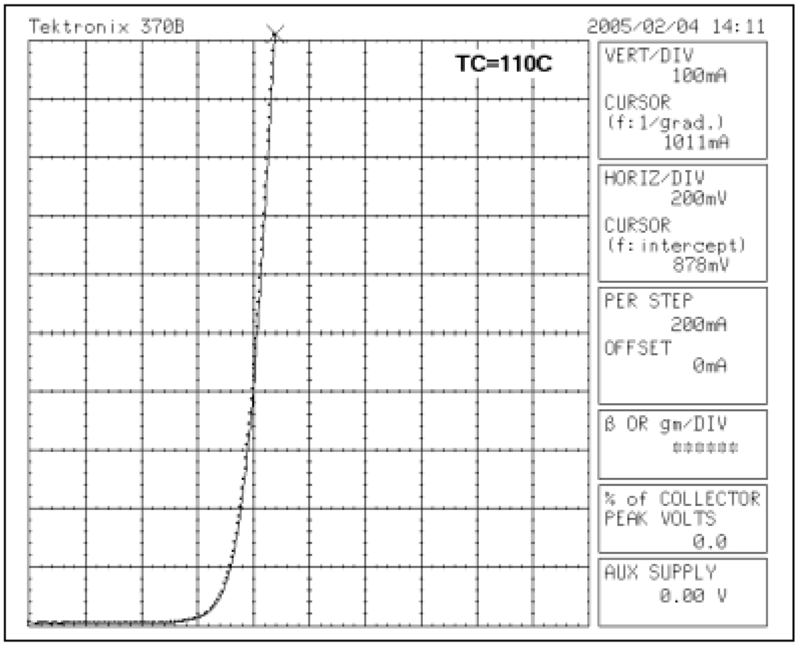
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / STANDARD
PART NUMBER: 1SR154-600
MANUFACTURER: ROHM
REMARK: TC=110C

Bee Technologies Inc.

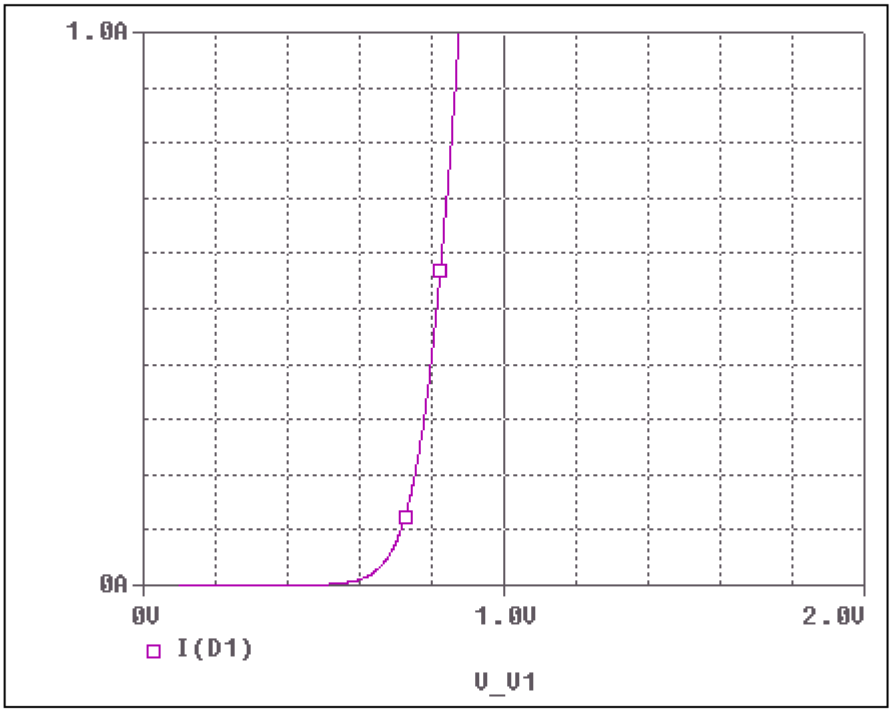
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic Reference

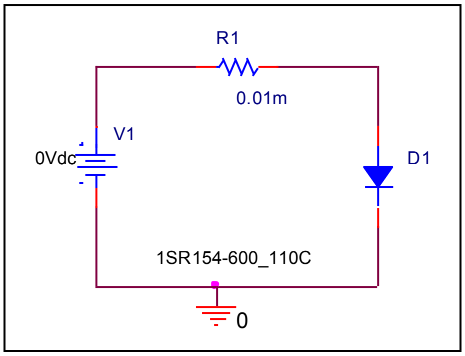


Forward Current Characteristic

Circuit Simulation Result

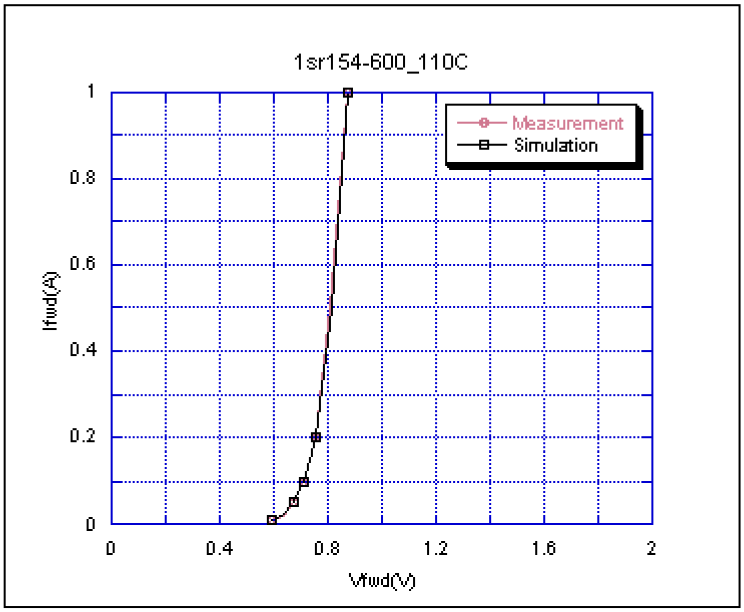


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

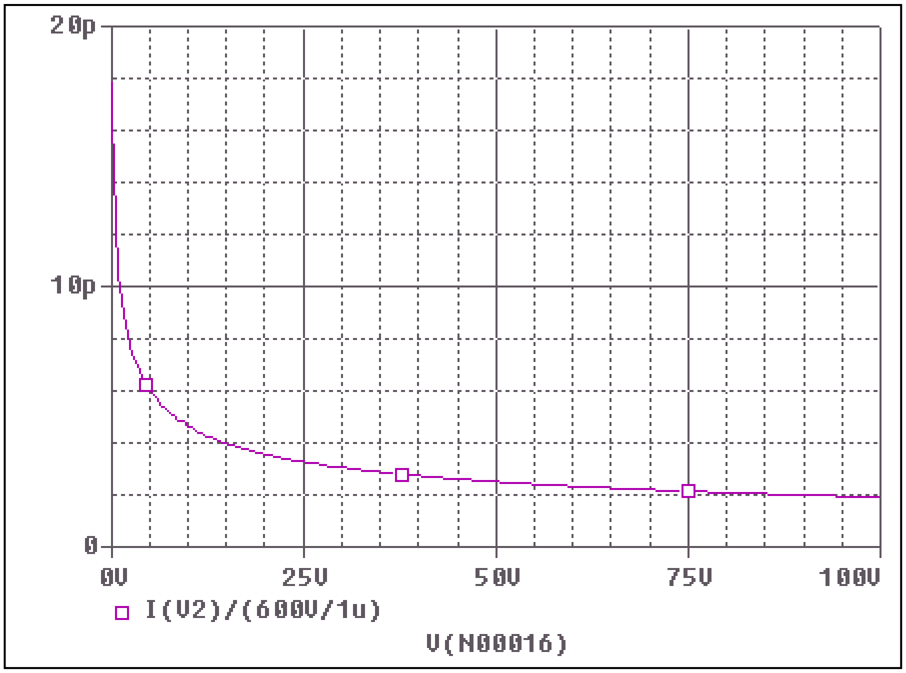


Simulation Result

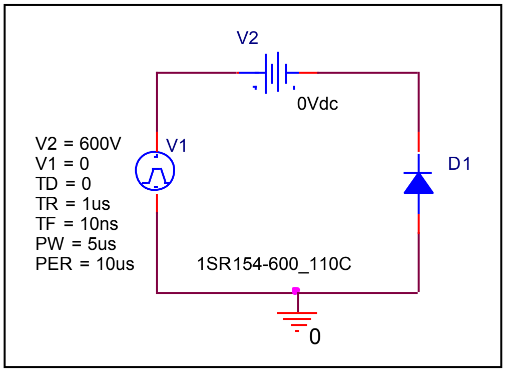
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.595	0.596	-0.17
0.02	0.634	0.631	0.47
0.05	0.676	0.677	-0.15
0.1	0.715	0.714	0.14
0.2	0.756	0.753	0.40
0.5	0.810	0.814	-0.49
1	0.876	0.874	0.23

Capacitance Characteristic

Circuit Simulation Result

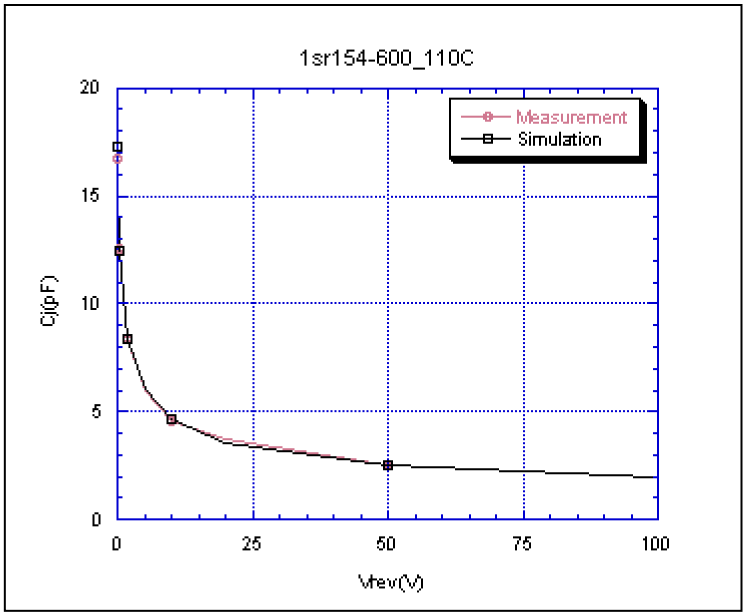


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

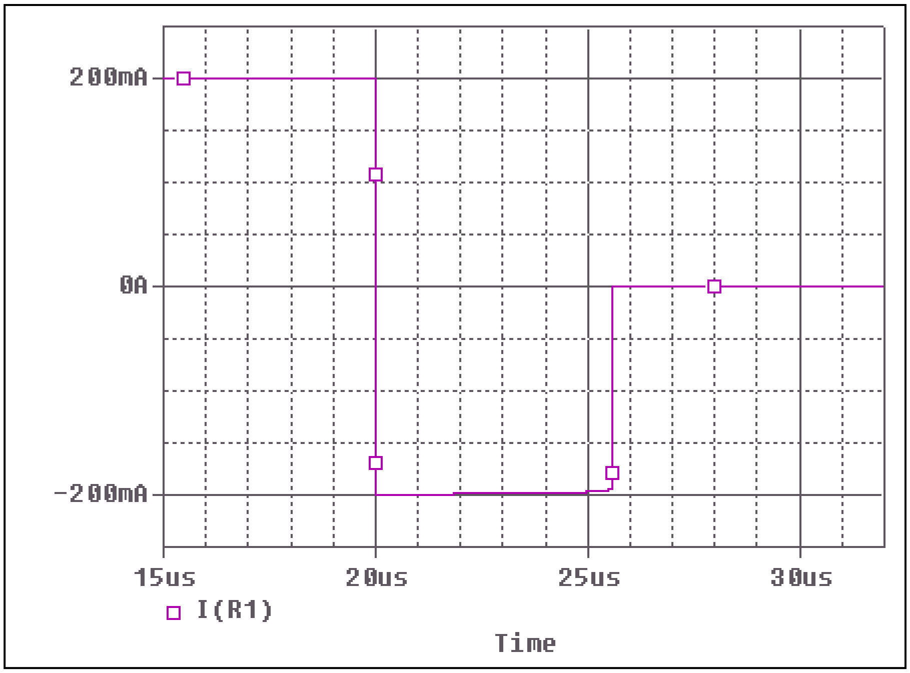


Simulation Result

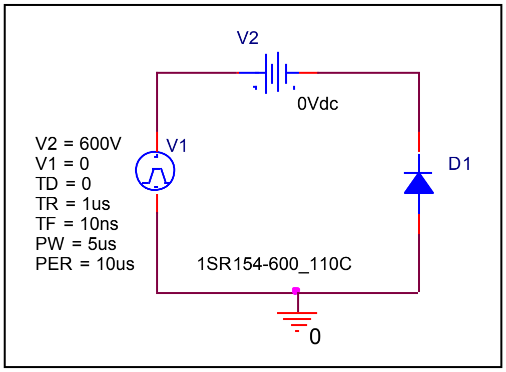
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	18.668	18.668	0.00
0.1	16.730	17.253	-3.13
0.2	15.302	15.464	-1.06
0.5	12.577	12.497	0.64
1	10.452	10.401	0.49
2	8.356	8.383	-0.32
5	5.999	6.018	-0.32
10	4.600	4.617	-0.37
20	3.688	3.570	3.20
50	2.508	2.508	0.00
100	1.900	1.916	-0.84

Reverse Recovery Characteristic

Circuit Simulation Result



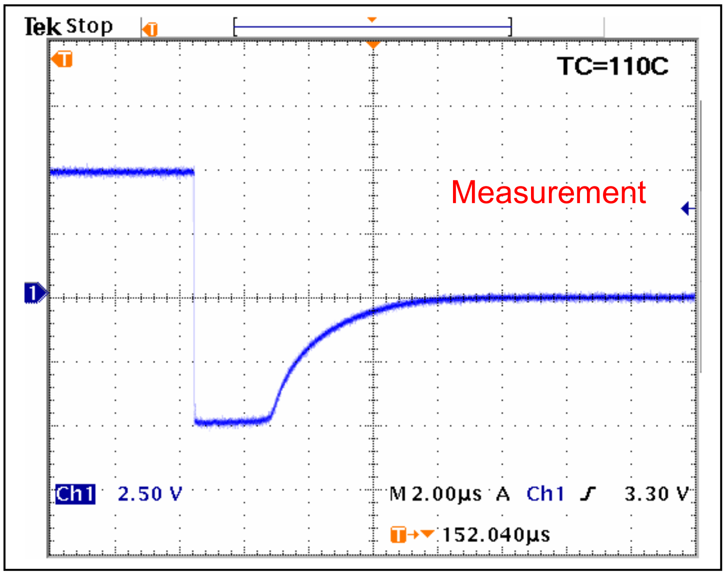
Evaluation Circuit



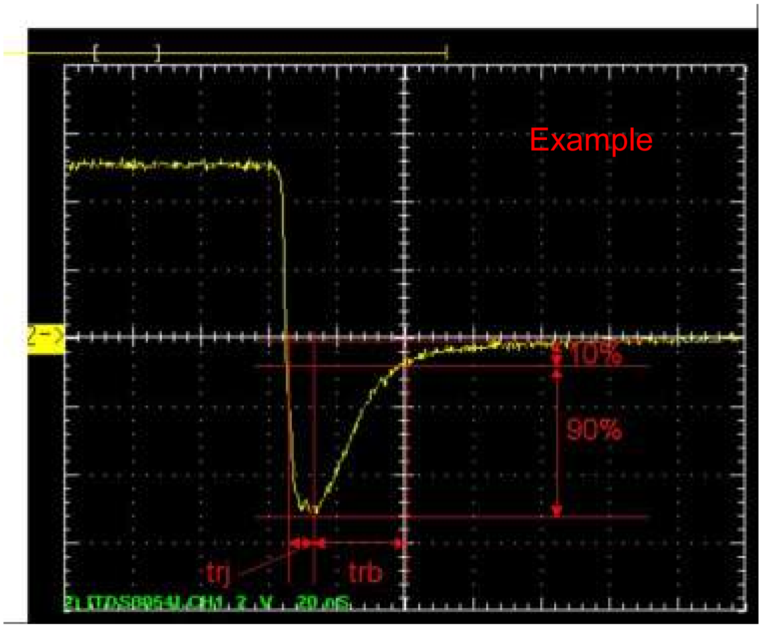
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trr	**5.52**	**us**	**5.54**	**us**	**0.362**

Reverse Recovery Characteristic Reference



Trj =2.32(us)
Trb=3.20(us)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb