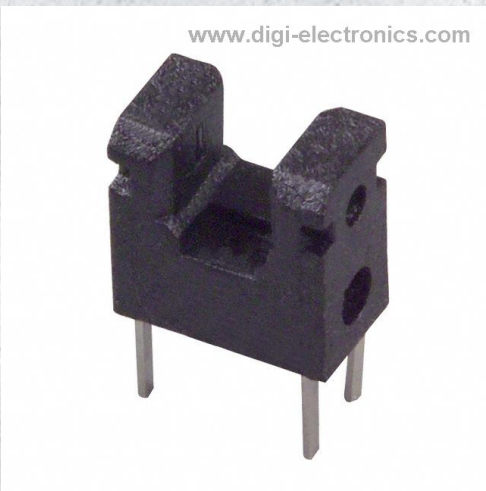
# GP1S097HCZ Datasheet

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| | |
|---|---|
| DiGi Electronics Part Number | GP1S097HCZ-DG |
| Manufacturer | Sharp Microelectronics |
| Manufacturer Product Number | GP1S097HCZ |
| Description | SENSOR OPT SLOT PHOTOTRAN PCB MT |
| Detailed Description | Optical Sensor Through-Beam 0.079" (2mm) Photo transistor PCB Mount |

This model GP1S097HCZ is available at DiGi Electronics.

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## Purchase and inquiry

| Manufacturer Product Number: | Manufacturer: |
| --- | --- |
| GP1S097HCZ | Sharp Microelectronics |
| Series: | Product Status: |
| - | Obsolete |
| Sensing Distance: | Sensing Method: |
| 0.079" (2mm) | Through-Beam |
| Output Configuration: | Current - DC Forward (If) (Max): |
| Phototransistor | 50 mA |
| Current - Collector (Ic) (Max): | Voltage - Collector Emitter Breakdown (Max): |
| 20 mA | 35 V |
| Response Time: | Operating Temperature: |
| 50µs, 50µs | -25°C ~ 85°C |
| Mounting Type: | Package / Case: |
| Through Hole | PCB Mount |
| Type: | |
| Unamplified | |

## Environmental & Export classification

| RoHS Status: | Moisture Sensitivity Level (MSL): |
| --- | --- |
| RoHS non-compliant | 1 (Unlimited) |
| ECCN: | HTSUS: |
| EAR99 | 8541.49.8000 |

# GP1S097HCZ

## Subminiature, Transmissive Type Photointerrupter with Positioning Hole

### ■ Features

1. General purpose
2. With positioning hole
3. Wide gap(Gap width:2.0mm)
4. Slit width(Detector side):0.3mm

### ■ Applications

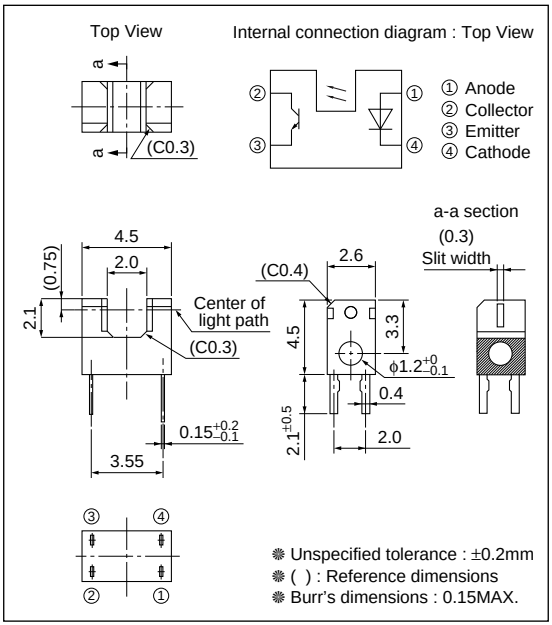
1. Cameras
2. CD-ROM drives
3. VCR

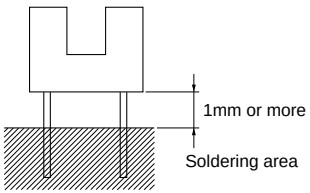
### ■ Absolute Maximum Ratings (Ta=25°C)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Input | Forward current | $I_F$ | 50 | mA |
| | Reverse voltage | $V_R$ | 6 | V |
| | Power dissipation | P | 75 | mW |
| Output | Collector-emitter voltage | $V_{CEO}$ | 35 | V |
| | Emitter-collector voltage | $V_{ECO}$ | 6 | V |
| | Collector current | $I_C$ | 20 | mA |
| | Collector power dissipation | $P_C$ | 75 | mW |
| Total power dissipation | | $P_{tot}$ | 100 | mW |
| Operating temperature | | $T_{opr}$ | −25 to +85 | °C |
| Storage temperature | | $T_{stg}$ | −40 to +100 | °C |
| *1 Soldering temperature | | $T_{sol}$ | 260 | °C |

*1 For MAX. 5s

### ■ Outline Dimensions (Unit : mm)



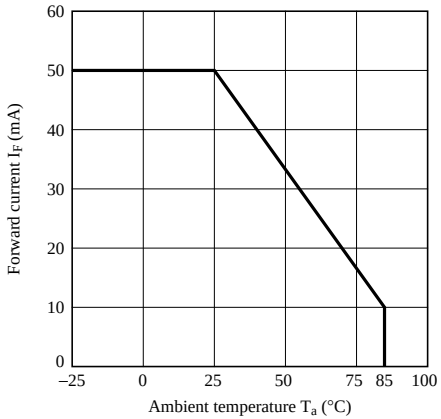



## ■ Electro-optical Characteristics

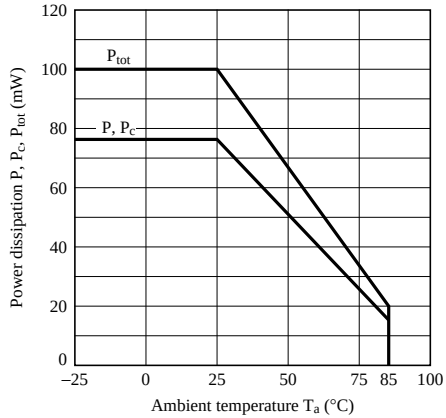
(Ta=25°C)

| Parameter | | | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|---|---|
| Input | Forward voltage | | $V_F$ | $I_F$=20mA | – | 1.2 | 1.4 | V |
| | Reverse current | | $I_R$ | $V_R$=3V | – | – | 10 | μA |
| Output | Collector dark current | | $I_{CEO}$ | $V_{CE}$=20V | – | – | 100 | nA |
| Transfer characteristics | Collector current | | $I_C$ | $V_{CE}$=5V, $I_F$=5mA | 100 | – | 400 | μA |
| | Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_F$=10mA, $I_C$=40μA | – | – | 0.4 | V |
| | Response time | Rise time | $t_r$ | $V_{CE}$=5V, $I_C$=100μA | – | 50 | 150 | μs |
| | | Fall time | $t_f$ | $R_L$=1 000Ω | – | 50 | 150 | μs |

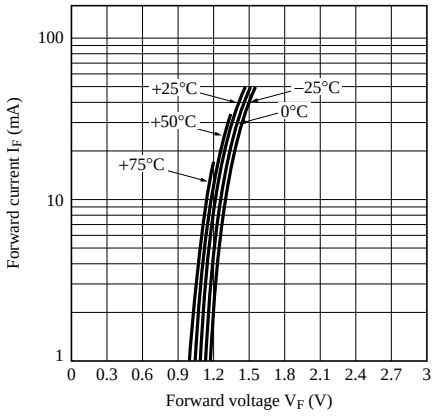
### Fig.1 Forward Current vs. Ambient Temperature



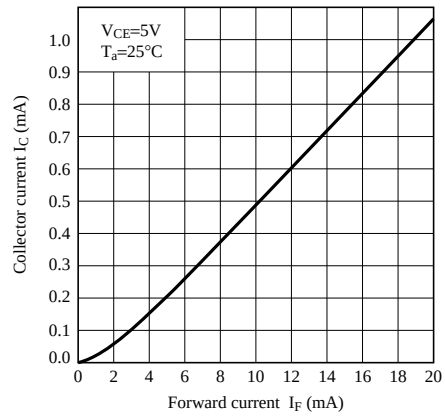

### Fig.2 Power Dissipation vs. Ambient Temperature



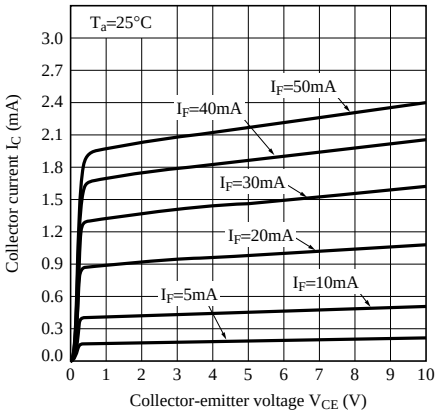

### Fig.3 Forward Current vs. Forward Voltage



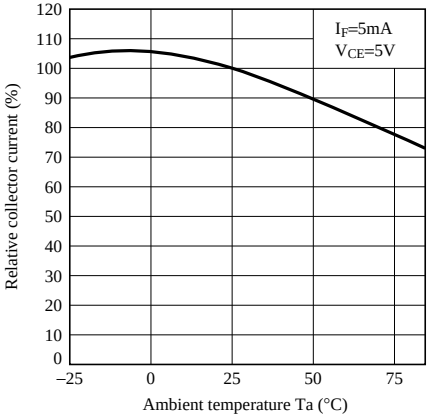

### Fig.4 Collector Current vs. Forward Current



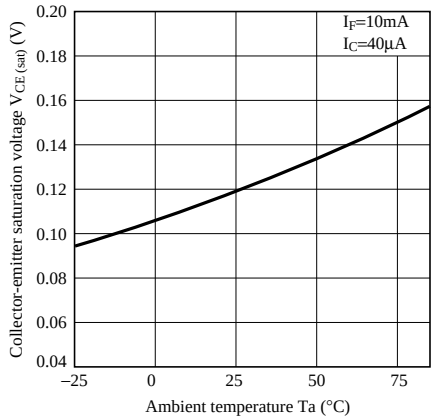
## Fig.5 Collector Current vs. Collector-emitter Voltage



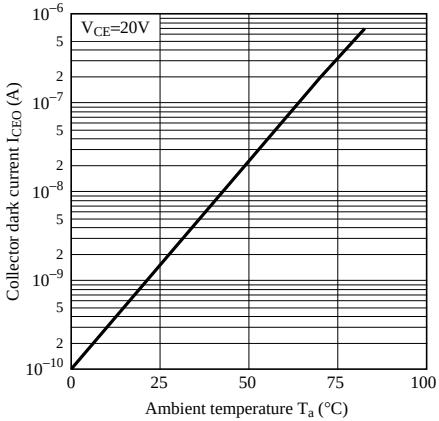

## Fig.6 Relative Collector Current vs. Ambient Temperature



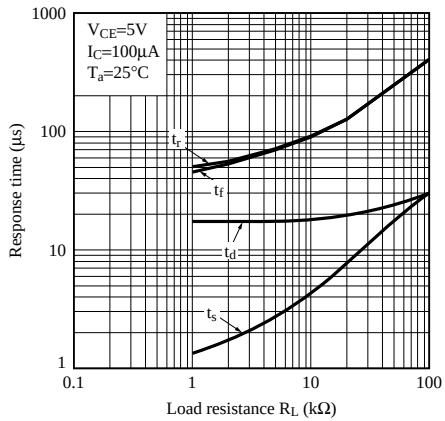

## Fig.7 Collector - emitter Saturation Voltage vs. Ambient Temperature



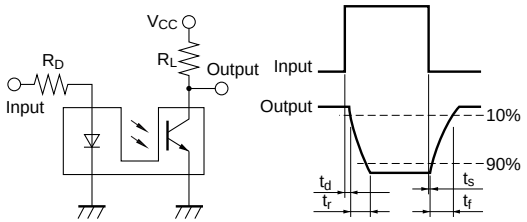

## Fig.8 Collector Dark Current vs. Ambient Temperature



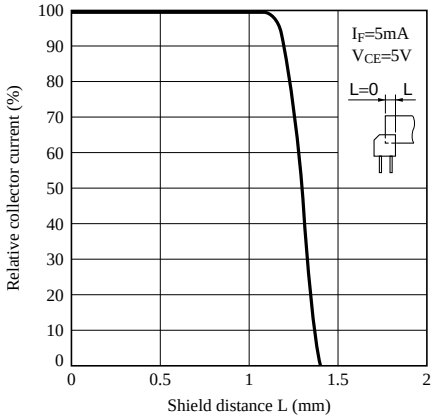

## Fig.9 Response Time vs. Load Resistance



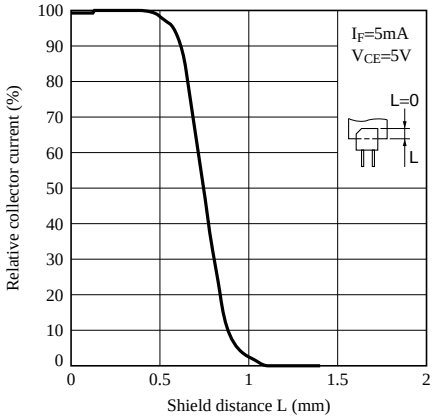

## Fig.10 Test Circuit for Response Time



## Fig.11 Relative Collector Current vs. Shield Distance (1)




## Fig.12 Relative Collector Current vs. Shield Distance (2)



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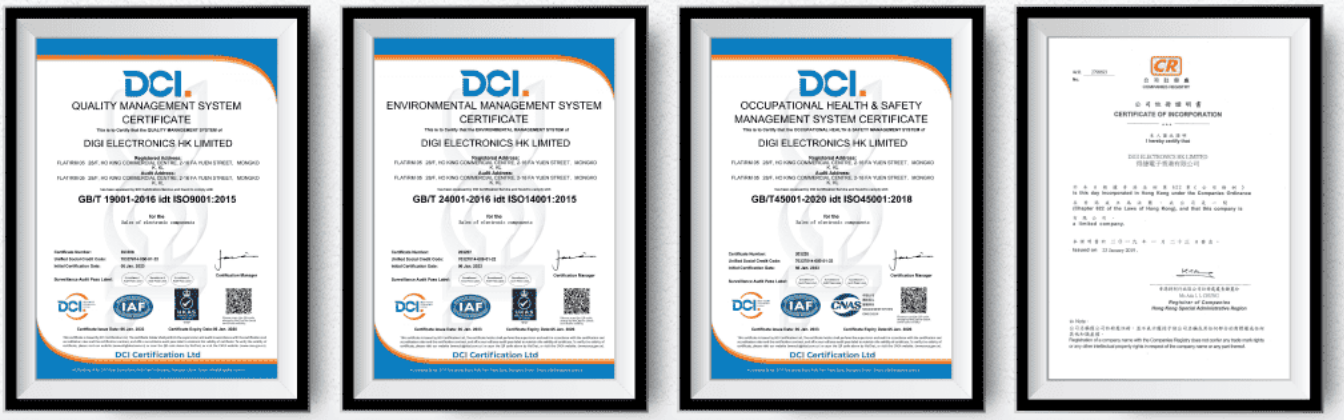



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