LITEON®
OPTOELECTRONICS

Photointerrupter
Product Data Sheet
LTH-301-07P5

Spec No. :DS-55-99-0026
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LITE-ON DCC

RELEASE

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Photo-Interrupter
LTH-301-07P5

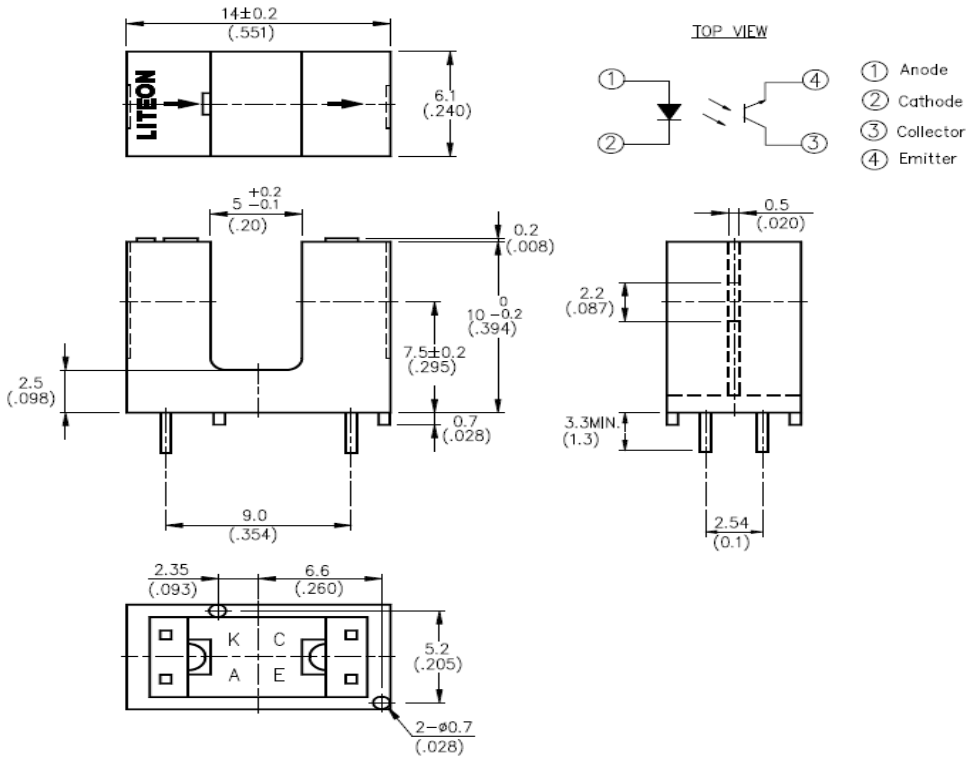
1. Description

Photointerrupters consist of infrared emitters and photo detectors in slotted, reflective and actuator type switches. Featuring high reliability, accuracy and special custom-tailored devices to fulfill various sensor requirements such as facsimile machine, copy machine, printer, scanner··· etc. Our skilled team of specialists with engineering expertise is ready to offer fast support for the requirements of custom-made parts and co-development with customers.

1. 1. Features

- NON-Contact Switching
- For Direct Pc Board Or Dual-In-Line Socket Mounting
- Fast Switching Speed

2. Outline Dimensions



Notes :

1. All dimensions are in millimeters.
2. Tolerance is ±0.25mm unless otherwise noted.

3. Absolute Maximum Ratings at TA=25℃

Parameter	Maximum Rating	Unit
INPUT LED		
Power Dissipation	80	mW
Peak Forward Current (300 pps , 10 μS pulse)	1	A
Continuous Forward Current	50	mA
Reverse Voltage	5	V
OUTPUT PHOTOTRANSISTOR		
Power Dissipation	100	mW
Collector-Emitter Voltage	30	V
Emitter-Collector Voltage	5	V
Collector Current	20	mA
Operating Temperature Range	-25℃ to + 85℃	
Storage Temperature Range	-40℃ to + 100℃	
Lead Soldering Temperature [1.6mm (.063") From Case]	260℃ for 5 Seconds	

4. Electrical / Optical Characteristics at TA=25℃

Parameter		Symbol	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	μA	V_R = 5V
OUTPUT PHOTOTRANSISTOR							
Collector-Emitter Dark Current		I_{CEO}	-	-	100	nA	V_{CE} = 10V
Collector-Emitter Voltage		BV_{CEO}	30	-	-	V	I_{CE}=1mA
Emitter-Collector Voltage		BV_{ECO}	5	-	-	V	I_{EC}=100uA
COUPLER							
Collector Emitter Saturation Voltage		$V_{CE(SAT)}$	-	-	0.4	V	I_C = 0.2mA I_F = 20mA
On State Collector Current		$I_{C(ON)}$	0. 6	-	-	mA	V_{CE} = 5V I_F = 20mA
Response Time	Rise Time	Tr	-	3	15	μS	RL=100Ω, F=10KHZ, Ic=2mA, Vce=5V
	Fall Time	Tf	-	4	20		

NOTE:

1. Forward voltage of tolerance +/-0.1V; Others of tolerance ±10%.

5. Typical Electrical / Optical Characteristics Curves

(25℃ Ambient Temperature Unless Otherwise Noted)

Fig.1 Power Dissipation vs. Ambient Temperature

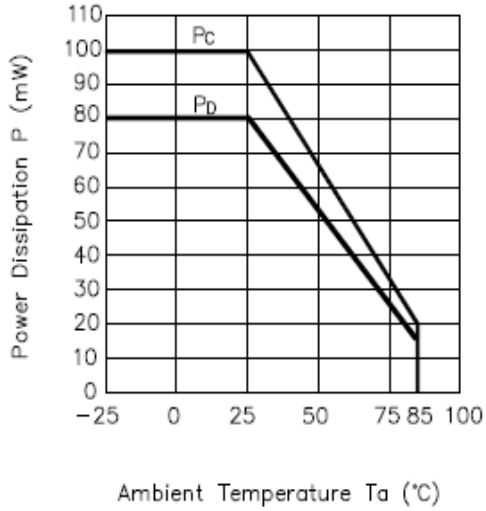


Fig.2 Forward Current vs. Forward Voltage

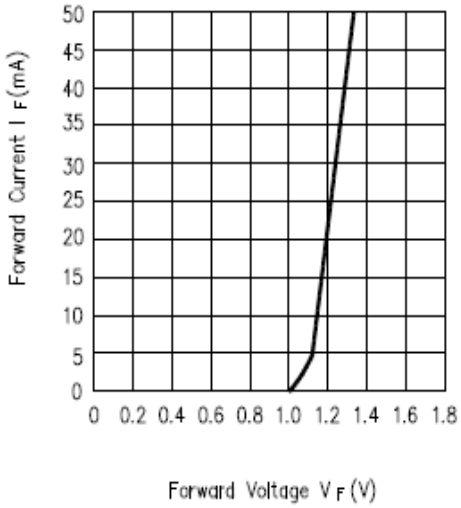


Fig.3 Collector Current vs. Forward Current

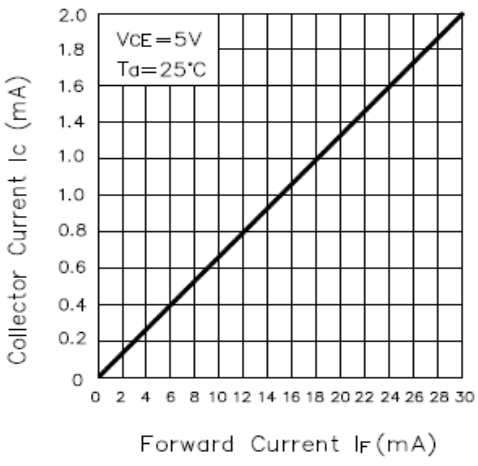


Fig.4 Cllector Current Ratio vs. Collector−emitter Voltage

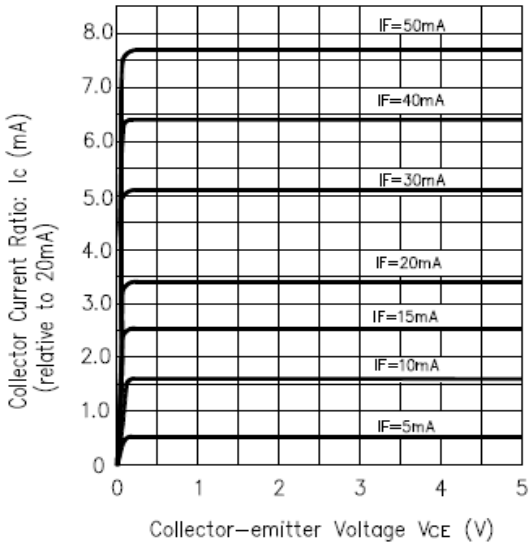


Fig.5 Relative output vs. Ambient Temperature

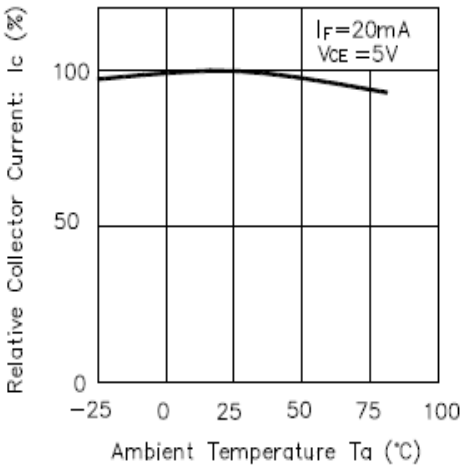


Fig.6 Collector−emitter Saturation Voltage vs. Ambient Temperature

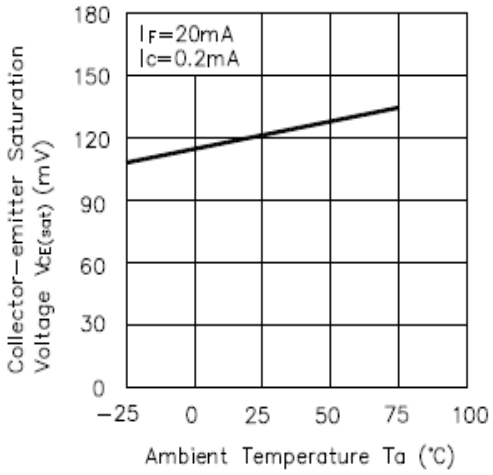
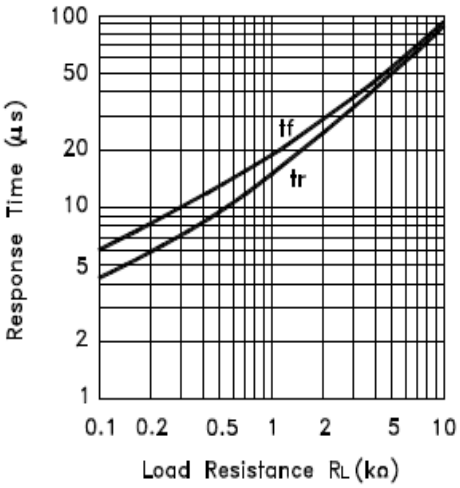
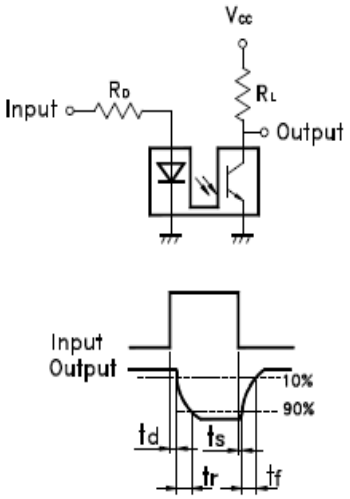


Fig.7 Response Time vs. Load Resistance



Test Circuit for Response Time



6. Soldering information

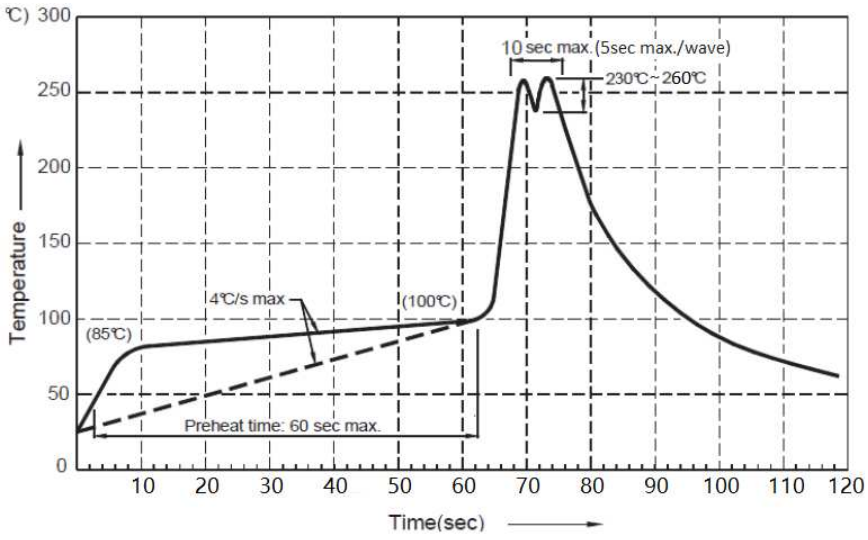
Dipping the housing into the solder must be avoided.

Do not apply any external stress to the lead frame during soldering while the product is at high temperature.

Recommended soldering conditions:

Lead Soldering		Wave soldering	
Temperature Soldering time Position	350℃ Max. 3 seconds Max. (one time only) No closer than 2mm from the base of the housing	Pre-heat Pre-heat time Solder wave Soldering time Dipping Position	100℃ Max. 60 seconds Max. 260℃ Max. 5 seconds Max. No lower than 2mm from the base of the housing

Recommended Wave soldering Profile:



7. Cautions for Storage

The storage ambient for this component should be <30℃ temperature and < 70 % relative humidity, also the component should be assembled within 3 months upon the delivery date. To extend the storage life when the part still in original packing, the component should be stored in a sealed container with appropriate desiccant or in desiccators with nitrogen ambient but not over a year; after opening the package, the component must be consumed within 3months under controlled environment of <25℃ and <60%RH. Please avoid rapid transitions in ambient temperature, especially in high humidity environment where condensation can occur. If storage conditions do not meet above criteria, the component's pin may become oxidized then solderability assessment and re-sorting must be performed before use.