Photoelectric slot sensor

GL3-T/153-Y70138368

- Miniature design
- Optimized for the detection of small parts
- High switching frequency

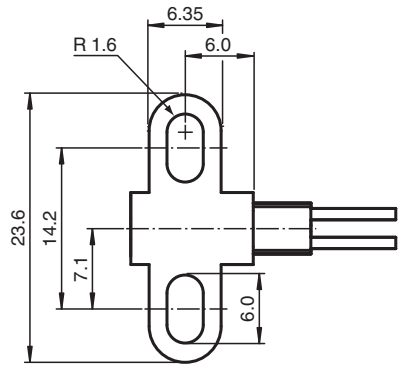
Miniature photoelectric slot sensor for the detection of small parts, T-shaped housing design, 3.15 mm slot width, infrared light, NPN outputs, fixed cable

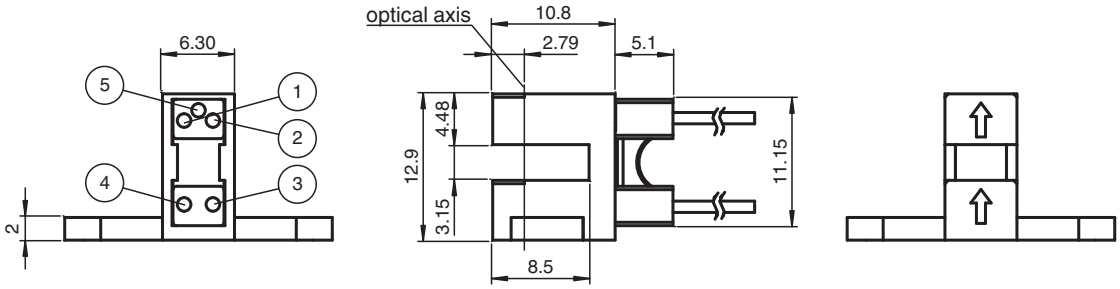
Function

The GL2 & GL3 miniature slot sensor is the smallest slot sensor in its family optimized to the requirements in semiconductors industry for small part detection. A wide voltage range of 5 V DC ... 30 V DC and a extreme fast response time of 25 µs stands for the quality of this sensor. The GL2 & GL3 sensor can be directly connected to a comparator or Schmitt-trigger circuit. Due to a variety of different housings and an optimized housing concept offers the sensor a maximum of freedom in a crowded mounting environment.

Dimensions

1	collector
2	emitter
3	anode
4	cathode
5	collector





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Technical Data

General specifications		
Light source		IRED , 940 nm
Light type		IRED
Slot width		3.15 mm
Slot depth		3.15 mm
Ambient light limit		1000 Lux
Functional safety related parameters		
$MTTF_d$		44332 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Electrical specifications		
Operating voltage	U_B	5 ... 30 V DC
Ripple		10 %
Emitter		
Light type		940 nm IR light
Forward voltage	V_F	< 1.6 V
Peak forward voltage	V_{FM}	30 V
Forward current	I_F	50 mA
Reverse voltage	V_R	5 V
Reverse current	I_R	≤ 10 µA
Power dissipation		75 mW
Receiver		
Output type		NPN
C-E breakdown voltage	V_{CEO}	30 V
E-C breakdown voltage	V_{ECO}	5 V
Collector dark current	I_{CEO}	< 1 µA
Collector DC current	I_C	20 mA
Power dissipation	P_D	75 mW
Output		
Signal output		1 NPN , photo transistor
Switching voltage		max. 30 V DC
Switching current		20 mA
Response time		25 µs
Approvals and certificates		
EAC conformity		TR CU 020/2011
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-20 ... 85 °C (-4 ... 185 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications		
Core cross section		4 x 0.08 mm²
Degree of protection		IP30
Connection		610 mm, PVC cable , Individual colored wires
Material		
Housing		PC
Mass		7 g
Dimensions		
Height		12.9 mm
Width		23.6 mm
Depth		15.9 mm

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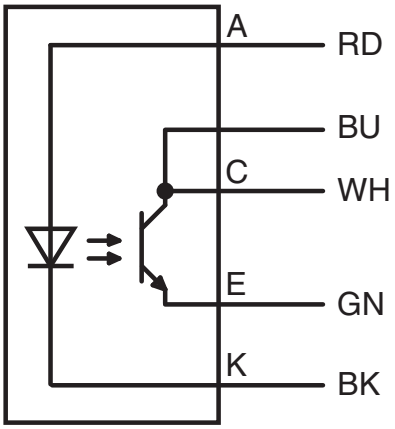
Connection Assignment

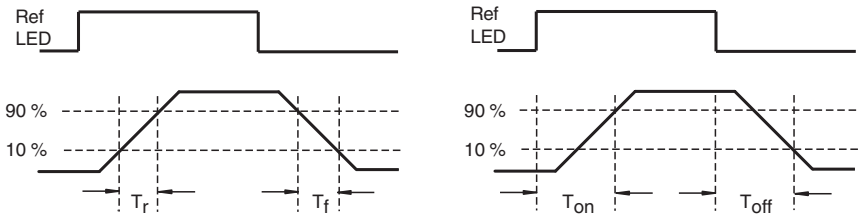


Characteristic Curve

Characteristic response curve

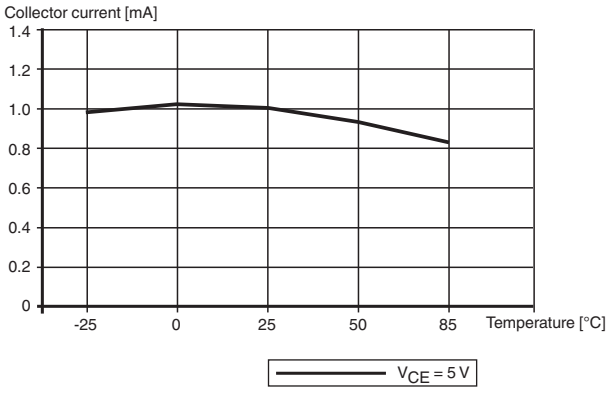
GL3-

The rise (T_r) the fall (T_f) and the response time (T_{on} / T_{off}) is tested with reference LED.



Collector Current vs Temperature

GL3-



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Characteristic Curve

Collector Current vs Temperature

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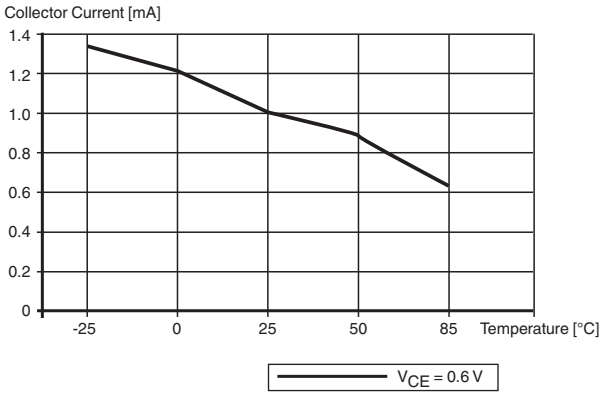

Current Transfer Ratio

(V_{CE} = 5 V)

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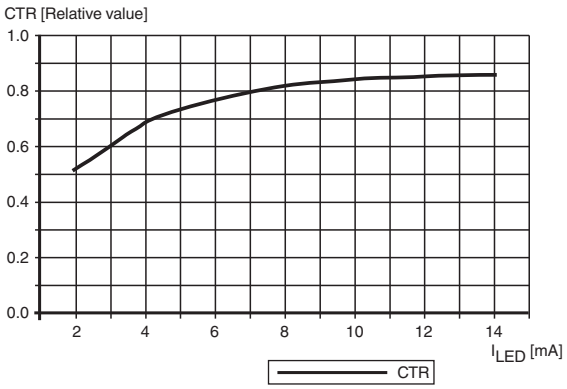

I_{LED} Forward Bias Characteristics

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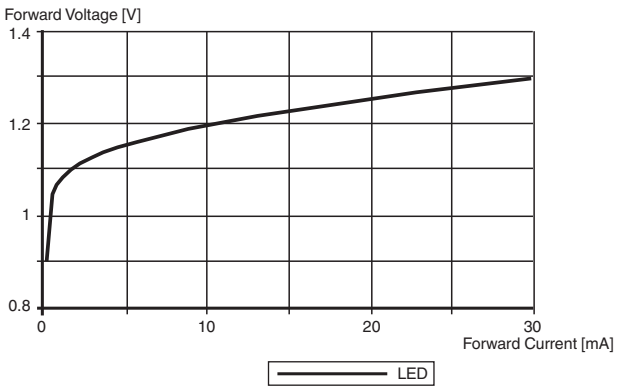
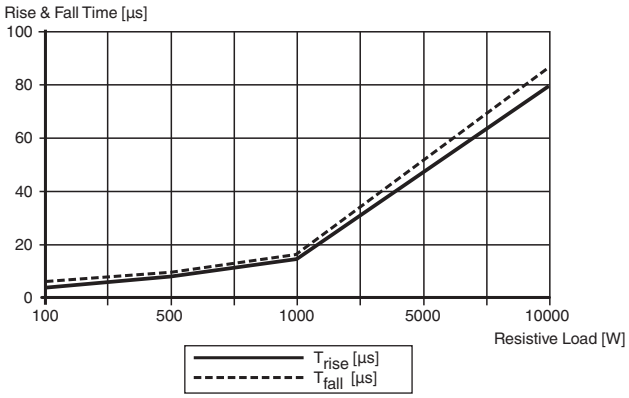


Characteristic Curve

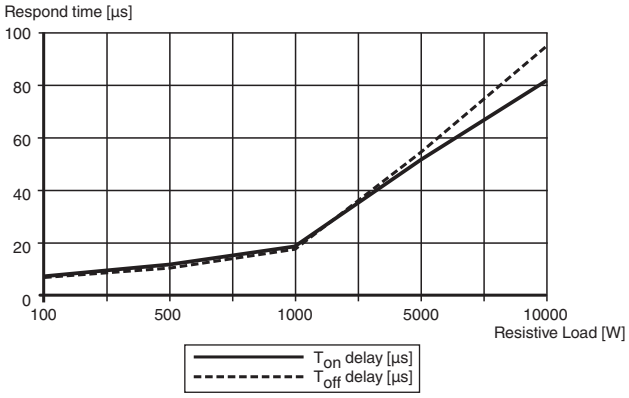
Non-Saturated Switching vs Resistive Load

GL3-



Non-Saturated Switching vs Resistive Load

GL3-



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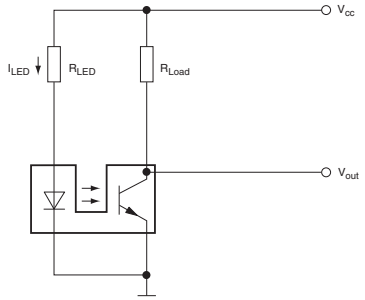
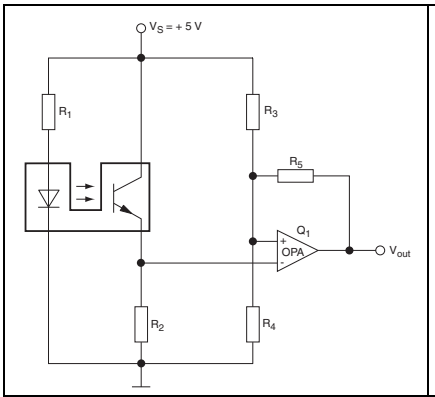
Connection example



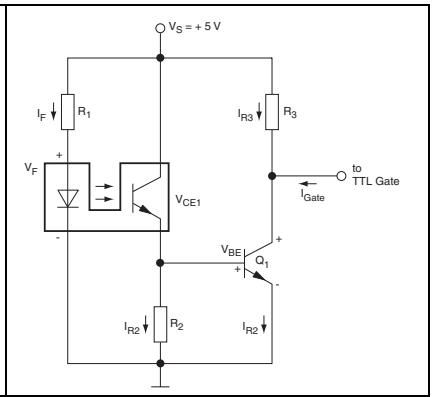
3 simple steps:

- Choose power supply
- Choose LED current (set resistor R_{LED})
- Choose load current (set resistor R_{LOAD})

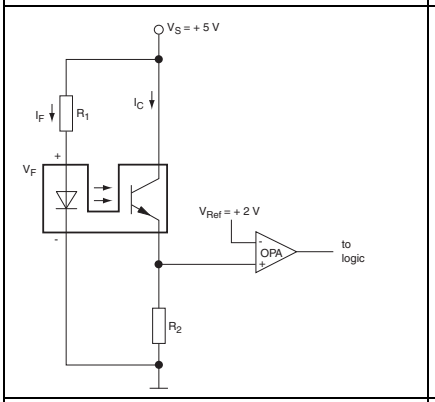
Possible connections



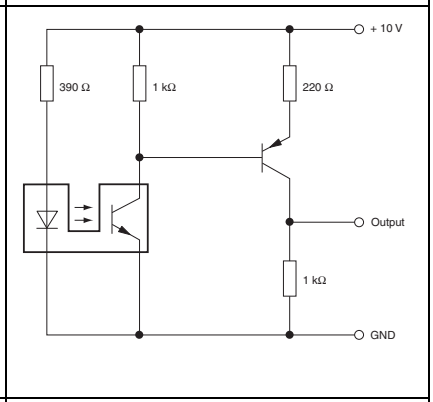
Circuit with voltage comparator



Circuit with additional transistor



Circuit with Op Amp



Circuit with PNP transistor output

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