

# GP2L20L/GP2L20R

## Compact, Thin Type Photointerrupter

### ■ Features

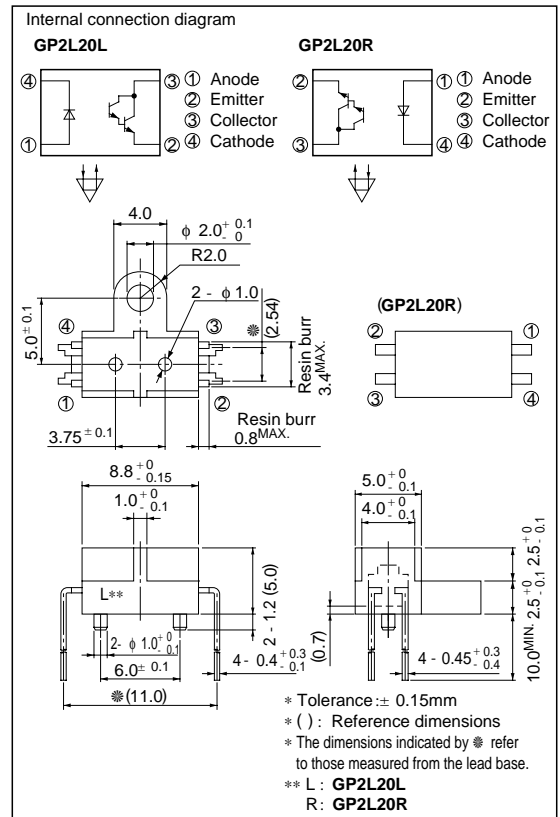
1. Correspond to DAT prism system
2. Compact and thin

### ■ Applications

1. Digital audio tape recorder

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

(Ta = 25°C)

| Parameter                |                             | Symbol           | Rating        | Unit |
|--------------------------|-----------------------------|------------------|---------------|------|
| Input                    | Forward current             | I <sub>F</sub>   | 50            | mA   |
|                          | *1 Peak forward current     | I <sub>FM</sub>  | 1             | A    |
|                          | Reverse voltage             | V <sub>R</sub>   | 6             | V    |
|                          | Power dissipation           | P                | 75            | mW   |
| Output                   | Collector-emitter voltage   | V <sub>CEO</sub> | 35            | V    |
|                          | Emitter-collector voltage   | V <sub>ECO</sub> | 6             | V    |
|                          | Collector current           | I <sub>C</sub>   | 20            | mA   |
|                          | Collector power dissipation | P <sub>C</sub>   | 75            | mW   |
| Operating temperature    |                             | T <sub>opr</sub> | - 25 to + 85  | °C   |
| Storage temperature      |                             | T <sub>stg</sub> | - 40 to + 100 | °C   |
| *2 Soldering temperature |                             | T <sub>sol</sub> | 260           | °C   |

\*1 Pulse width  $\leq 100\ \mu\text{s}$ , duty ratio = 0.01

\*2 For 5 seconds

## Electro-optical Characteristics

( $T_a = 25^\circ\text{C}$ )

| Parameter                |                        | Symbol    | Conditions             | MIN.                                    | TYP. | MAX.               | Unit          |               |
|--------------------------|------------------------|-----------|------------------------|---|------|--------------------|---------------|---------------|
| Input                    | Forward voltage        | $V_F$     | $I_F = 20\text{mA}$    | -                                       | 1.2  | 1.4                | V             |               |
|                          | Peak forward voltage   | $V_{FM}$  | $I_{FM} = 0.5\text{A}$ | -                                       | 3    | 4                  | V             |               |
|                          | Reverse current        | $I_R$     | $V_R = 3\text{V}$      | -                                       | -    | 10                 | $\mu\text{A}$ |               |
| Output                   | Collector dark current | $I_{CEO}$ | $V_{CE} = 10\text{V}$  | -                                       | -    | $1 \times 10^{-6}$ | A             |               |
| Transfer characteristics | *3 Collector current   |           | $I_C$                  | $V_{CE} = 5\text{V}, I_F = 20\text{mA}$ | 1    | -                  | 20            | mA            |
|                          | Response time          | Rise time | $t_r$                  | $V_{CE} = 2\text{V}, I_C = 2\text{mA}$  | -    | 80                 | 400           | $\mu\text{s}$ |
|                          |                        | Fall time | $t_f$                  | $R_L = 100\ \Omega$                     | -    | 70                 | 350           | $\mu\text{s}$ |
|                          | *4 Leak current        |           | $I_{LEAK}$             | $V_{CE} = 5\text{V}, I_F = 20\text{mA}$ | -    | -                  | 5             | $\mu\text{A}$ |

\*3 The condition and arrangement of the reflective object are shown in the right drawing.

\*4 Without reflective object

### Test Condition and Arrangement for Collector Current

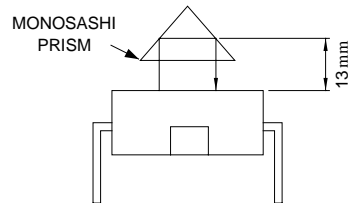


Fig. 1 Forward Current vs. Ambient Temperature

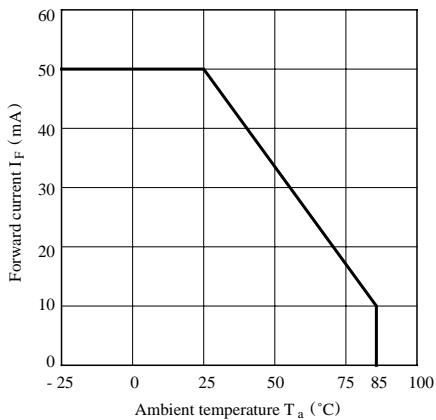


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

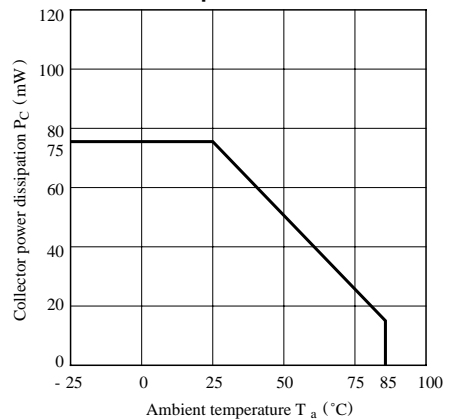


Fig. 3 Peak Forward Current vs. Duty Ratio

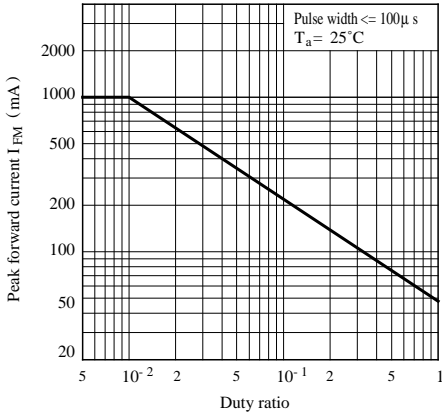


Fig. 4 Forward Current vs. Forward Voltage

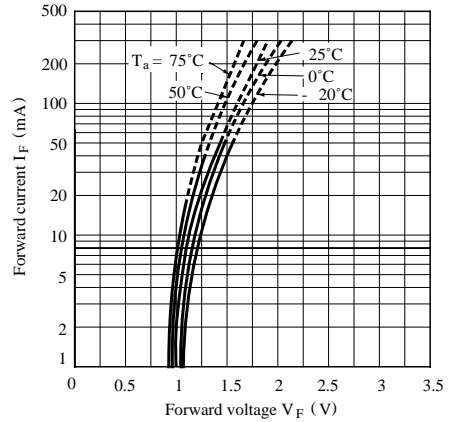


Fig. 5 Collector Current vs. Forward Current

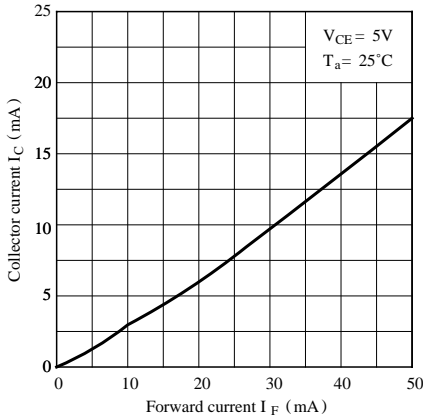


Fig. 6 Collector Current vs. Collector-Emitter Voltage

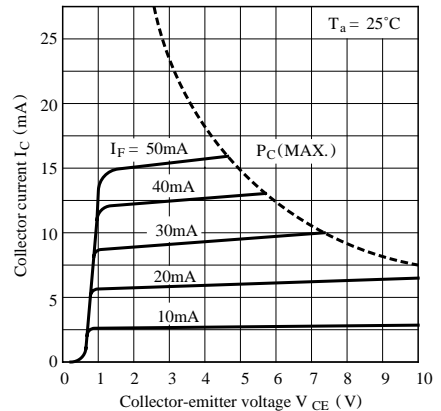


Fig. 7 Relative Collector Current vs. Ambient Temperature

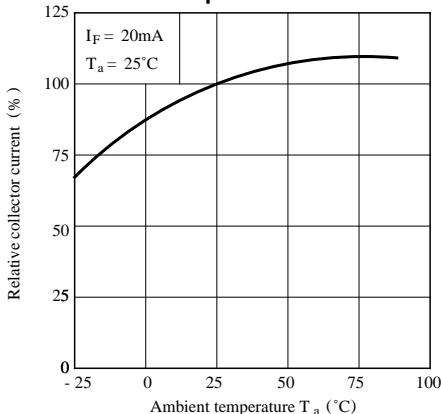
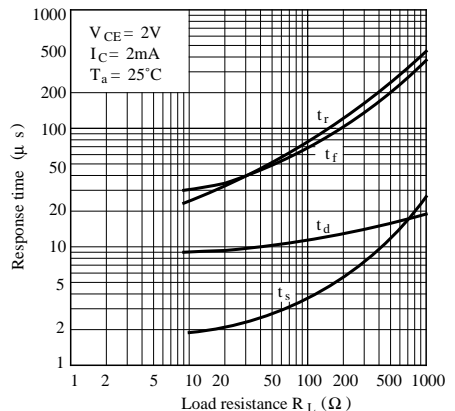


Fig. 8 Response Time vs. Load Resistance



Test Circuit for Response time

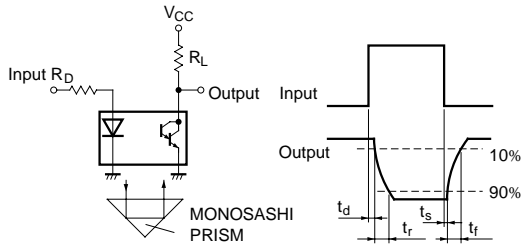


Fig. 9 Frequency Response

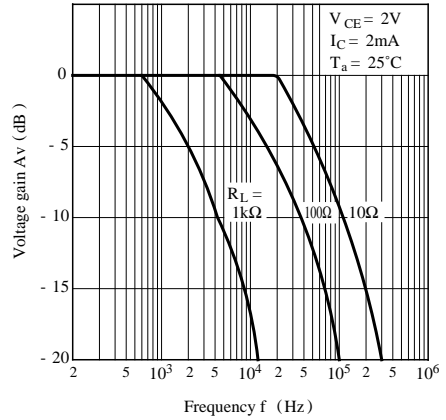
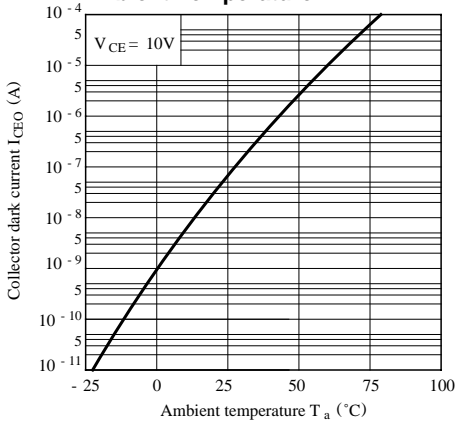


Fig.10 Collector Dark Current vs. Ambient Temperature



- Please refer to the chapter “Precautions for Use”.

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