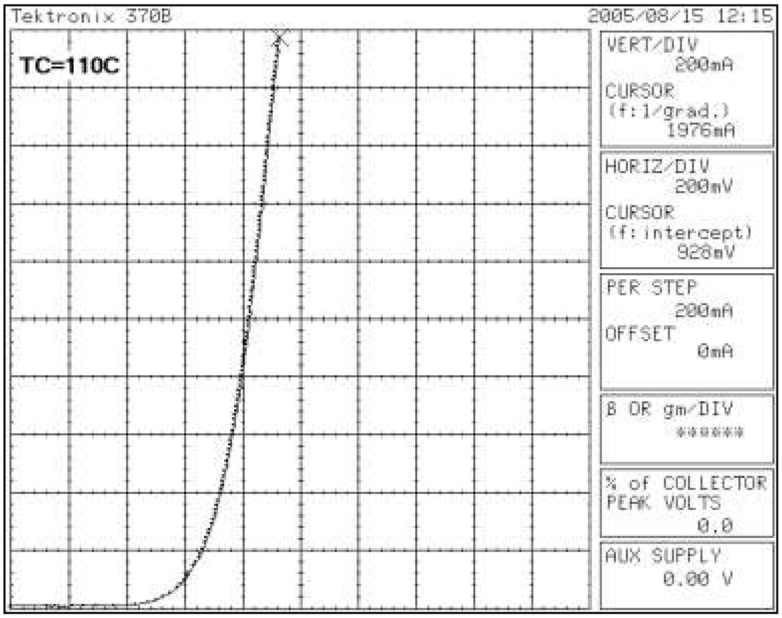
Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER/ PROFESSIONAL
PART NUMBER: RURD660S
MANUFACTURER: FAIRCHILD
REMARK: TC=110 degree

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



VERT/DIV 200mA
CURSOR (f:1/grad.) 1976mA

HORIZ/DIV 200mV
CURSOR (f:intercept) 928mV

PER STEP 200mA
OFFSET 0mA

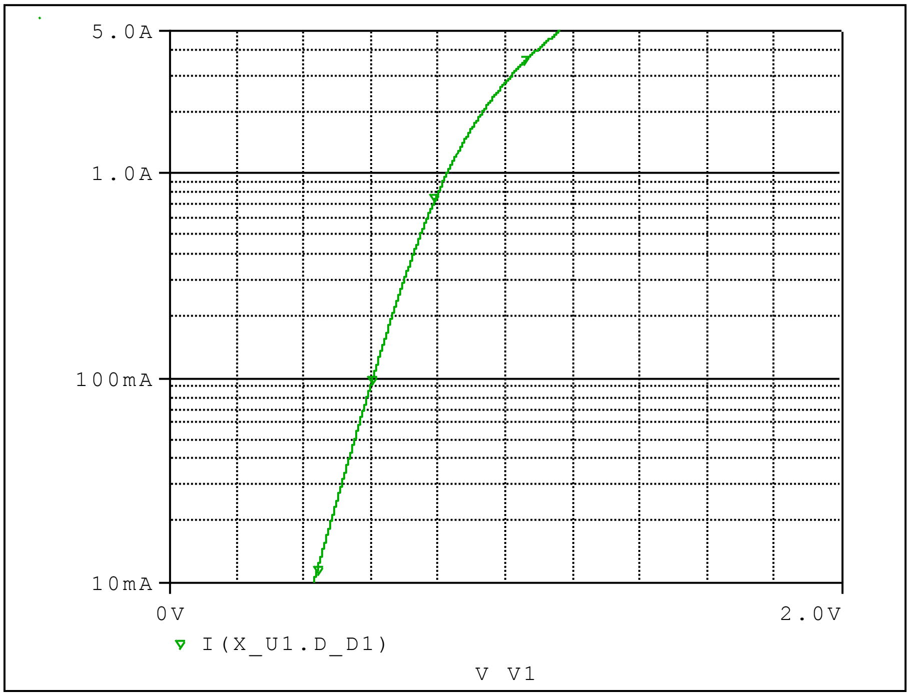
B OR gm/DIV ******

% of COLLECTOR PEAK VOLTS 0.0

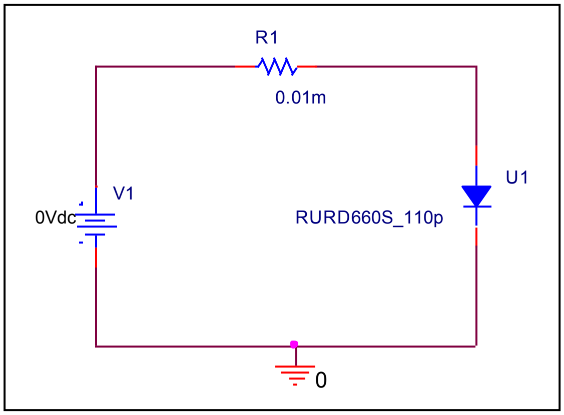
AUX SUPPLY 0.00 V

Forward Current Characteristic

Circuit Simulation Result

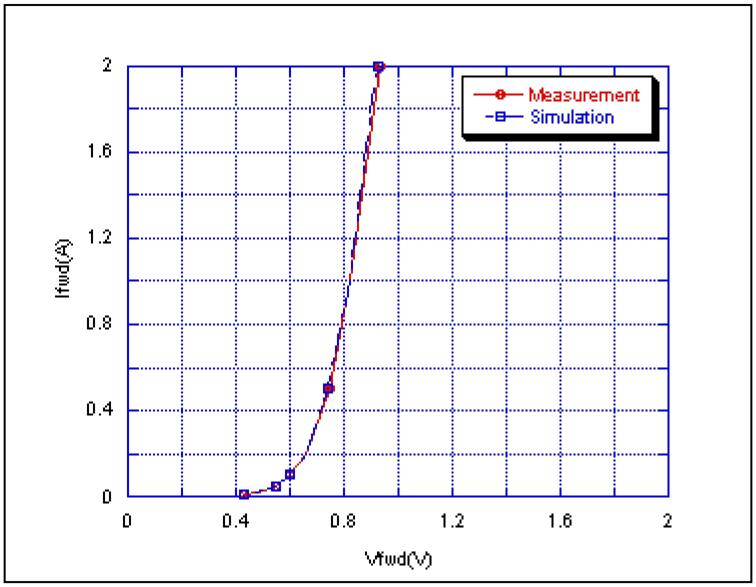


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

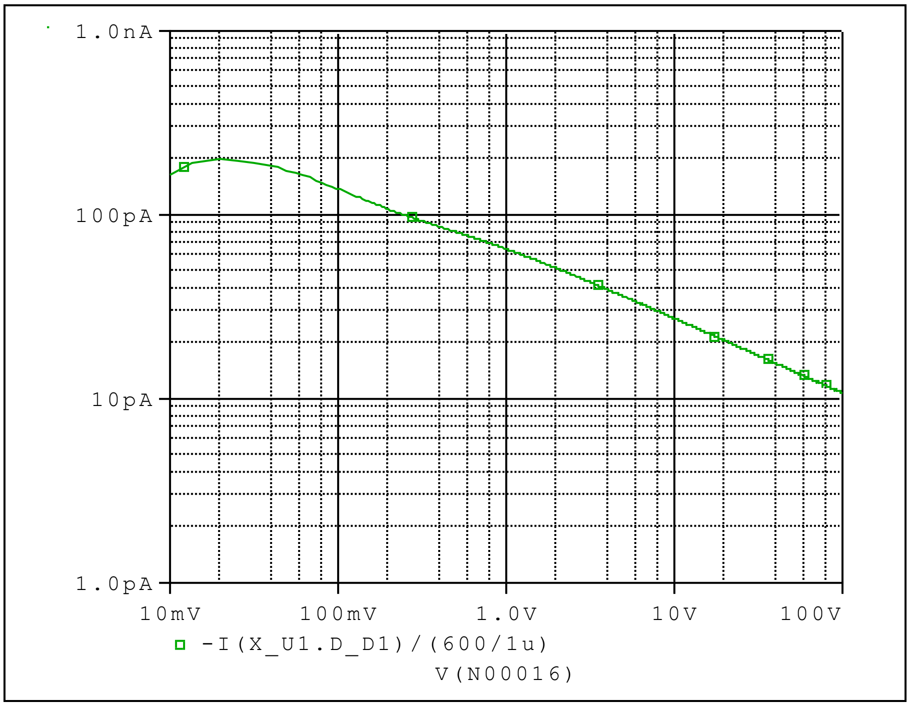


Simulation Result

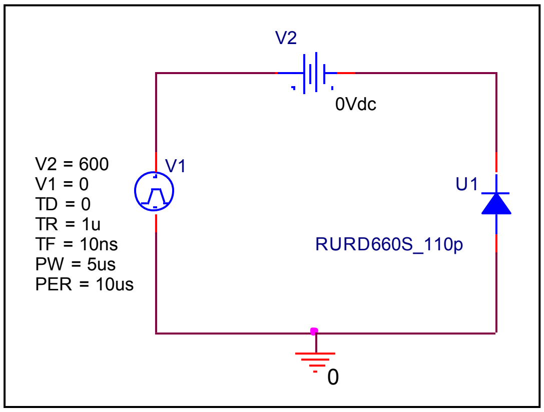
Ifwd(A)	Vfwd(V) Measurement	Vfwd(V) Simulation	%Error
0.01	0.428	0.427	0.234
0.02	0.478	0.479	-0.209
0.05	0.552	0.549	0.543
0.1	0.600	0.603	-0.500
0.2	0.660	0.660	0.000
0.5	0.748	0.744	0.535
1	0.822	0.824	-0.243
2	0.930	0.929	0.108

Capacitance Characteristic

Circuit Simulation Result

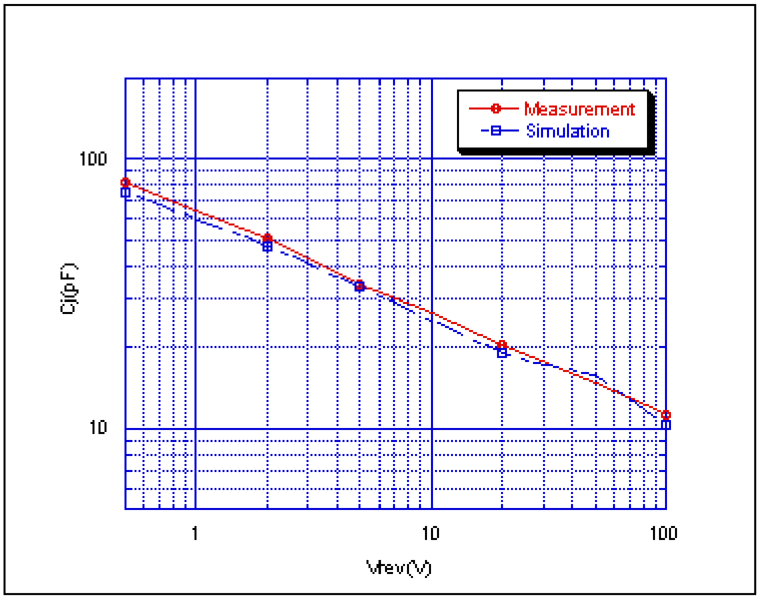


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

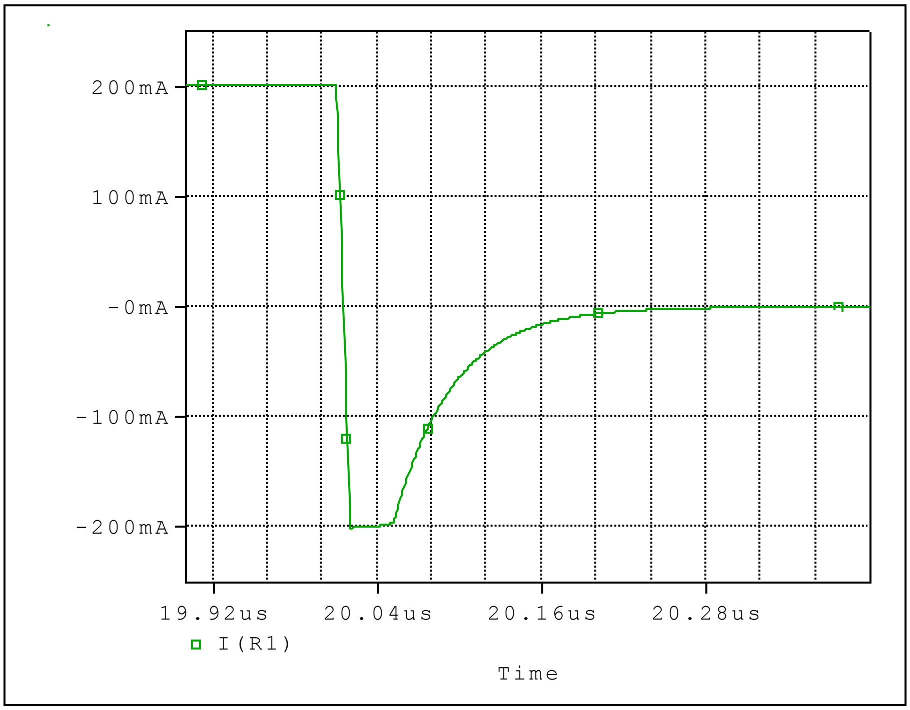


Simulation Result

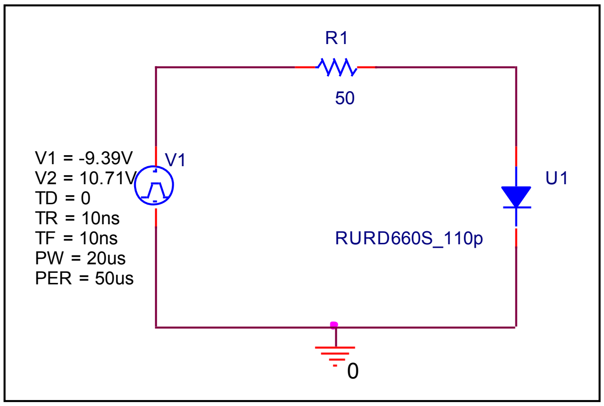
Vrev(V)	Cj(pF) Measurement	Cj(pF) Simulation	%Error
0	127.900	127.900	0.000
0.5	81.888	74.866	8.575
1	64.444	60.232	6.536
2	50.500	47.206	6.523
5	34.300	33.297	2.924
10	26.657	25.264	5.226
20	20.400	19.055	6.593
50	14.800	15.800	-6.757

Reverse Recovery Characteristic

Circuit Simulation Result



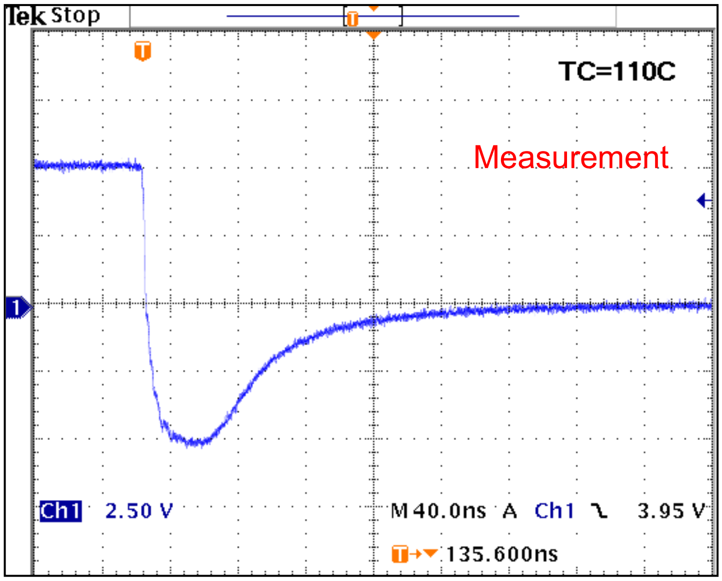
Evaluation Circuit



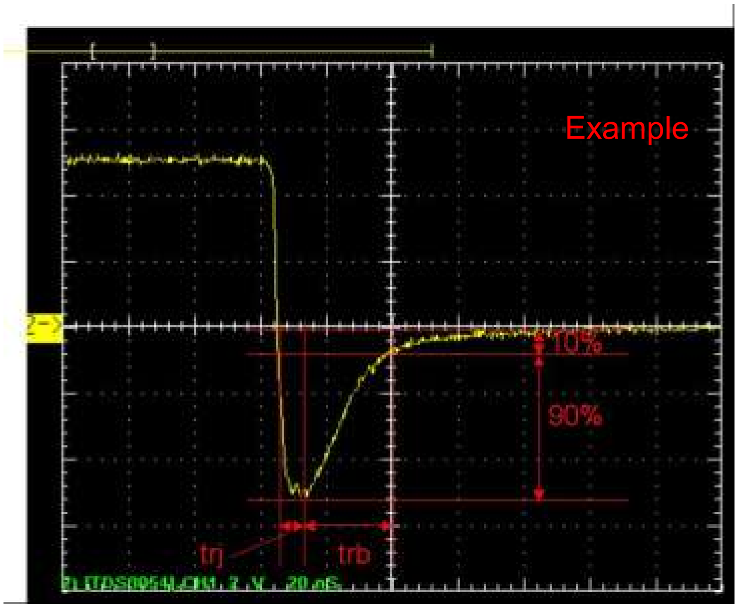
Compare Measurement vs. Simulation

	Measurement		Simulation		%Error
trj	36.0	ns	36.17	ns	0.472
trb	98.4	ns	98.33	ns	0.071

Reverse Recovery Characteristic Reference



Trj = 36.0 (ns)
Trb= 98.4 (ns)
Conditions: Ifwd=Irev=0.2(A), Rl=50



Relation between trj and trb