Device Modeling Report

COMPONENTS: Light-Emitting Diode (LED) Professional
PART NUMBER: OSWT5111A
MANUFACTURER: OPTO SUPPLY
REMARK: - 40 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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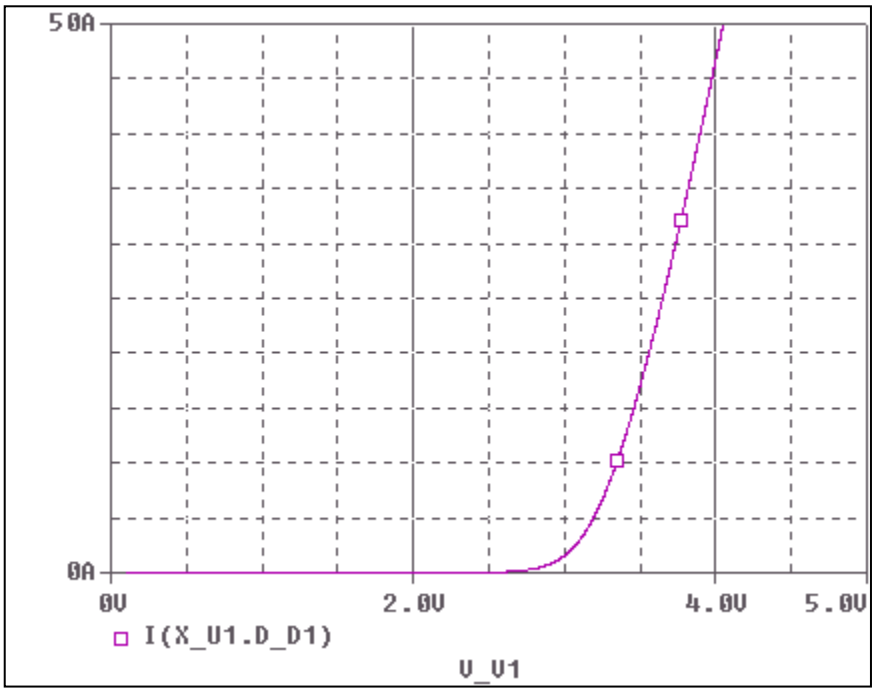
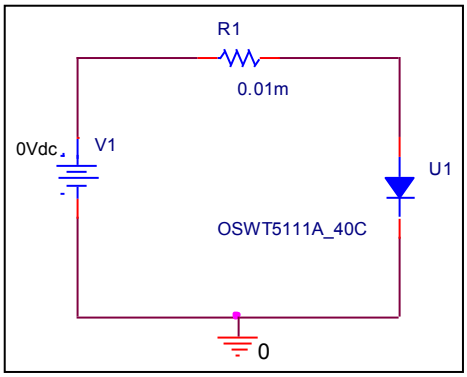
Forward Current Characteristic

Circuit Simulation Result



Evaluation Circuit



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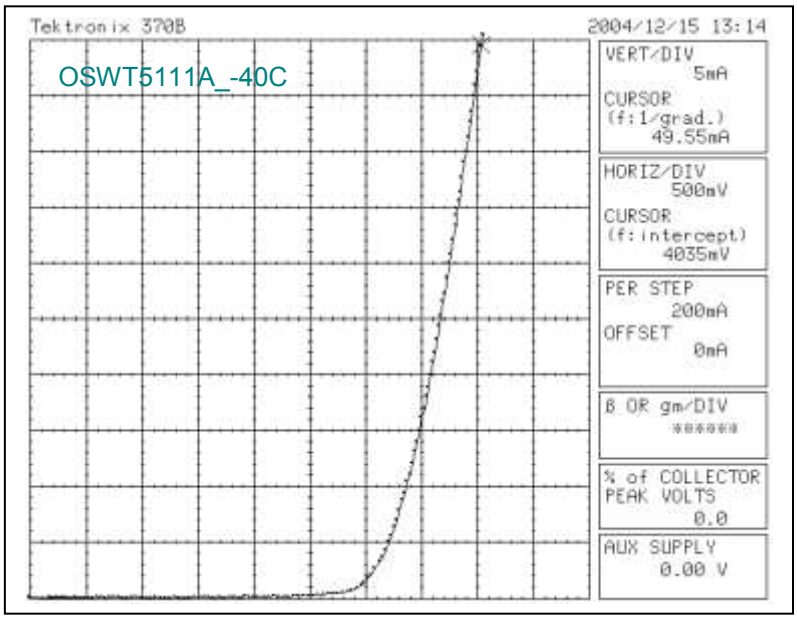
Forward Current Characteristic Reference



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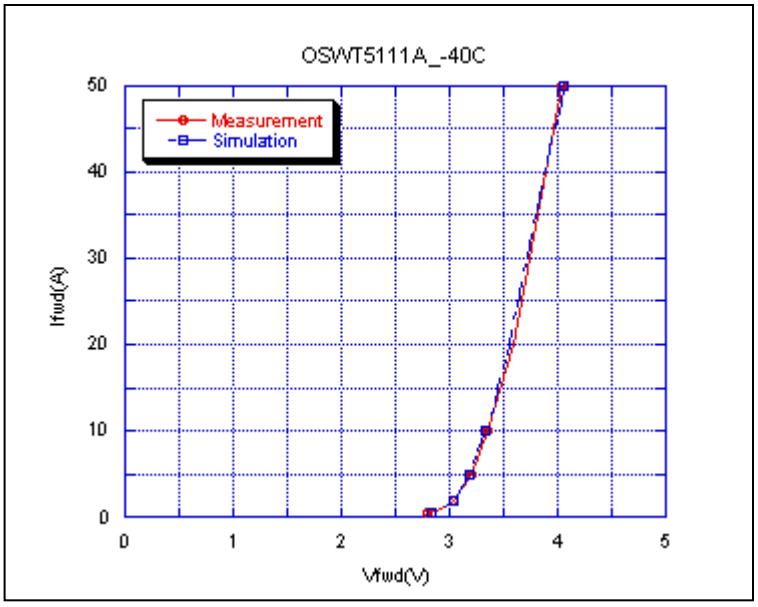
Comparison Graph

Circuit Simulation Result



Simulation Result

Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.5	2.8	2.838	1.3571
1	2.93	2.933	0.1023
2	3.035	3.035	0
5	3.21	3.191	0.5919
10	3.355	3.343	0.3576
20	3.585	3.557	0.7810
50	4.035	4.05	0.3717

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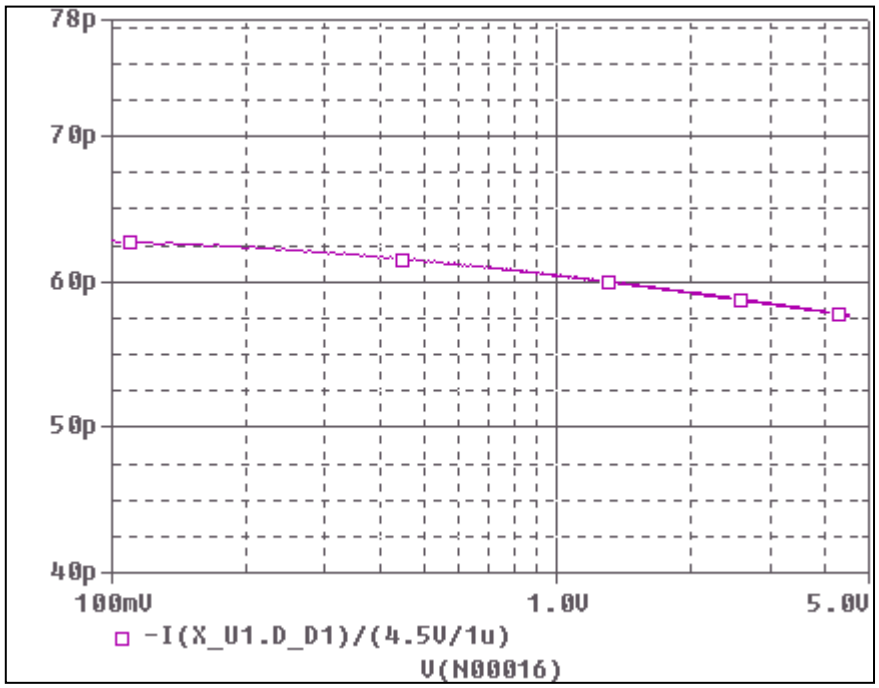
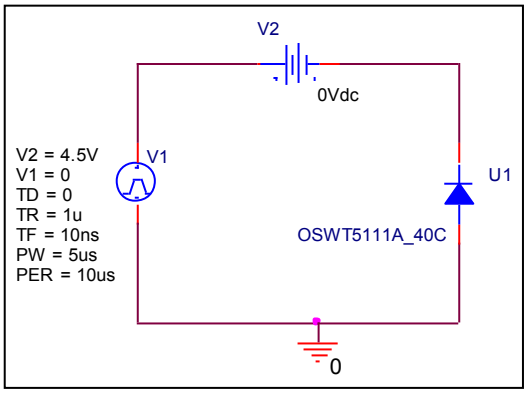
Capacitance Characteristic

Circuit Simulation Result



Evaluation Circuit



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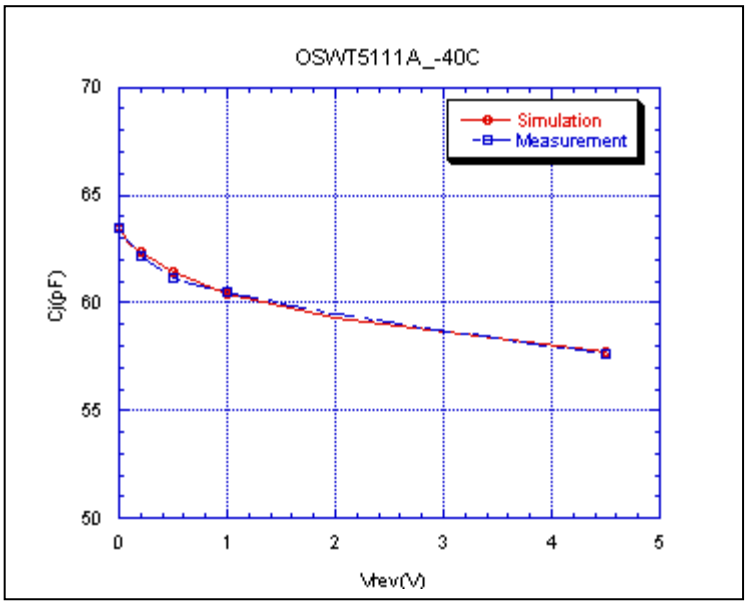
Comparison Graph

Circuit Simulation Result



Simulation Result

Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	63.5	63.5	0
0.1	62.85	62.73	0.19093
0.2	62.15	62.39	0.38616
0.5	61.2	61.39	0.31045
1	60.5	60.45	0.08264
2	59.48	59.28	0.33624
4.5	57.6	57.76	0.27777

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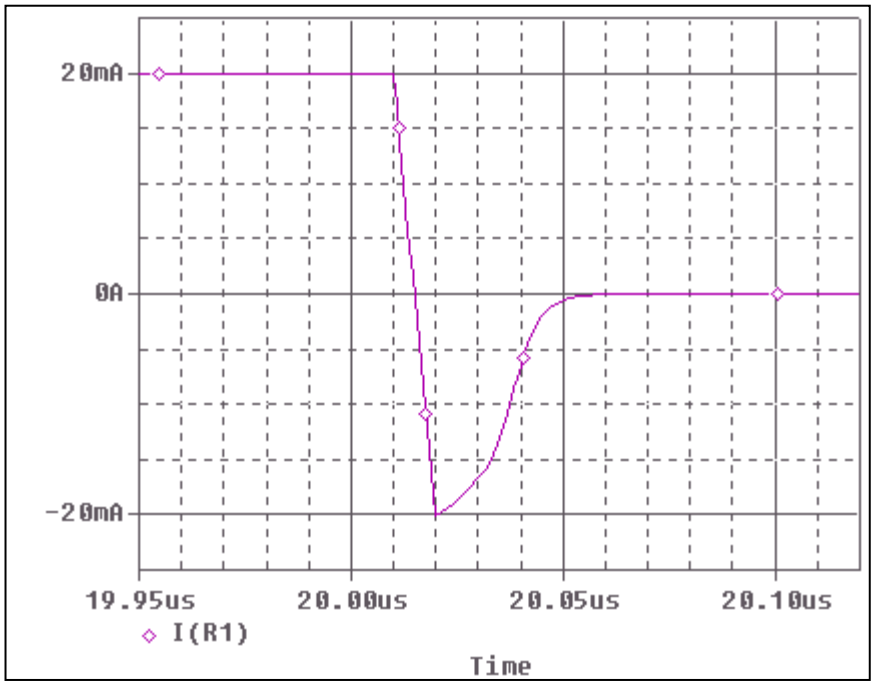
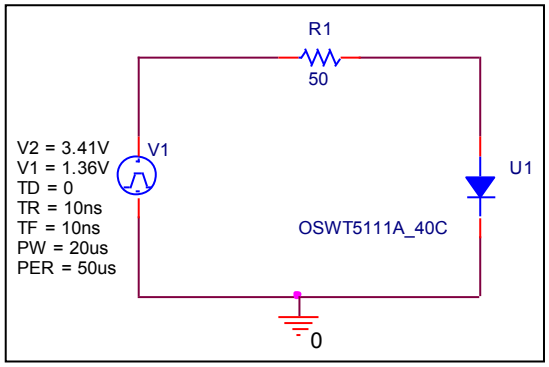
Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit



Compare Measurement vs. Simulation

Symbol	Measurement	Unit	Simulation	Unit	%Error
trj	8.8	ns	8.82	ns	0.22727
trb	20.8	ns	20.7	ns	0.48076

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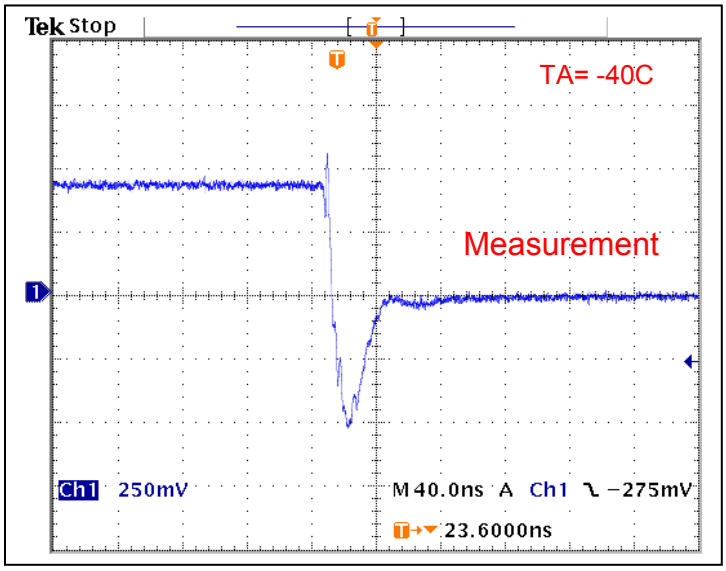
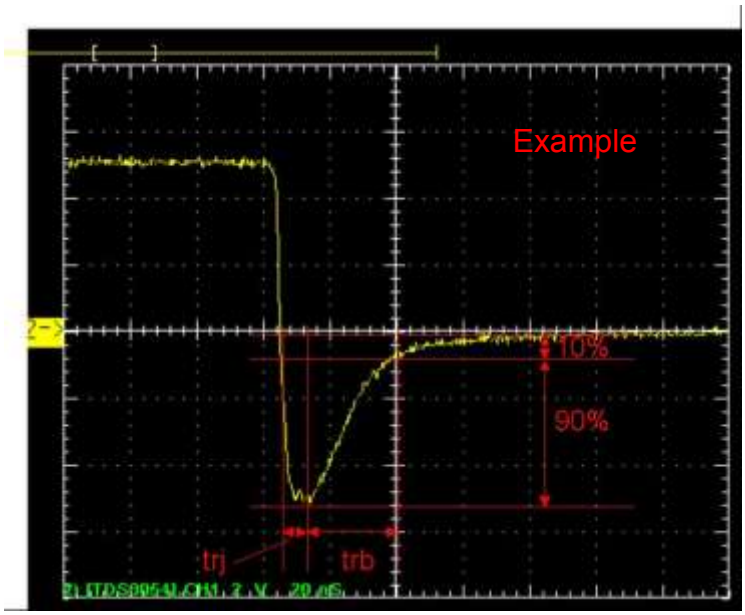
Reverse Recovery Characteristic Reference



Trj =8.8(ns)
Trb=20.8(ns)
Conditions: Ifwd=Irev=0.02(A), Rl=50



Relation between trj and trb

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