Device Modeling Report

COMPONENTS: Light-Emitting Diode (LED) STANDARD
PART NUMBER: SLP-WB89A-51
MANUFACTURER: SANYO
REMARK: TA=25 degree C

Bee Technologies Inc.

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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
EG	Energy-band Gap

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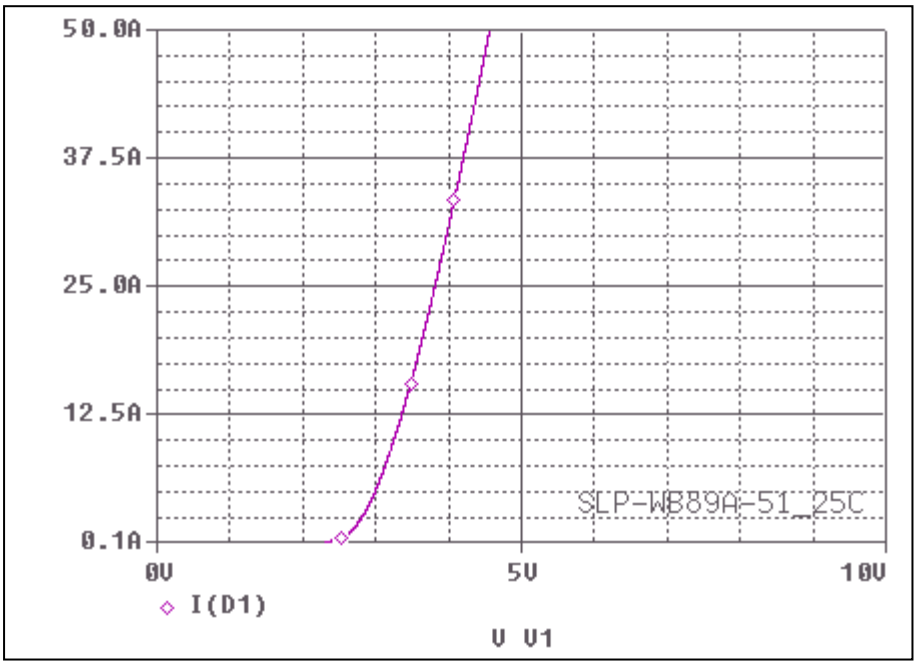
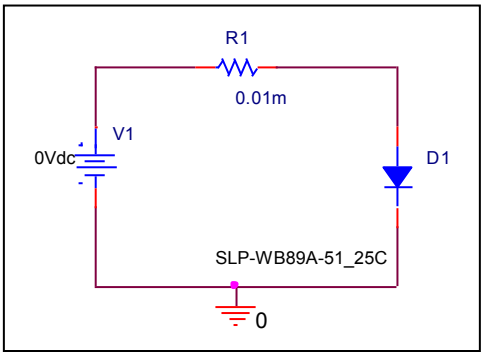
Forward Current Characteristic

Circuit Simulation Result



Evaluation Circuit



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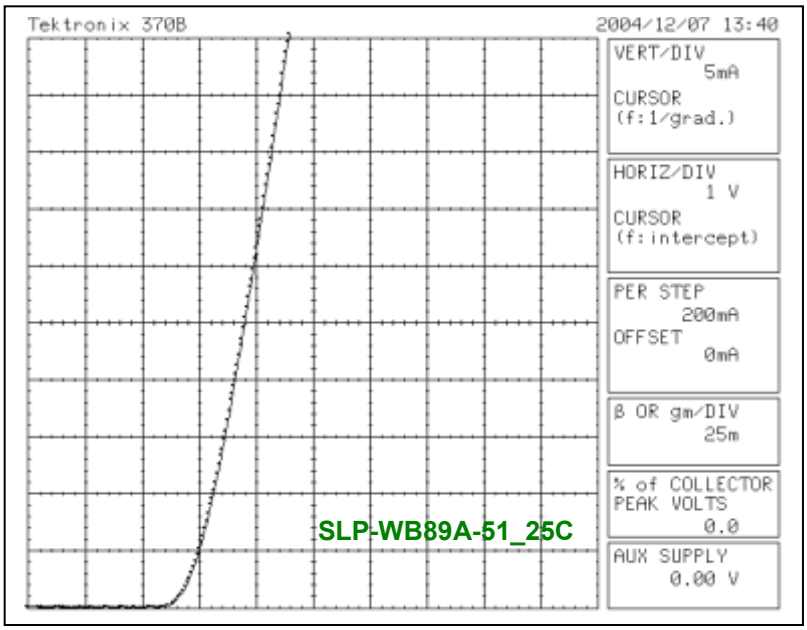
Forward Current Characteristic Reference



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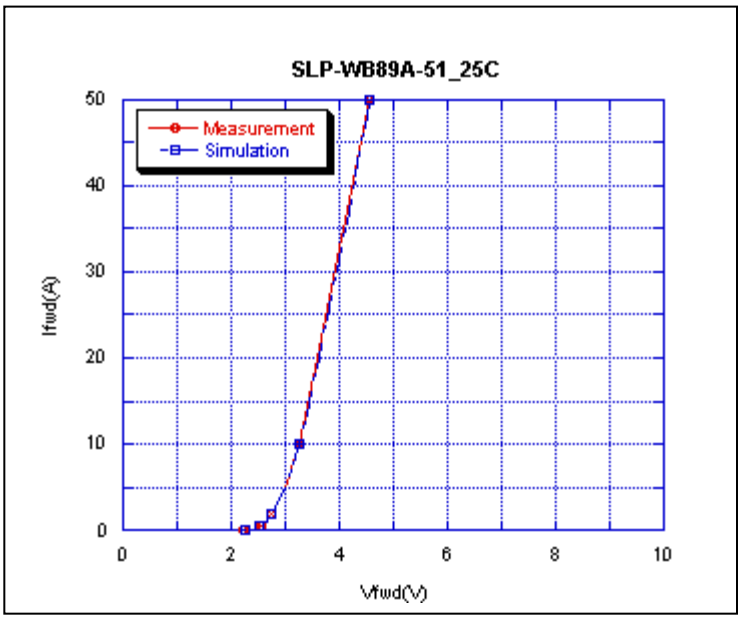
Comparison Graph

Circuit Simulation Result



Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.1	2.21	2.25	1.80995
0.2	2.44	2.4	1.63934
0.5	2.57	2.52	1.94552
1	2.65	2.65	0
2	2.76	2.76	0
5	3.01	2.99	0.66445
10	3.26	3.248	0.36809
20	3.61	3.64	0.83102
50	4.57	4.56	0.21881

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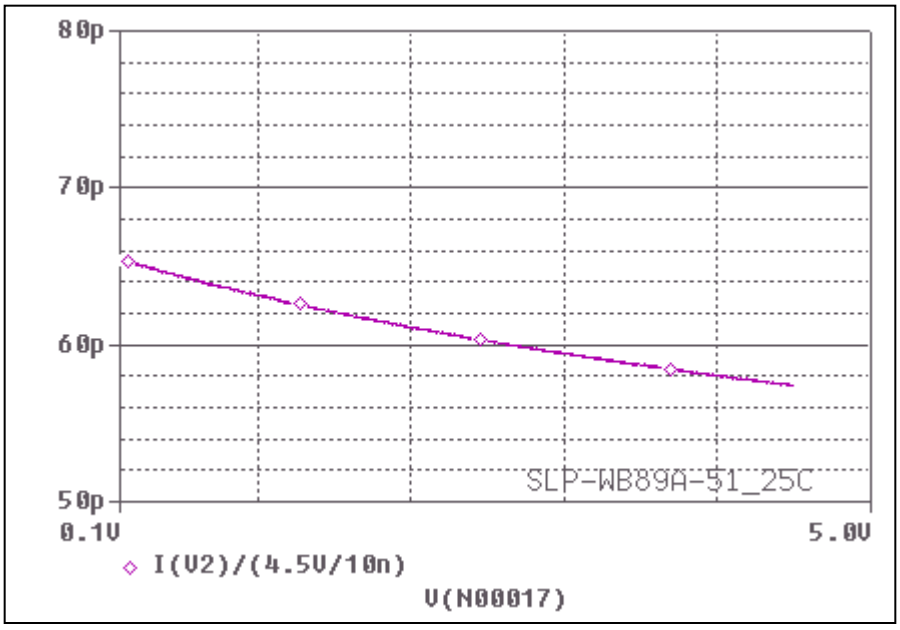
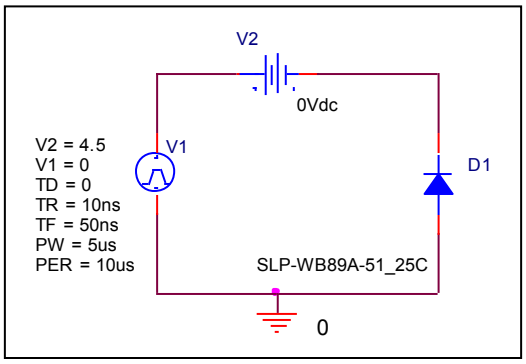
Capacitance Characteristic

Circuit Simulation Result



Evaluation Circuit



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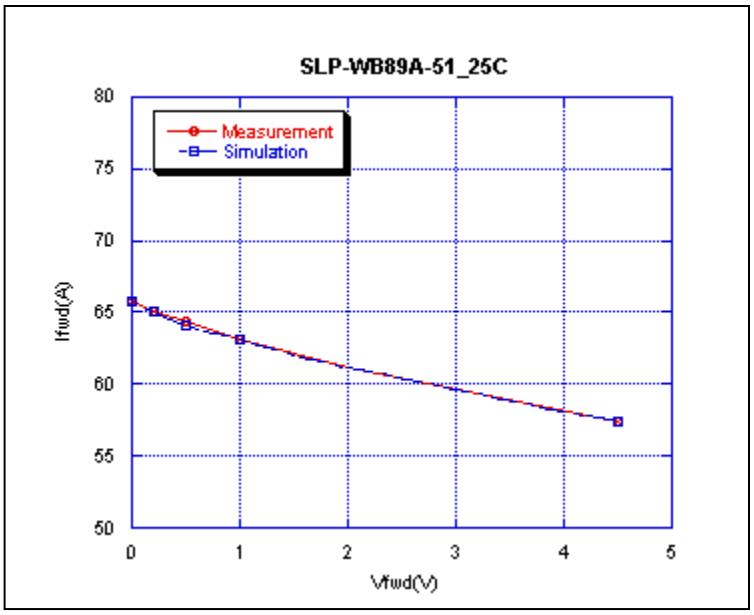
Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	65.73	65.73	0
0.1	65.46	65.4	0.09165
0.2	65.12	65.11	0.01535
0.5	64.3	64.14	0.24883
1	63.12	63.14	0.03168
2	61.16	61.11	0.08175
4.5	57.39	57.39	0

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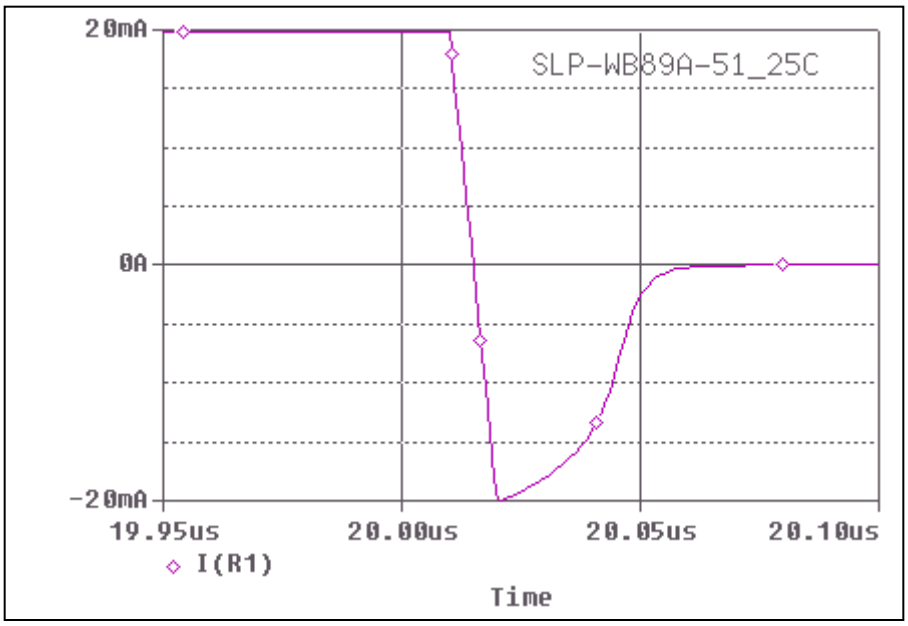
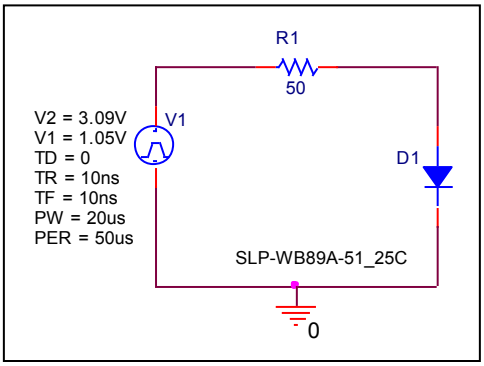
Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

Symbol	Measurement	Unit	Simulation	Unit	%Error
Trr=trj+trb	34.8	ns	34.9	ns	0.2873

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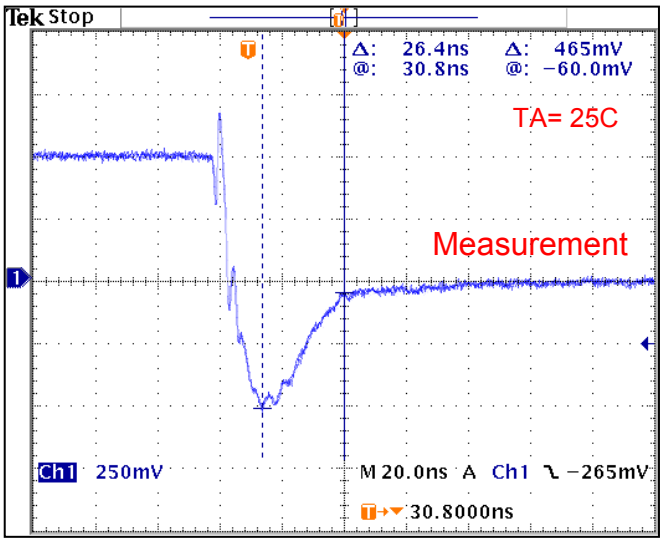
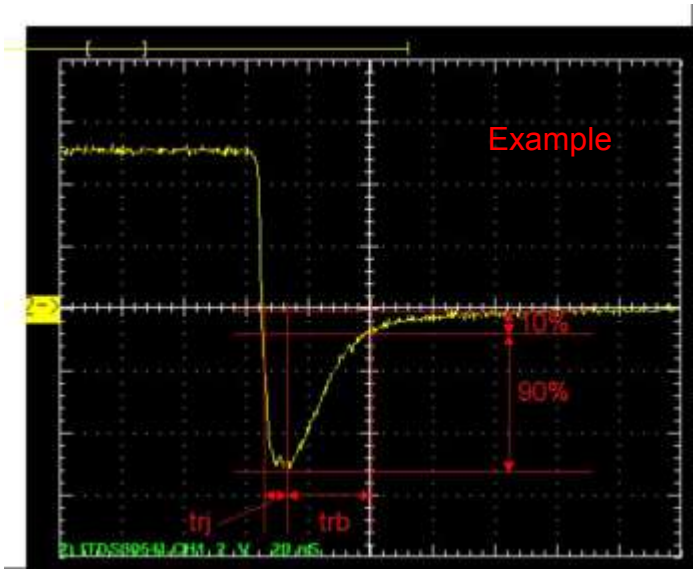
Reverse Recovery Characteristic Reference



Trj =8.4(ns)
Trb=26.4(ns)
Conditions: Ifwd=Irev=0.02(A), Rl=50



Relation between trj and trb

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