

# Device Modeling Report

COMPONENTS: Laser Diode  
PART NUMBER: SLD301V  
MANUFACTURER: SONY

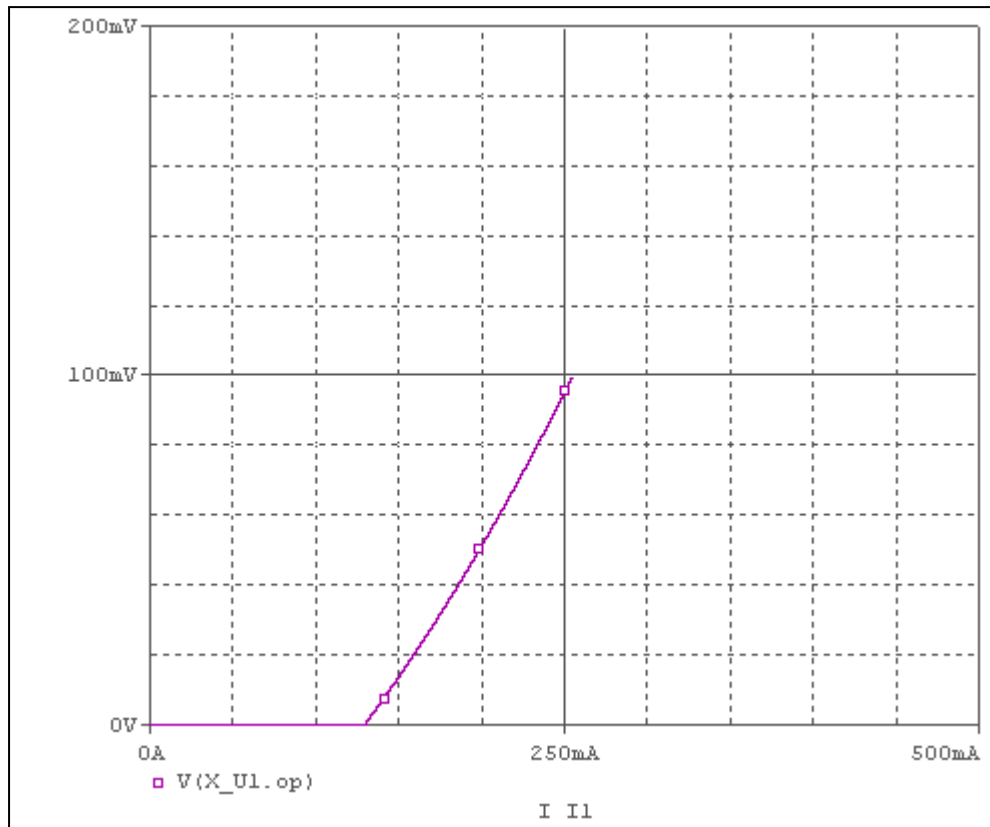


**Bee Technologies Inc.**

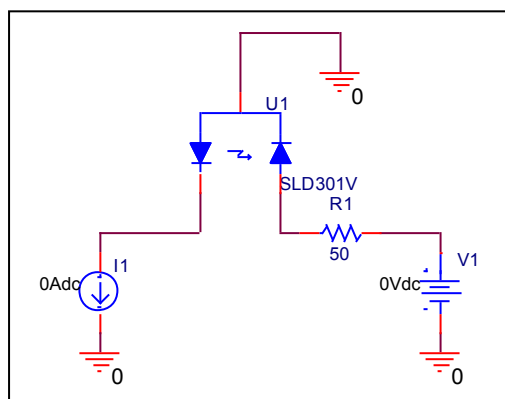
| PSpice model parameter | Model description                           |
|------------------------|---------------------------------------------|
| IS                     | Saturation Current                          |
| N                      | Emission Coefficient                        |
| RS                     | Series Resistance                           |
| IKF                    | High-injection Knee Current                 |
| CJO                    | Zero-bias Junction Capacitance              |
| M                      | Junction Grading Coefficient                |
| VJ                     | Junction Potential                          |
| ISR                    | Recombination Current Saturation Value      |
| BV                     | Reverse Breakdown Voltage(a positive value) |
| IBV                    | Reverse Breakdown Current(a positive value) |
| TT                     | Transit Time                                |

## Optical Output Power vs. Forward current characteristics

### Circuit simulation result

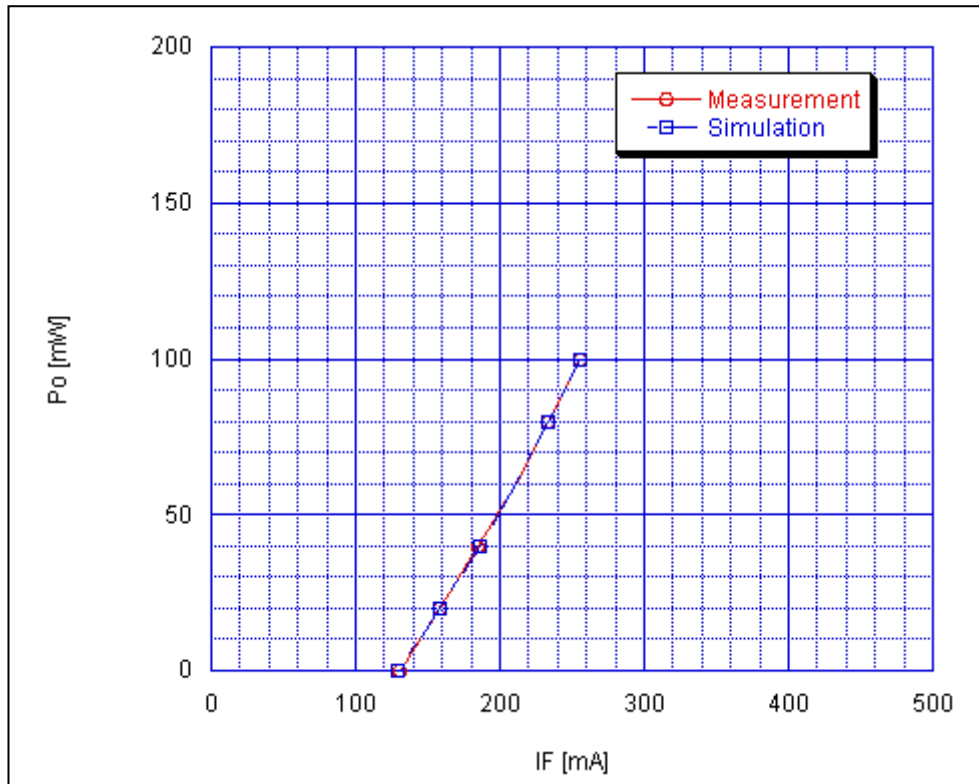


### Evaluation circuit



## Comparison graph

### Circuit simulation result

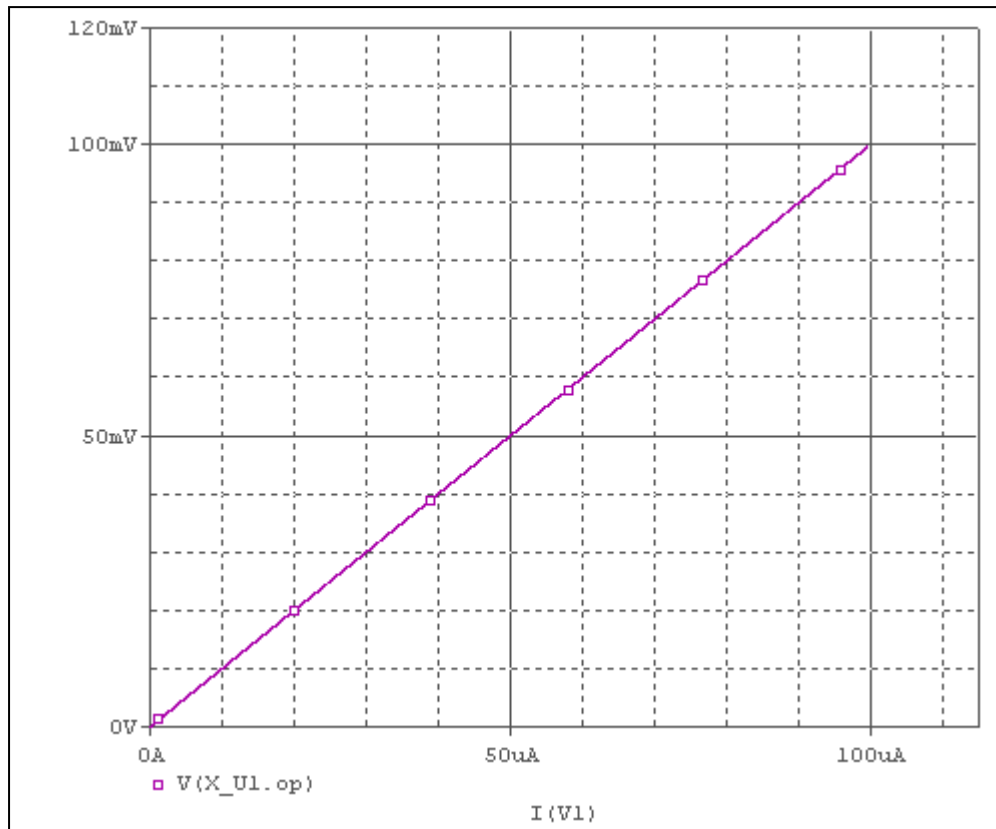


### Simulation Result

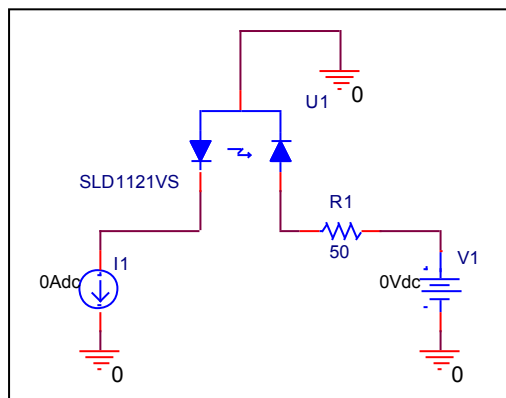
| Po[mW] | IF[mA]      |            | Error (%) |
|--------|-------------|------------|-----------|
|        | Measurement | Simulation |           |
| 20     | 159         | 159.054    | 0.0339    |
| 40     | 185         | 185.901    | 0.487     |
| 60     | 210.6       | 210.610    | 0.004748  |
| 80     | 233         | 233.621    | 0.266524  |
| 100    | 255         | 255.172    | 0.067451  |

## Monitor Current vs. Optical Output Power characteristics

### Circuit simulation result

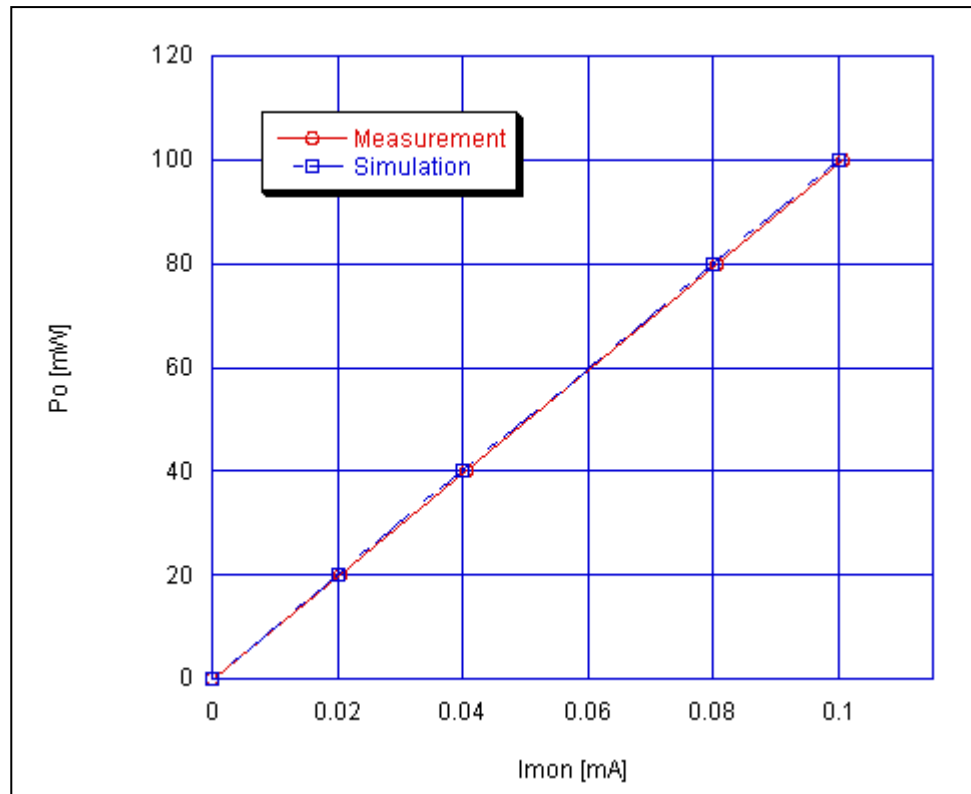


### Evaluation circuit



## Comparison graph

### Circuit simulation result



### Simulation Result

| Po[mW] | Imon[mA]    |            | Error (%) |
|--------|-------------|------------|-----------|
|        | Measurement | Simulation |           |
| 20     | 0.0205      | 0.02       | 2.439     |
| 40     | 0.0405      | 0.04       | 1.234     |
| 60     | 0.0605      | 0.06       | 0.826     |
| 80     | 0.0805      | 0.08       | 0.621     |
| 100    | 0.1005      | 0.1        | 0.498     |