

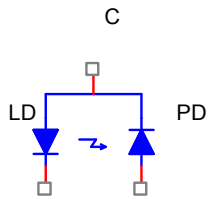
Device Modeling Report

COMPONENTS: Laser Diode
PART NUMBER: DL-3147-041
MANUFACTURER: SANYO



Bee Technologies Inc.

SPICE MODEL



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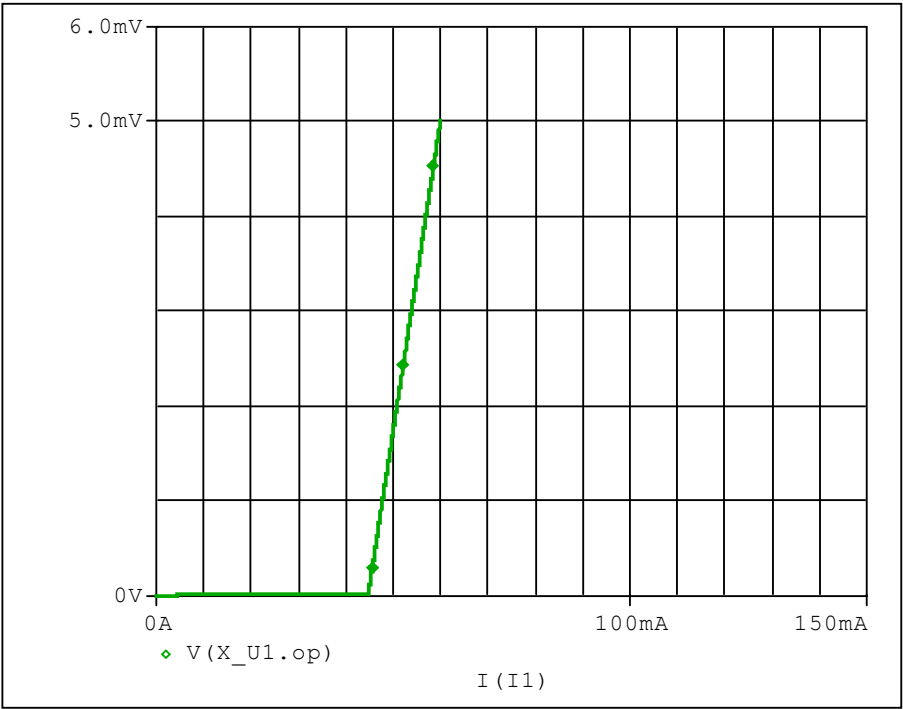
*$
* PART NUMBER:DL-3147-041
* MANUFACTURER:SANYO
* PO=5mW,VRLD=2V,VRPD=30V
* All Rights Reserved Copyright (C) Bee Technologies Inc. 2005
* LD = Laser diode cathode
* C = Common pin
* PD = Photodiode anode
.SUBCKT DL-3147-041 LD C PD
Dld C I dlaser
Vid I LD
Eop op 0 VALUE {
+ limit( 0+0.002222*I(Vid),0,0.01m)
+ +limit(-0.0146+0.32667*I(Vid),0,5m)}
Rdummv op 0 1k
G_Gopd C PD VALUE {+0.031*V(op) }
Dpd PD C pdetec
.model dlaser D IS=5E-37 N=1 RS=2 BV=5 IBV=10u
.model pdetec D CJO=5p BV=30 IBV=10u
.ends
*$

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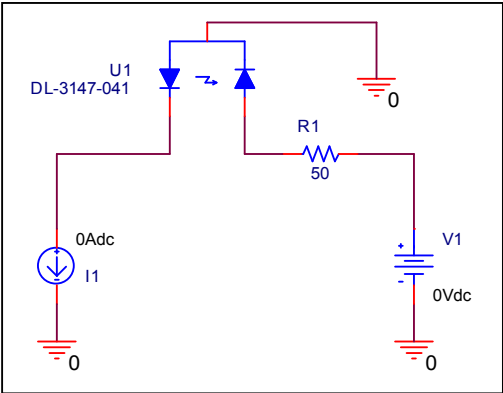
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Optical Output Power vs. Forward current characteristics

Circuit simulation result

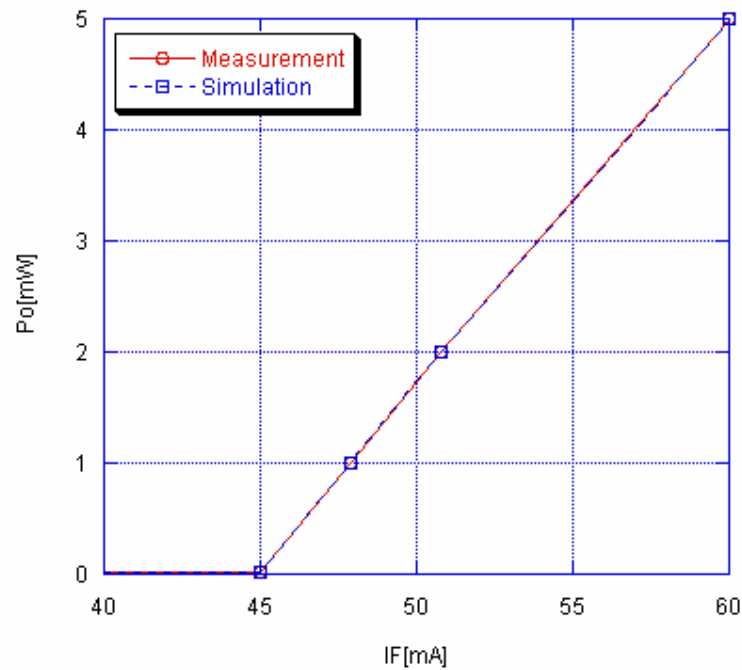


Evaluation circuit



Comparison graph

Circuit simulation result

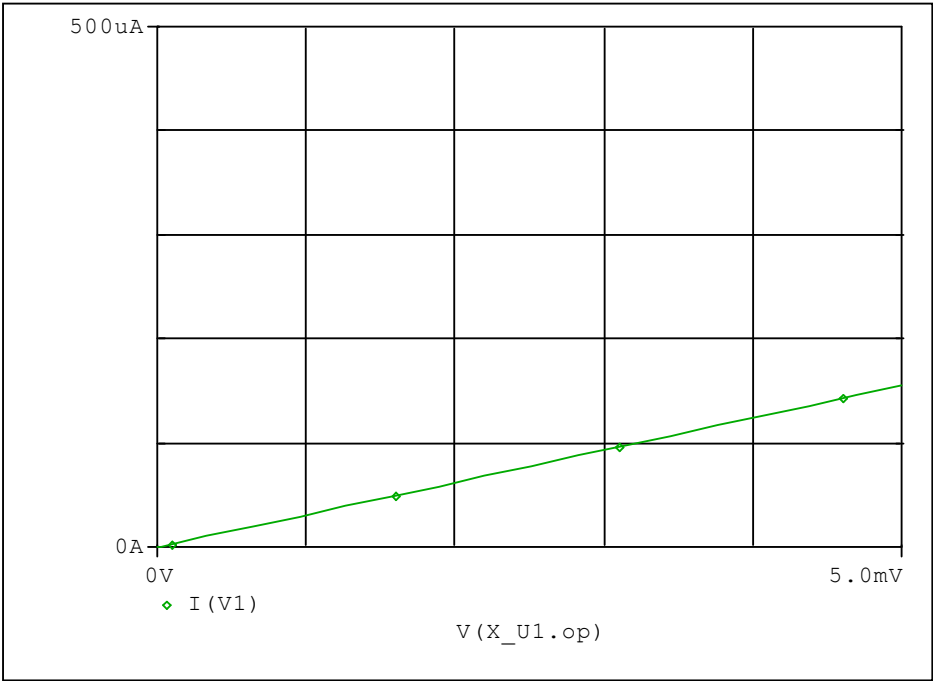


Simulation Result

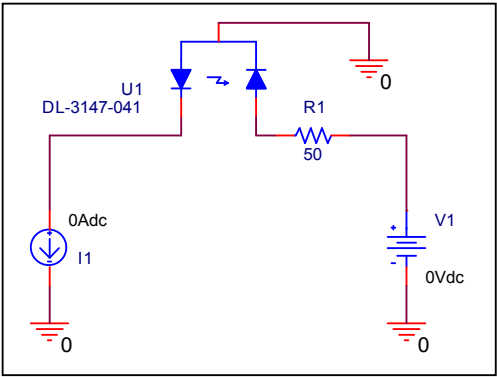
Po[mW]	IF[mA]		Error (%)
	Measurement	Simulation	
0.0100	45.000	45.000	0.000
1.000	47.900	47.880	0.042
2.000	50.780	50.780	0.000
5.000	60.000	60.000	0.000

Monitor Current vs. Optical Output Power characteristics

Circuit simulation result

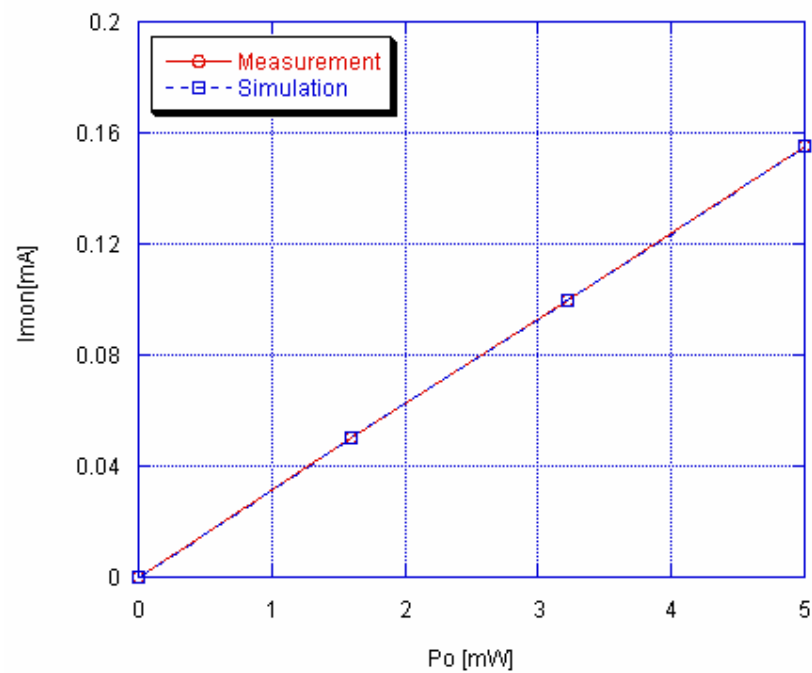


Evaluation circuit



Comparison graph

Circuit simulation result



Simulation Result

Imon[mA]	Po [mW]		Error (%)
	Measurement	Simulation	
0.050	1.600	1.600	0.000
0.100	3.220	3.220	0.000
0.155	5.000	5.000	0.000