

LTH-301-20/LTH-301-24/LTH-306-04

Features

- Non-contact switching.
- For direct PC board or dual-in-line socket mounting.
- Fast switching speed.

Application

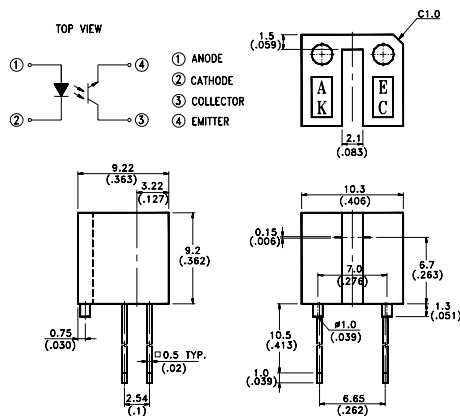
- Printer
- Scanner
- Disk driver

Description

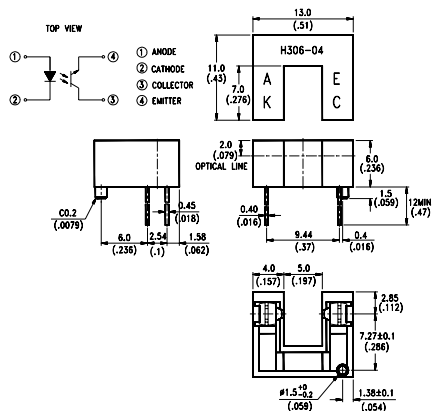
The LTH-301/LTH-306 series consist of Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor mounted in a black plastic housing. Phototransistor switching takes place whenever an opaque object passes through the slot. The LTH-301A series is designed for direct soldering into PC board or mounting in standard dual-in-line socket.

Package Dimensions

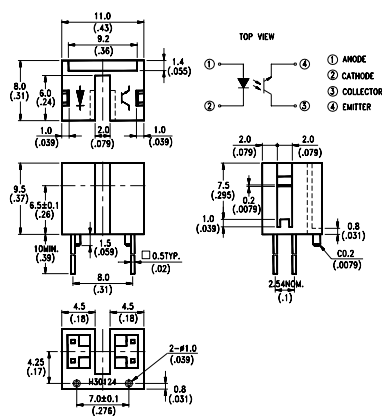
LTH-301-20



LTH-306-04



LTH-301-24



PHOTOINTERRUPTERS

Notes:

- 1.All dimensions are in millimeters (inches).
- 2.Tolerance is ± 0.25 mm (.010").
- 3.Lead spacing is measured where the leads emerge from the package.
- 4.Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25°C

Parameter		Symbol	Maximum Rating	Unit
Input LED	Continuous Forward Current	I _F	60	mA
	Reverse Voltage	V _R	5	V
	Peak Forward Current (Pulse Wide=10 μ S, 300PPS)	I _{CP}	1	A
	Power Dissipation	P _D	75	mW
Output phototransistor	Collector Current	I _C	20	mA
	Power Dissipation	P _C	100	mW
	Collector-emitter Voltage	V _{CEO}	30	V
	Emitter-collector Voltage	V _{ECO}	5	V
Operating Temperature Range		T _{opr}	-25°C to + 85°C	
Storage Temperature Range		T _{stg}	-40°C to + 100°C	
Lead Soldering Temperature [1.6mm(.063 in.)from body]		T _s	260°C for 5 Seconds	

Electrical Optical Characteristics at Ta=25°C

Parameter		Symbol	Part No.	Min.	Typ.	Max.	Unit	Test Condition
Input LED								
Forward Voltage		V _F			1.2	1.6	V	I _F =20mA
Reverse Current		I _R				100	μ A	V _R =5V
Output phototransistor								
Collector Dark Current		I _{CEO}				100	nA	V _{CE} =10V
Coupler								
Collector-Emitter Saturation Voltage		V _{CE(sat)}	LTH-301-20			0.4	V	I _C =0.035mA, I _F =20mA
			LTH-301-24			0.4		I _C =0.35mA, I _F =20mA
			LTH-306-04			0.4		I _C =0.25mA, I _F =20mA
On State Collector Current		I _{C(ON)}	LTH-301-20	0.07	0.15		mA	V _{CE} =5V, I _F =20mA
			LTH-301-24	0.7		20		
			LTH-306-04	0.5	2			
Response Time	Rise Time	t _r			3	15	μ S	V _{CE} =5V, I _C =2mA R _L =100 Ω
	Fall Time	t _f			4	20		

Typical Electrical/Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

Fig.1 Power Dissipation vs.
Ambient Temperature

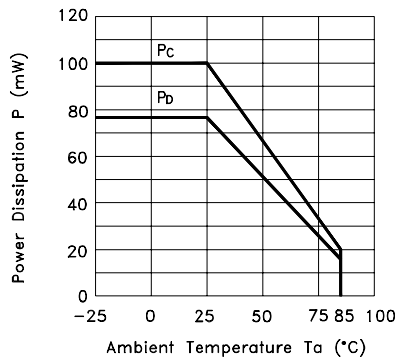


Fig.2 Forward Current vs.
Forward Voltage

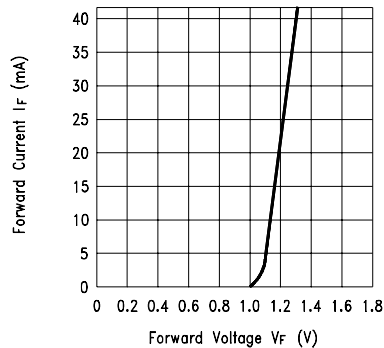


Fig.3 Collector Current vs.
Collector-emitter Voltage

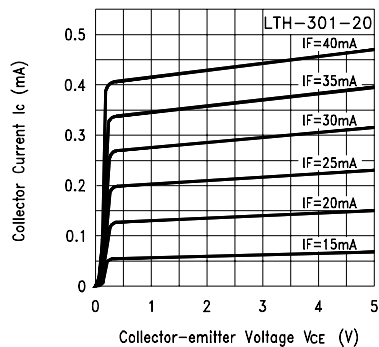


Fig.4 Collector Current vs.
Collector-emitter Voltage

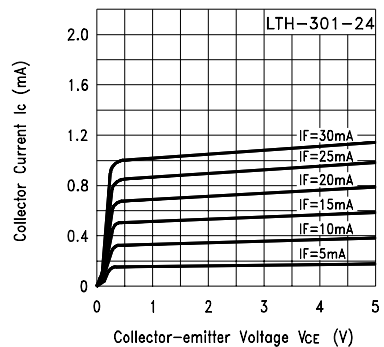


Fig.5 Collector Current vs.
Collector-emitter Voltage

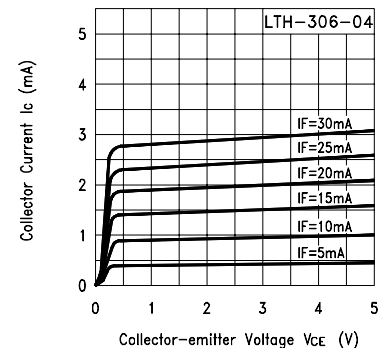
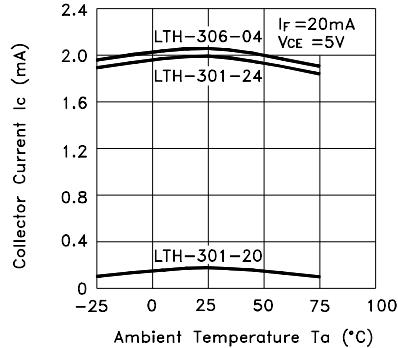


Fig.6 Collector Current vs.
Ambient Temperature



Typical Electrical/Optical Characteristic Curves
(25°C Ambient Temperature Unless Otherwise Noted)

Fig.7 Collector-emitter Saturation Voltage vs. Ambient Temperature

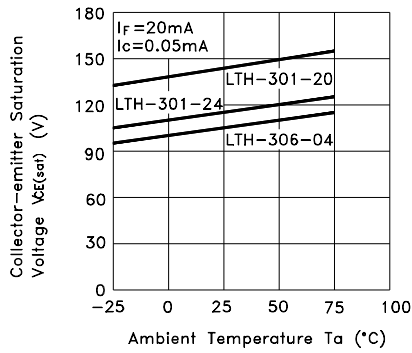
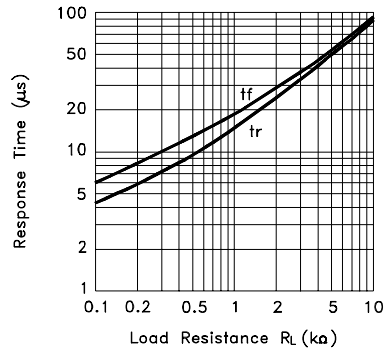


Fig.8 Response Time vs. Load Resistance



Test Circuit for Response Time

