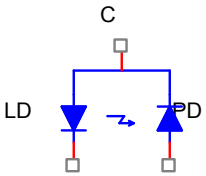
Device Modeling Report

COMPONENTS: Laser Diode
PART NUMBER: **DL-3147-021**
MANUFACTURER: SANYO

Bee Technologies Inc.

SPICE MODEL

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*$
* PART NUMBER: DL-3147-021
* MANUFACTURER: SANYO
* PO=5mW,VRLD=2V
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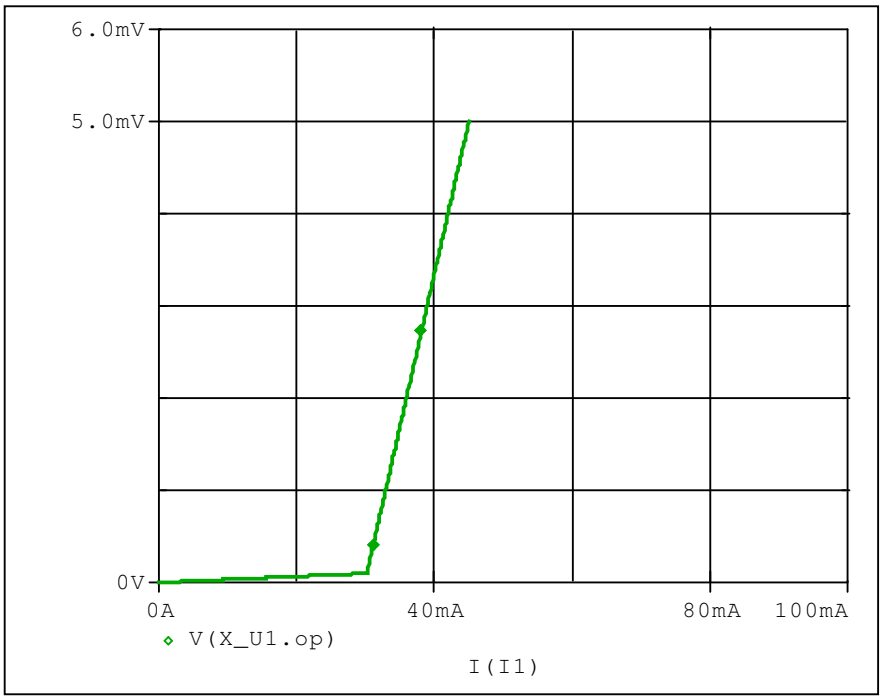
* LD = Laser diode cathode
* C = Common pin
* PD = Photodiode anode
.SUBCKT DL-3147-021 LD C PD
Dld     C       I dlaser
Vid     I       LD
Eop     op      0 VALUE {
+  limit(0+0.0032787*I(Vid),0,0.0001)
+  +limit(-0.0099966+0.33103*I(Vid),0,5m) }
Rdummv      op      0       1k
G_Gopd      C       PD VALUE {-2.7105e-20+0.08*V(op) }
Dpd     PD      C pdetec
.model dlaser D  IS=5E-37 N=1 RS=2 BV=2 IBV=10u
.model pdetec D CJO=5p BV=30 IBV=10u
.ends
*$
```

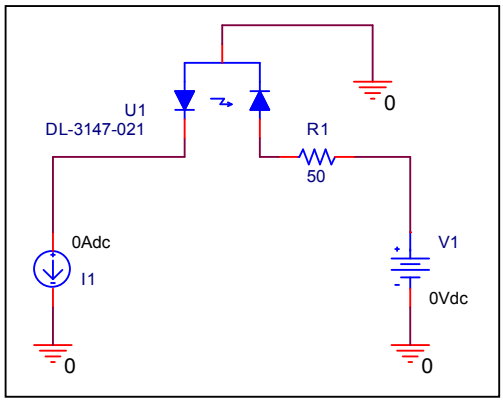
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Optical Output Power vs. Forward current characteristics

Circuit simulation result

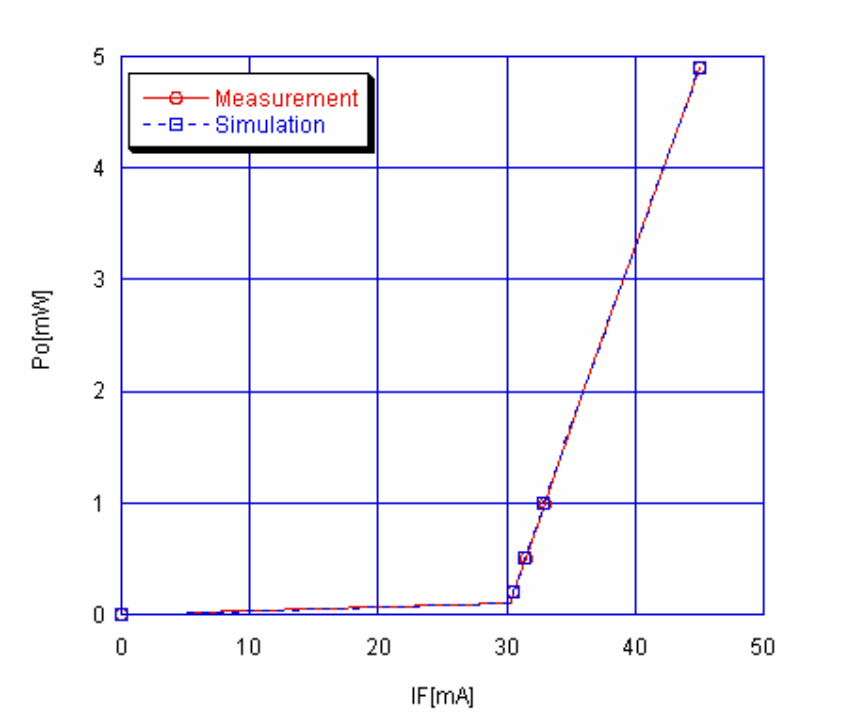


Evaluation circuit



Comparison graph

Circuit simulation result

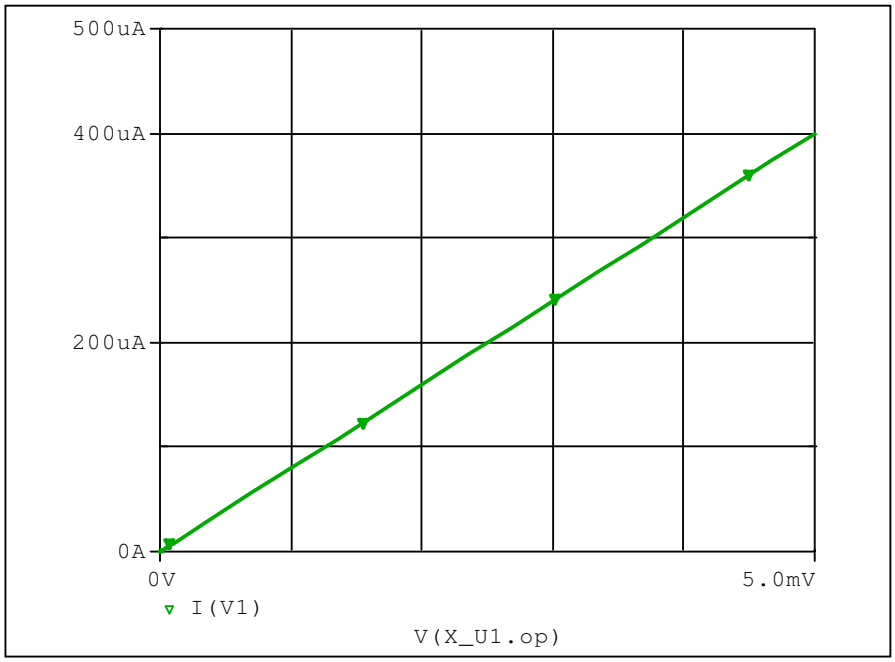


Simulation Result

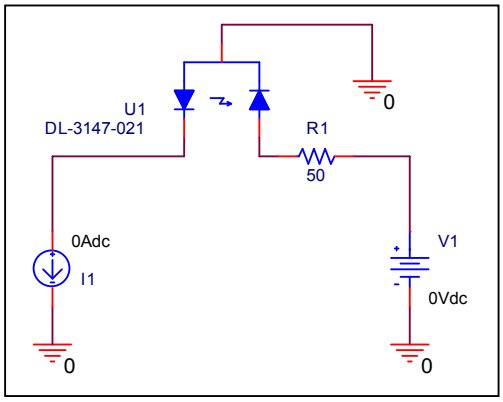
Po[mW]	IF[mA]		Error (%)
	Measurement	Simulation	
0.100	30.300	30.200	0.330
0.200	30.450	30.500	0.164
0.500	31.500	31.400	0.317
1.000	33.000	32.900	0.303
2.000	36.000	35.900	0.278
4.900	45.000	45.000	0.000

Monitor Current vs. Optical Output Power characteristics

Circuit simulation result

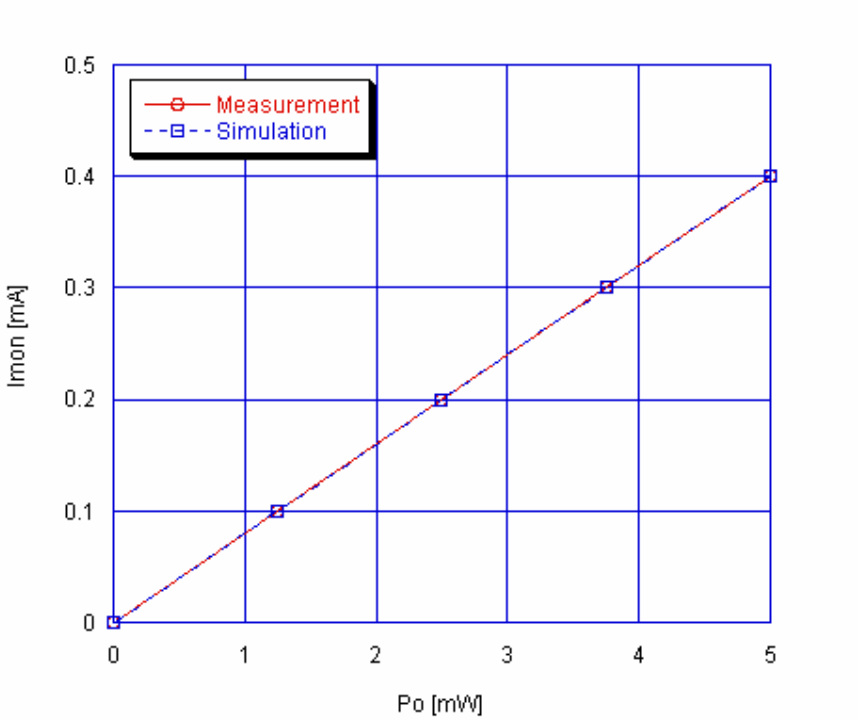


Evaluation circuit



Comparison graph

Circuit simulation result



Simulation Result

Imon [mA]	Po [mW]		Error (%)
	Measurement	Simulation	
0.100	1.250	1.250	0.000
0.200	2.500	2.500	0.000
0.300	3.750	3.750	0.000
0.400	5.000	5.000	0.000