Technical Data Sheet
Photolink- Fiber Optic Transmitter

Features
• High speed signal transmission (16Mbps NRZ Signal)
• TTL interface compatible
• +3~+5V single power source
• Pb Free
• The product itself will remain within RoHS compliant version.

Descriptions
The opto-electrical component is assembled with a 660nm AlGaInP LED and a driver IC. It transforms the electrical signal to optical signal and be transmitted by 1mm diameter plastic optical fiber.

The component is operated at +3~+5V and has good performance at low dissipation current, steady light output and efficient light coupling.

Applications
• Digital audio equipment
• CD player
• DVD player

Device Selection Guide

<table>
<thead>
<tr>
<th>Chip Material</th>
<th>Operating Voltage (Vcc)</th>
<th>Dissipation Current (mA)</th>
<th>Fiber Coupling Light Output (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AlGaInP</td>
<td>+3.0~5.0</td>
<td>5.5 10</td>
<td>-21 -- -16</td>
</tr>
</tbody>
</table>
Package Dimension:

Notes:
1. All dimensions are in millimeters.
2. General Tolerance: ±0.2mm
3. Cover: Black

Pin Function:
1. GND
2. Vcc
3. Vin

Using Method

PCB Layout for Electrical Circuit

Notes:
1. Unit: mm
2. Substrate Thickness: 1.6 mm
Absolute Maximum Ratings (Ta = 25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>Vcc</td>
<td>-0.5 to 7</td>
<td>V</td>
</tr>
<tr>
<td>DC Input Voltage</td>
<td>Vin</td>
<td>-0.5 to Vcc+0.5</td>
<td>V</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tstg</td>
<td>-40 to 85</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>-20 to 70</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering Temperature</td>
<td>Tsol</td>
<td>260*</td>
<td>°C</td>
</tr>
</tbody>
</table>

* Soldering time ≤ 10 s.

Electro-Optical Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Voltage</td>
<td>Vcc</td>
<td>Low Voltage</td>
<td>2.75</td>
<td>3.00</td>
<td>3.25</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High Voltage</td>
<td>4.75</td>
<td>5.00</td>
<td>5.25</td>
<td>V</td>
</tr>
<tr>
<td>Peak Emission Wavelength</td>
<td>λp</td>
<td></td>
<td>640</td>
<td>660</td>
<td>680</td>
<td>nm</td>
</tr>
<tr>
<td>Transmission Rate</td>
<td></td>
<td>NRZ Code</td>
<td>DC</td>
<td>-</td>
<td>16</td>
<td>Mbps</td>
</tr>
<tr>
<td>Fiber Coupling Output Power</td>
<td>Pf</td>
<td>*1</td>
<td>-21</td>
<td>-18</td>
<td>-16</td>
<td>dBm</td>
</tr>
<tr>
<td>Dissipation Current</td>
<td>Icc</td>
<td>*1</td>
<td>3</td>
<td>-</td>
<td>10</td>
<td>mA</td>
</tr>
<tr>
<td>High Level Input Voltage</td>
<td>VIH</td>
<td></td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>V</td>
</tr>
<tr>
<td>Low Level Input Voltage</td>
<td>VIL</td>
<td></td>
<td>-</td>
<td>-</td>
<td>0.8</td>
<td>V</td>
</tr>
<tr>
<td>Low to High Delay Time</td>
<td>tpLH</td>
<td>*2</td>
<td>-</td>
<td>-</td>
<td>120</td>
<td>ns</td>
</tr>
<tr>
<td>High to Low Delay Time</td>
<td>tpHL</td>
<td>*2</td>
<td>-</td>
<td>-</td>
<td>120</td>
<td>ns</td>
</tr>
<tr>
<td>Pulse Width Distortion</td>
<td>Δtw</td>
<td>*2</td>
<td>-25</td>
<td>-</td>
<td>25</td>
<td>ns</td>
</tr>
<tr>
<td>Jitter</td>
<td>Δtj</td>
<td>*2</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>ns</td>
</tr>
</tbody>
</table>

*All Plastic Optical Fiber (980/1000um)

*Circuit Layout Notice:
When power is off, it must be cut off together in Vin and Vcc pin. If it only has Vcc power-off, LED will be sparkling because LED is just threshold condition.
Measuring Method

*1 Measuring method of optical output coupling fiber and dissipation current

\[
\begin{align*}
\text{PLT153 Transmitter Unit} & \quad \text{Standard plastic optic fiber cable} & \quad \text{Optical power meter} \\
\text{Vin} & \quad \text{Vcc} & \quad \text{GND} & \quad \text{PADVANTEST Q8221} \\
0.1\mu \text{F} & & & \text{The optical power meter must be calibrated to have the wavelength sensitivity of 660nm} \\
5\text{V} & & & (\text{0 dBm = 1mW}) \\
\end{align*}
\]

*2 Pulse response measuring method

\[
\begin{align*}
\text{PLT153 Transmitter Unit} & \quad \text{Standard plastic optic fiber cable} & \quad \text{Standard Receiver Unit} \\
\text{Vin} & \quad \text{Vcc} & \quad \text{GND} & \quad \text{CH1} \quad \text{CH2} \\
0.1\mu \text{F} & & & \text{5V} \\
\text{Signal Input} & & & \text{16Mbps NRZ "0101" successive signal input} \\
\text{Input} & \quad \text{Output} & \quad \text{50%} & \quad \text{50%} \\
\triangle t_{1f} & \quad \triangle t_{12} & \quad \triangle t_{w} = T_{PHL} - T_{PLH} \\
\end{align*}
\]
## RELIABILITY TEST ITEMS

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Test Condition</th>
<th>Test Hour/Cycle</th>
<th>Sample Size (Piece)</th>
<th>Number (n) Failure (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Soldering Heat</td>
<td>260ºC±5ºC 10 seconds</td>
<td>22</td>
<td>n=22, c=0</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>High Temp. Storage</td>
<td>Ta=100ºC 1000hrs</td>
<td>22</td>
<td>n=22, c=0</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Low Temp. Storage</td>
<td>Ta=−55ºC 1000hrs</td>
<td>22</td>
<td>n=22, c=0</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>High Temp. &amp; Humid. Test</td>
<td>Ta=85ºC, RH=85% 1000hrs</td>
<td>22</td>
<td>n=22, c=0</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Temperature Cycle</td>
<td>-40ºC 85ºC (30min) (5min) (30min) 300cycle</td>
<td>22</td>
<td>n=22, c=0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Thermal Shock</td>
<td>-10ºC 100ºC (5min) (10sec) (5min) 300cycle</td>
<td>22</td>
<td>n=22, c=0</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>DC Operating Life</td>
<td>Vcc=5V, Ta=25ºC Vin: DC (5V)</td>
<td>1000hrs</td>
<td>n=22, c=0</td>
<td></td>
</tr>
</tbody>
</table>

*Icc(mA)：Difference < 20%

*Pf (Fiber Coupling Output Power)：Brightness Attenuate Difference < 20%
Packing Quantity Specification
1. Tube : 49 pcs/tube
2. Inner box : 20 tube/innerbox  (980 pcs)
3. Outer box : 6 inner/outer  (5880 pcs)

Label Form Specification
CPN: Customer’s Production Number
P/N: Production Number
QTY: Packing Quantity
CAT: De-flash
HUE: IC
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place

Package Form

Outer box  (670 *488 *267 mm^3)

Inner box  (652 *148 *121 mm^3)
Notes

1. The both sides of tube must be sealed by using transparent adhesive.
2. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
3. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product that does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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