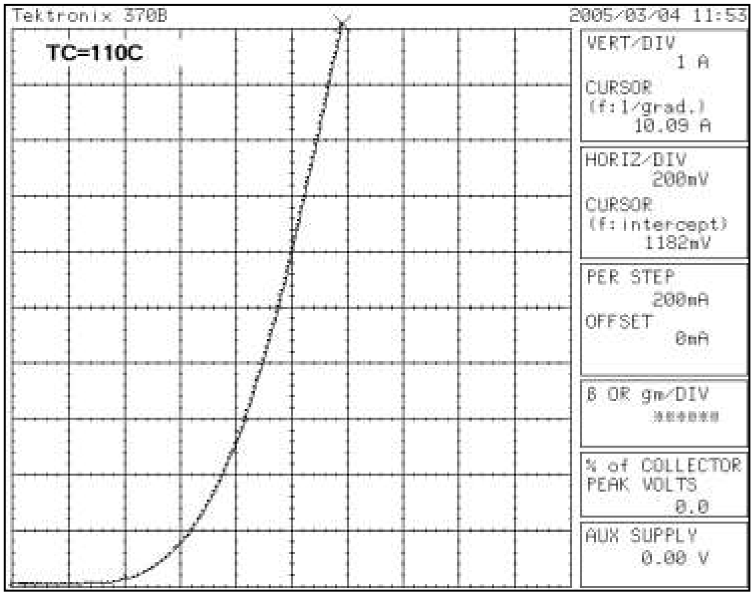
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: RHRG75120
MANUFACTURER: INTERSIL
REMARK: TC= 110C

Bee Technologies Inc.

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

Forward Current Characteristic Reference



Tektronix 370B

2005/03/04 11:53

VERT/DIV
1 A
CURSOR
(f:1/grad.)
10.09 A

HORIZ/DIV
200mV
CURSOR
(f:intercept)
1182mV

PER STEP
200mA
OFFSET
0mA

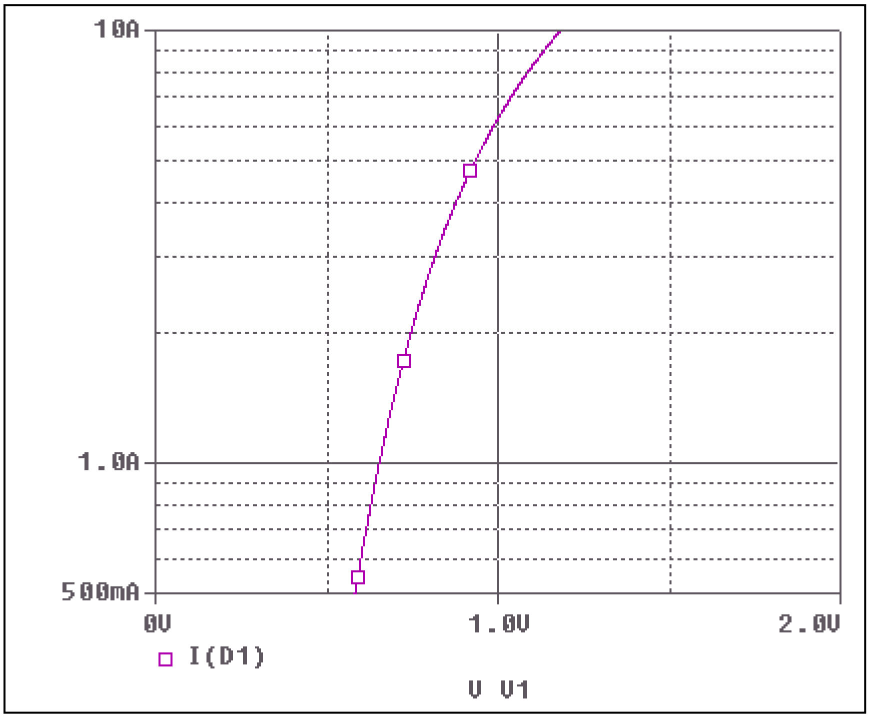
β OR gm/DIV
******

% of COLLECTOR
PEAK VOLTS
0.0

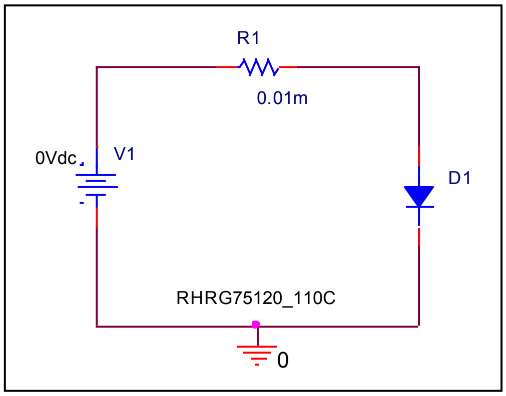
AUX SUPPLY
0.00 V

Forward Current Characteristic

Circuit Simulation Result

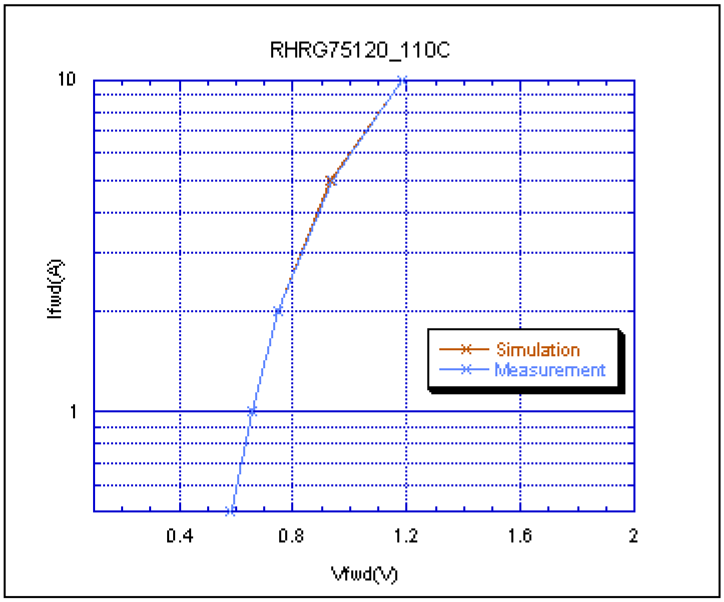


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

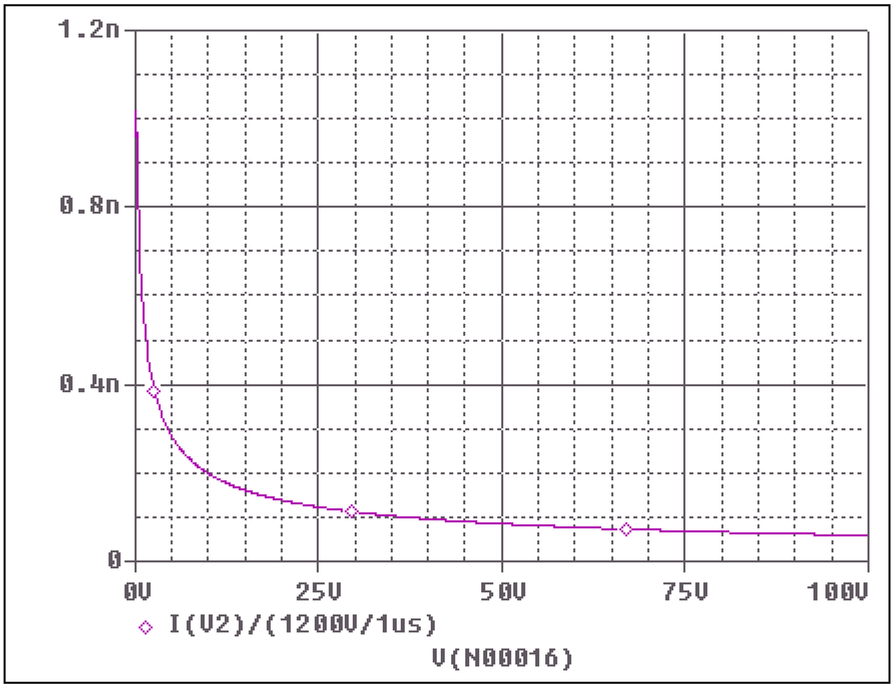


Simulation Result

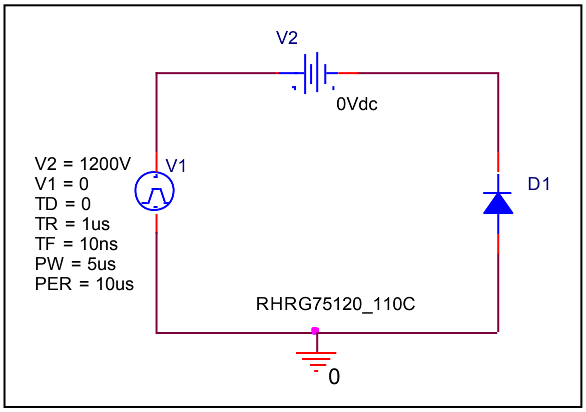
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.5	0.576	0.581	-0.87
1	0.654	0.653	0.15
2	0.750	0.747	0.40
5	0.934	0.933	0.11
10	1.182	1.182	0.00

Capacitance Characteristic

Circuit Simulation Result

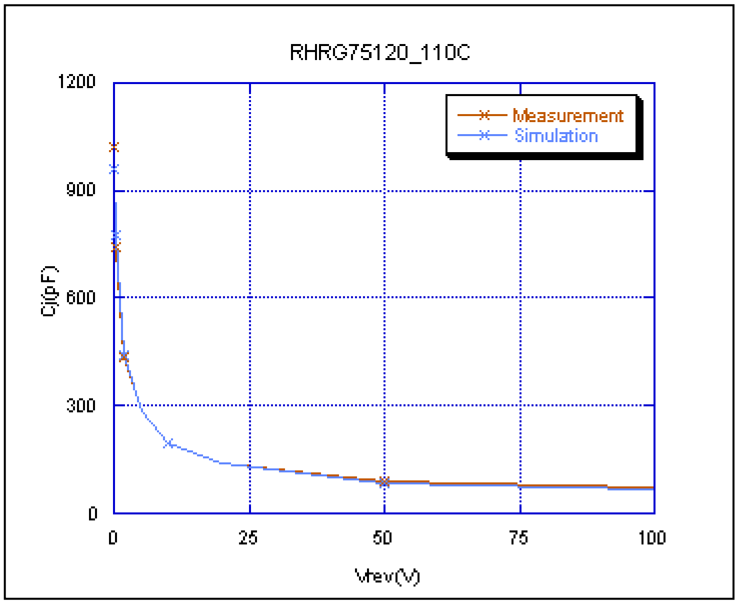


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

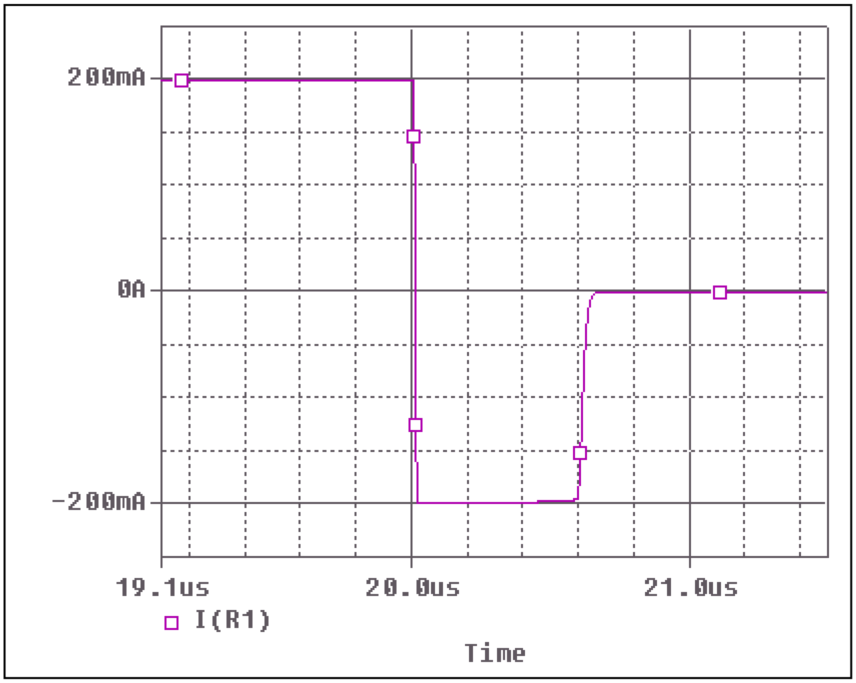


Simulation Result

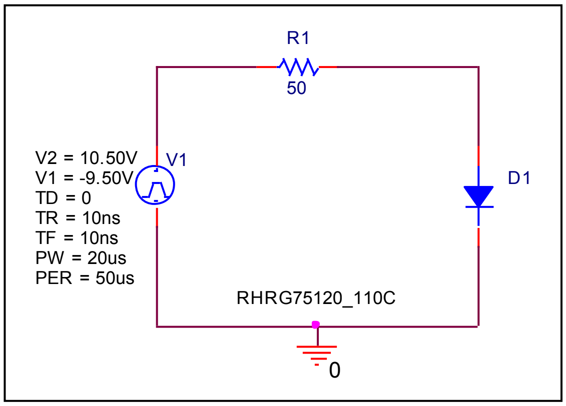
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	1134.000	1134.000	0.00
0.1	1021.000	959.978	5.98
0.2	930.100	952.261	-2.38
0.5	740.274	777.189	-4.99
1	578.190	596.334	-3.14
2	434.846	442.363	-1.73
5	283.081	285.947	-1.01
10	195.437	198.719	-1.68
20	138.995	138.247	0.54

Reverse Recovery Characteristic

Circuit Simulation Result



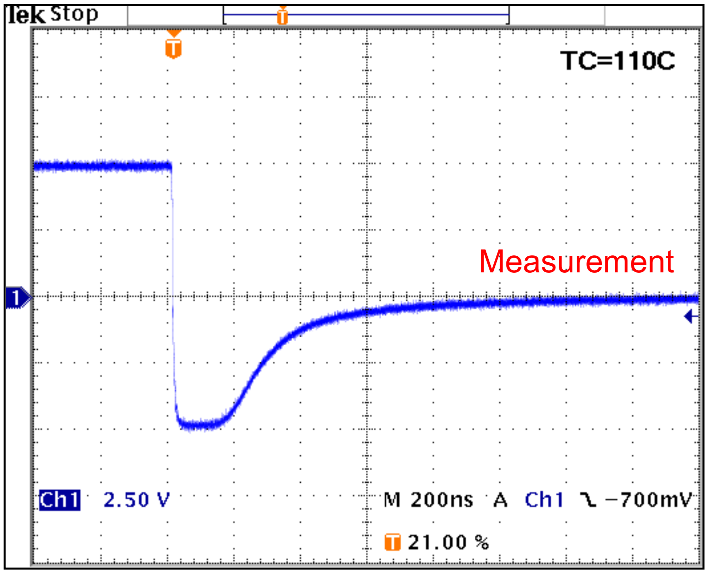
Evaluation Circuit



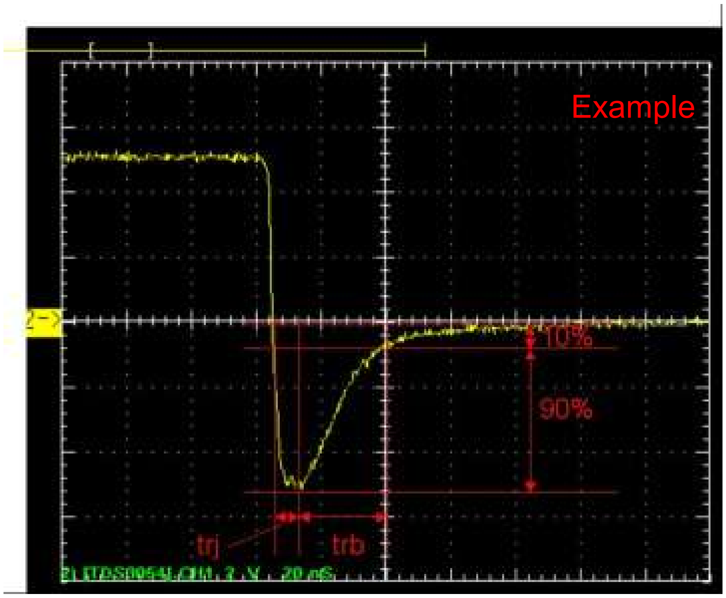
Compare Measurement vs. Simulation

	Measurement		**Simulation**		**%Error**
trr	**584.0**	**ns**	**583.5**	**ns**	**0.489**

Reverse Recovery Characteristic Reference



Trj =132 (ns)
Trb= 452 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb