Device Modeling Report

COMPONENTS:
DIODE/GENERAL PURPOSE RECTIFIER/ STANDARD
PART NUMBER: SF20LC30
MANUFACTURER: SHINDENGEN
REMARK: TC=25C

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

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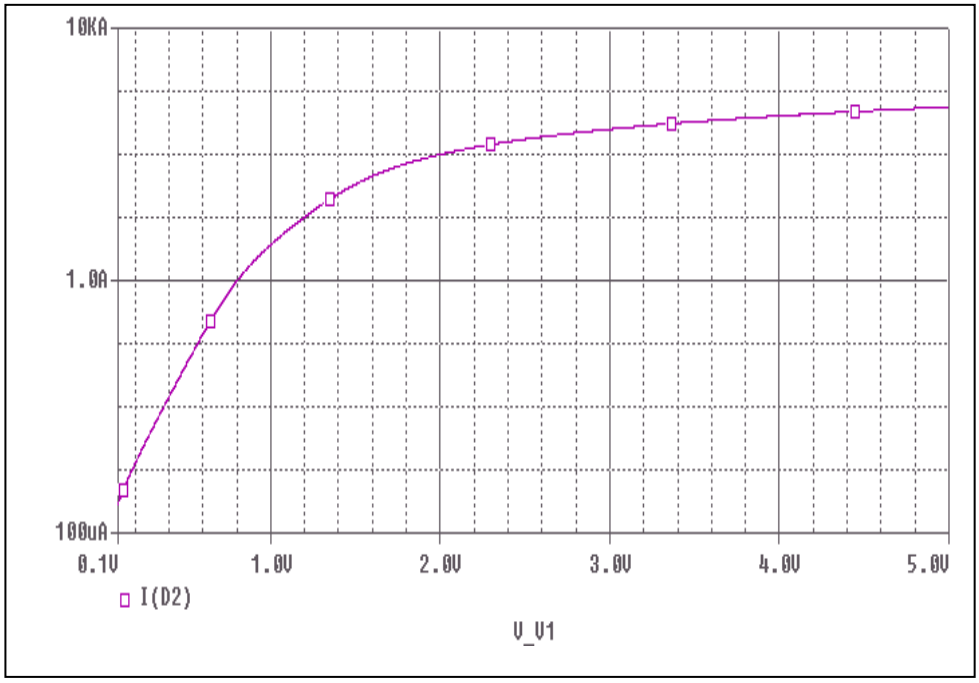
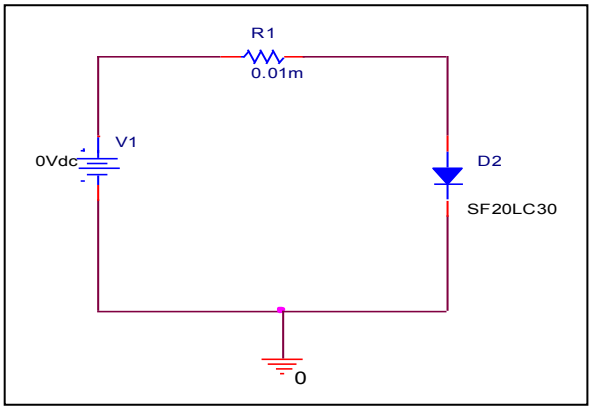
Forward Current Characteristic

Circuit Simulation Result



Evaluation circuit



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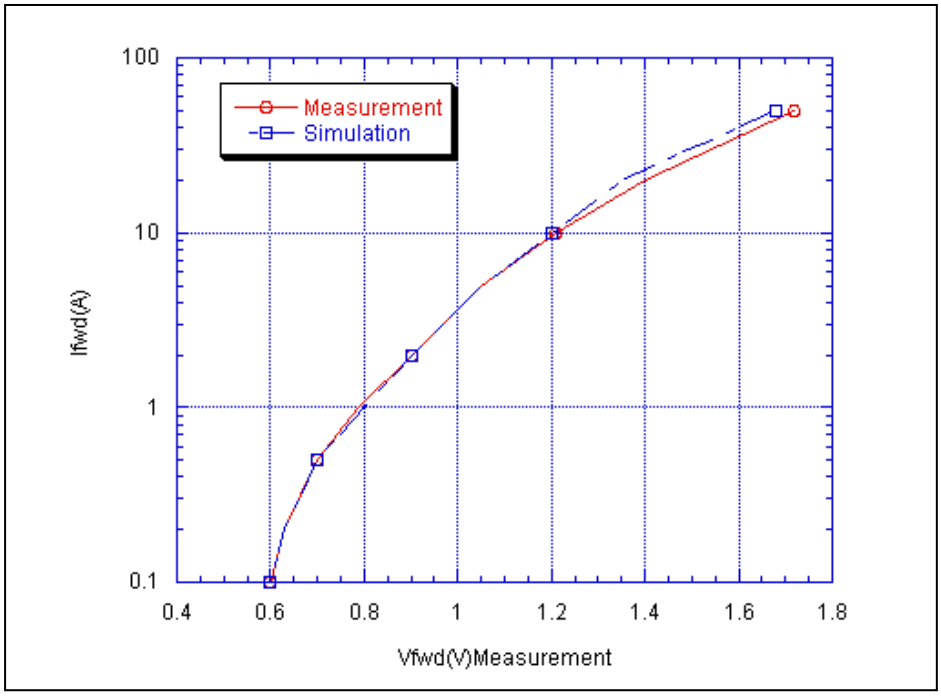
Comparison graph

Circuit Simulation Result



Simulation Result

Ifwd (A)	Vfwd (V) Measurement	Vfwd (V) Simulation	%Error
0.1	0.600	0.600	0.00
0.2	0.630	0.630	0.00
0.5	0.700	0.700	0.00
1	0.790	0.800	-1.27
2	0.900	0.900	0.00
5	1.050	1.050	0.00
10	1.210	1.200	0.83
20	1.400	1.350	3.57
50	1.720	1.680	2.33

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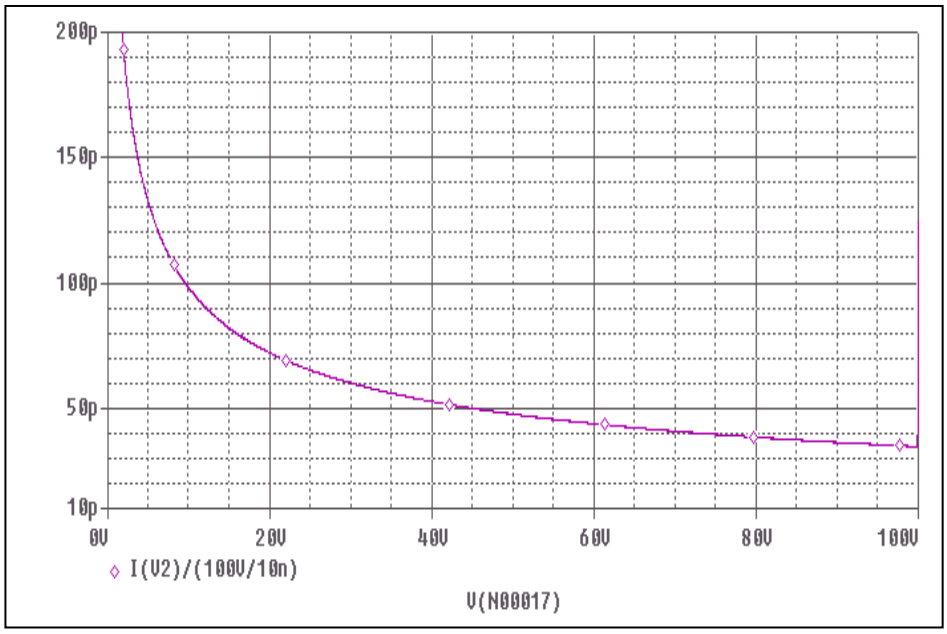
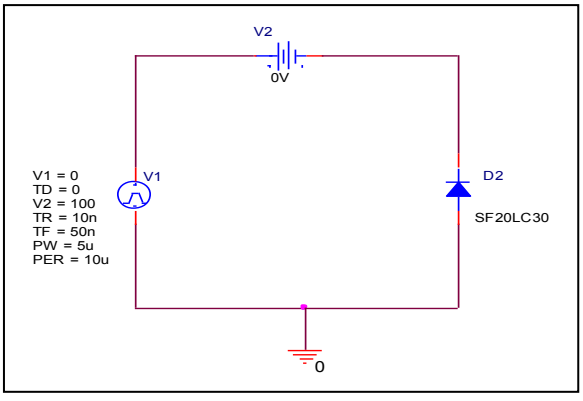
Junction Capacitance Characteristic

Circuit Simulation Result



Evaluation circuit



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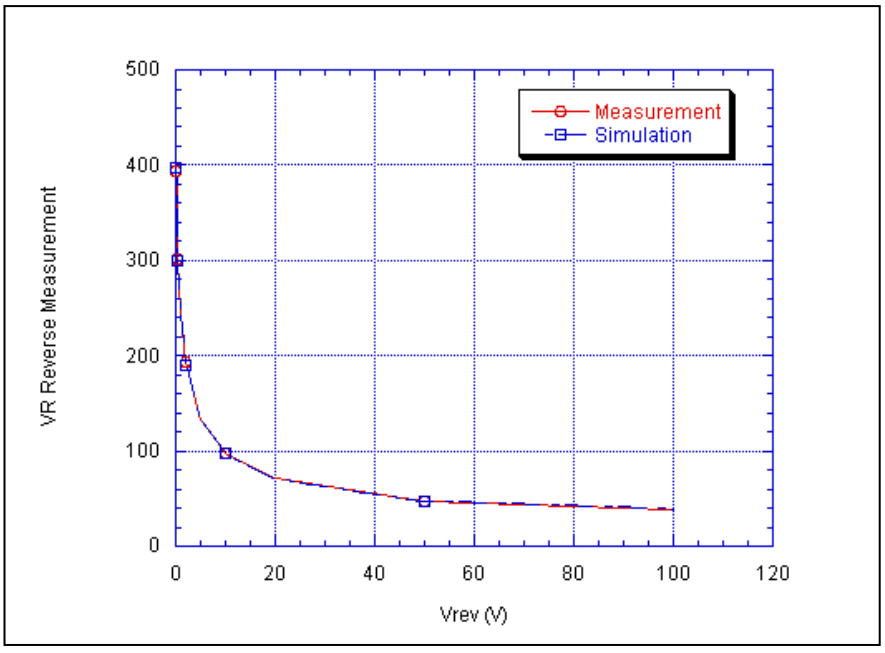
Comparison graph

Circuit Simulation Result



Simulation Result

Vrev (V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	437.320	437.320	0.00
0.1	393.370	396.850	-0.88
0.2	369.930	365.148	1.29
0.5	301.080	299.224	0.62
1	244.790	247.844	-1.25
2	192.800	190.064	1.42
5	133.090	132.941	0.11
10	97.618	98.170	-0.57
20	71.454	71.454	0.00
50	46.989	47.535	-1.16
100	38.119	37.734	1.01

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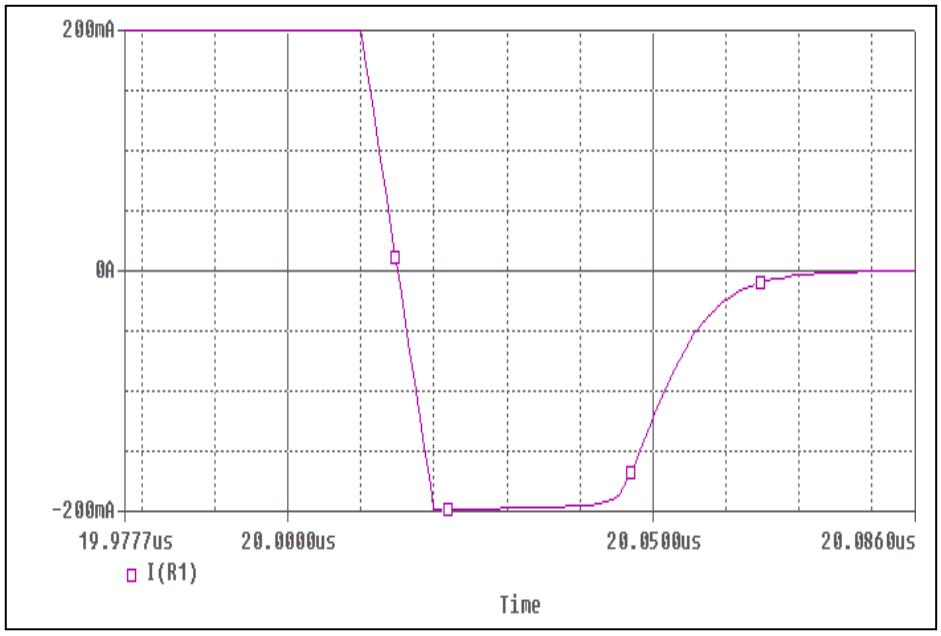
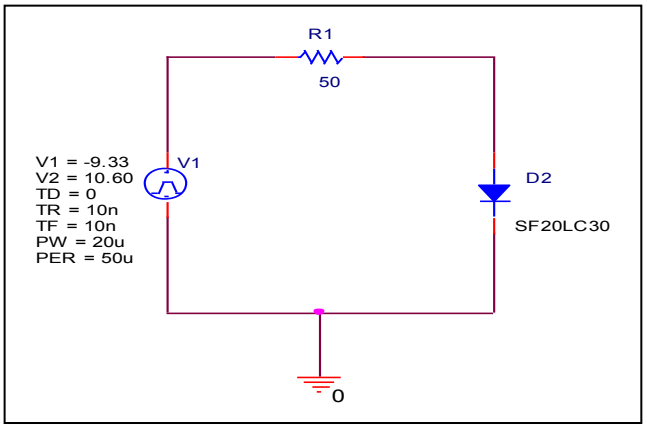
Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation circuit



Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	44.80	ns	45.00	ns	0.44

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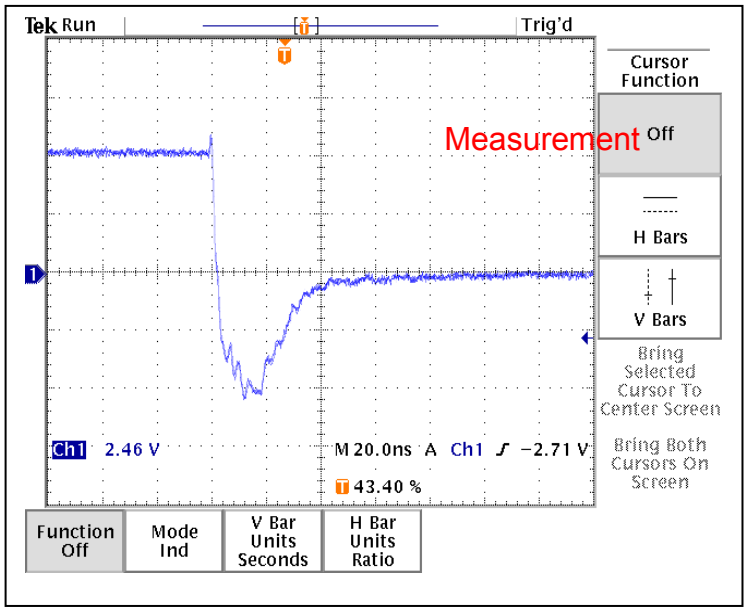
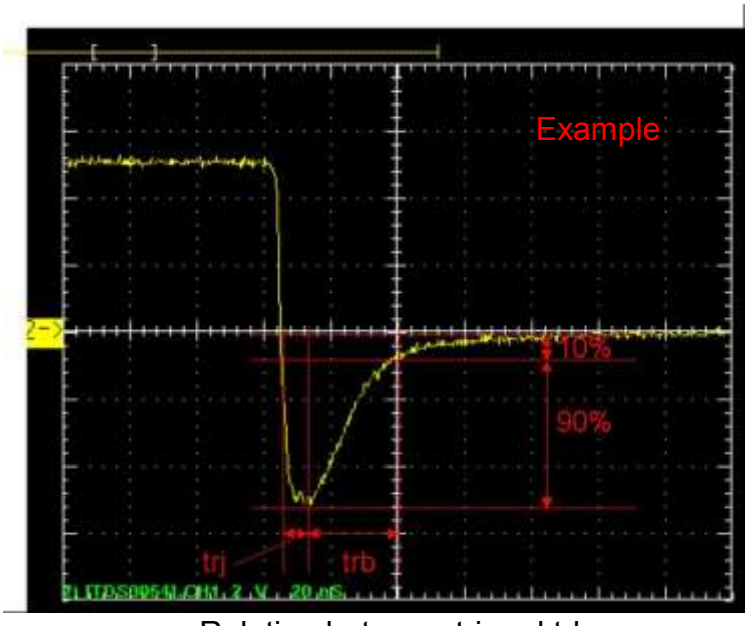
Reverse Recovery Characteristic Reference



trj=14.8(ns)
trb=30.0(ns)
Conditions:Ifwd=Irev=0.2(A),Rl=50



Relation between trj and trb

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