

**PRELIMINARY**

Notice: This is not a final specification

Notice : Some parametric limits are subject to change

MITSUBISHI LASER DIODES

**ML7XX34 SERIES****2.5Gbps InGaAsP DFB LASER DIODE****TYPE  
NAME****ML725B34F / ML720J34S  
ML725J34F / ML720L34S****DESCRIPTION**

ML7XX34 series are uncooled DFB (Distributed Feedback) laser diodes for 2.5Gbps transmission emitting light beam at 1310nm. ML7XX34 can operate in the wide temperature range from -40°C to 95 °C without any temperature control.

**APPLICATION**

2.5Gbps transmission

**FEATURES**

- Wide temperature range operation (-40°C to 95°C)
- High side-mode-suppression-ratio (typical 40dB)
- High resonance frequency (typical 11GHz)

**ABSOLUTE MAXIMUM RATINGS**

| Symbol          | Parameter                     | Conditions | Ratings     | Unit |
|-----------------|-------------------------------|------------|-------------|------|
| Po              | Output power                  | CW         | 10          | mW   |
| If              | Forward current (Laser diode) | ---        | 150         | mA   |
| V <sub>RL</sub> | Reverse voltage (Laser diode) | ---        | 2           | V    |
| I <sub>FD</sub> | Forward current (Photo diode) | ---        | 2           | mA   |
| V <sub>RD</sub> | Reverse voltage (Photo diode) | ---        | 20          | V    |
| Tc              | Case temperature              | ---        | -40 to +95  | °C   |
| Tstg            | Storage temperature           | ---        | -40 to +100 | °C   |

**ELECTRICAL/OPTICAL CHARACTERISTICS (Tc=25°C)**

| Symbol         | Parameter                             | Test conditions                          | Min. | Typ. | Max. | Unit  |
|----------------|---------------------------------------|------------------------------------------|------|------|------|-------|
| Ith            | Threshold current                     | CW                                       | ---  | 7    | 12   | mA    |
|                |                                       | CW, Tc=95°C                              | ---  | 30   | 40   |       |
| Iop            | Operation current                     | CW, Po=5mW                               | ---  | 24   | 40   | mA    |
|                |                                       | CW, Po=5mW, Tc=95°C                      | ---  | 60   | 75   |       |
| Vop            | Operating voltage                     | CW, Po=5mW                               | ---  | 1.1  | 1.5  | V     |
| η              | Slope efficiency                      | CW, Po=5mW                               | 0.30 | 0.36 | ---  | mW/mA |
| λ <sub>p</sub> | Peak wavelength                       | CW, Po=5mW, Tc=-40 to 95°C               | 1290 | 1310 | 1330 | nm    |
| SMSR           | Side mode suppression ratio           | CW, Po=5mW, Tc=-40 to 95°C               | 35   | 40   | ---  | dB    |
| θ //           | Beam divergence angle (parallel) <*1> | CW, Po=5mW                               | ---  | 30   | ---  | deg.  |
| θ ⊥            | (perpendicular) <*1>                  | CW, Po=5mW                               | ---  | 35   | ---  | deg.  |
| fr             | Resonance frequency                   | 2.48832Gbps, Ib=Ith, Ipp=40mA            | ---  | 11   | ---  | GHz   |
| tr,tf          | Rise and Fall time <*2>               | 2.48832Gbps, Ib=Ith, Ipp=40mA<br>20%-80% | ---  | 80   | 120  | ps    |
| Im             | Monitoring output current (PD)        | CW, Po=5mW, VRD=1V, RL=10Ω               | 0.05 | 0.3  | 2.0  | mA    |
| Id             | Dark current (PD)                     | V <sub>RD</sub> =5V                      | ---  | ---  | 0.1  | μA    |
| Ct             | Capacitance (PD)                      | V <sub>RD</sub> =5V                      | ---  | 10   | 20   | pF    |

&lt;\*1&gt; Beam divergence is not applied to ML725J34F and ML720L34S.

&lt;\*2&gt; Except influence of the 18mm lead.


**MITSUBISHI  
ELECTRIC**

Oct. 2005

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## ML7XX34 SERIES

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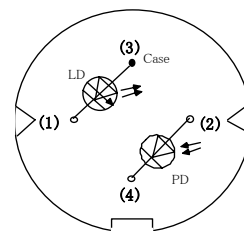
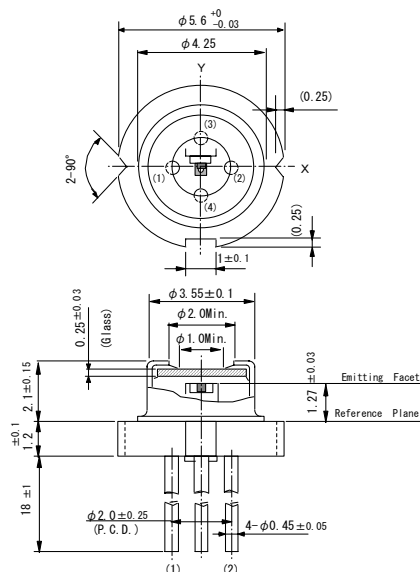
2.5Gbps InGaAsP DFB LASER DIODE

### OUTLINE DRAWINGS

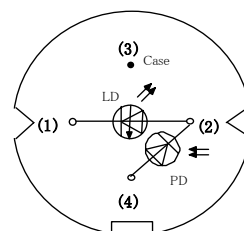
**ML725B34F**  
**ML720J34S**



Dimensions : mm



ML725B34F



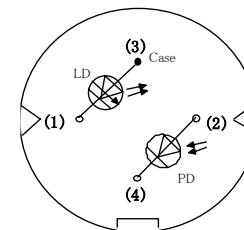
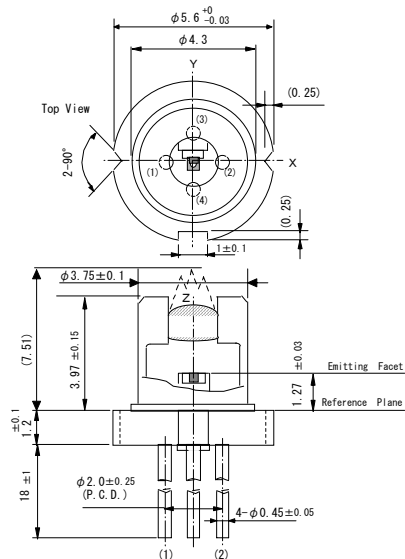
ML720J34S

Pin Connection  
(Top view)

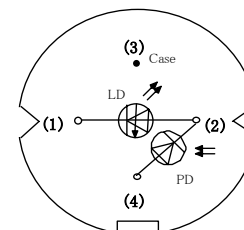
**ML725J34F**  
**ML720L34S**



Dimensions : mm



ML725J34F



ML720L34S

Pin Connection  
(Top view)



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