Device Modeling Report

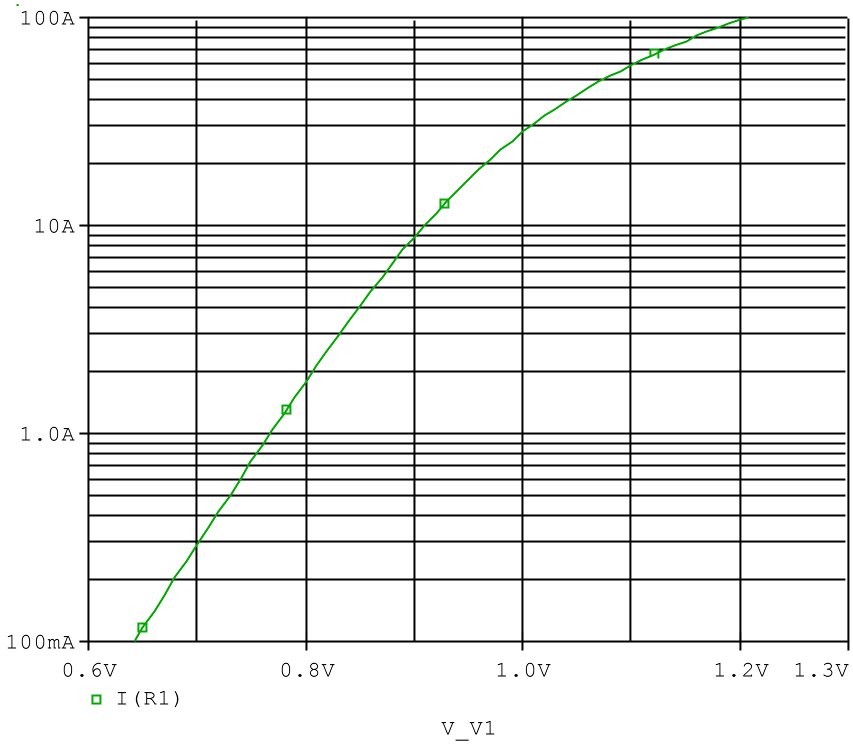
COMPONENTS:
DIODE/ BRIDGE RECTIFIER
PART NUMBER: KBU810
MANUFACTURER: WTE POWER SEMICONDUCTORS

Bee Technologies Inc.

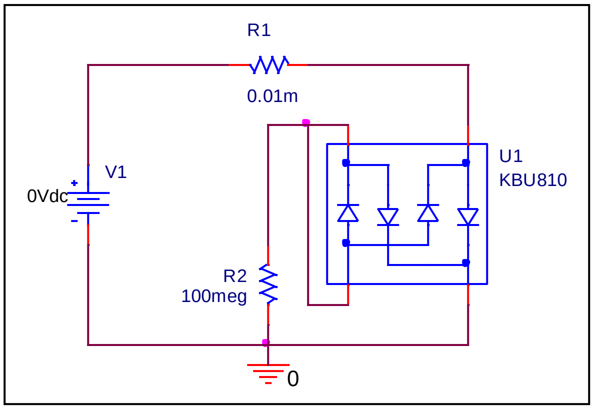
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit Simulation Result

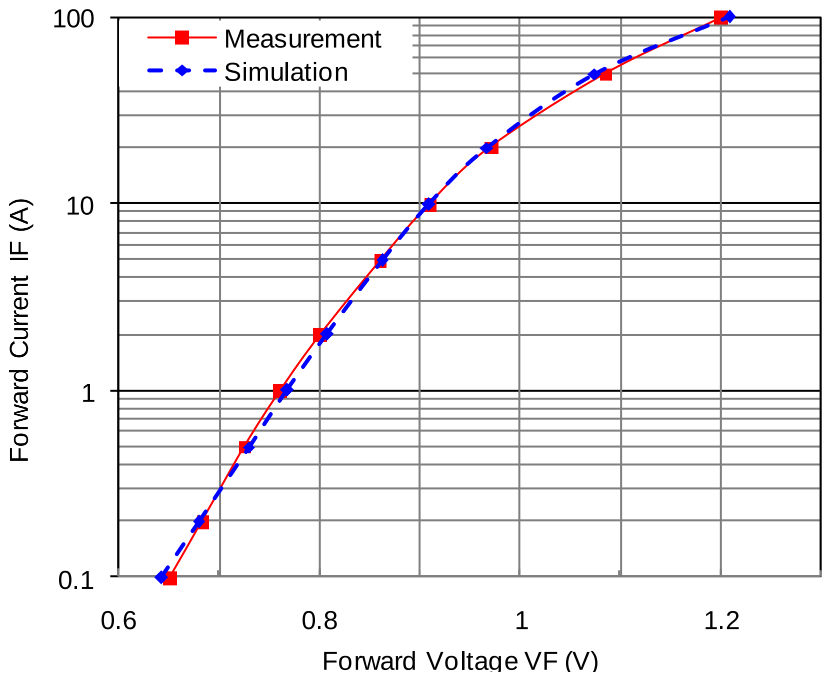


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

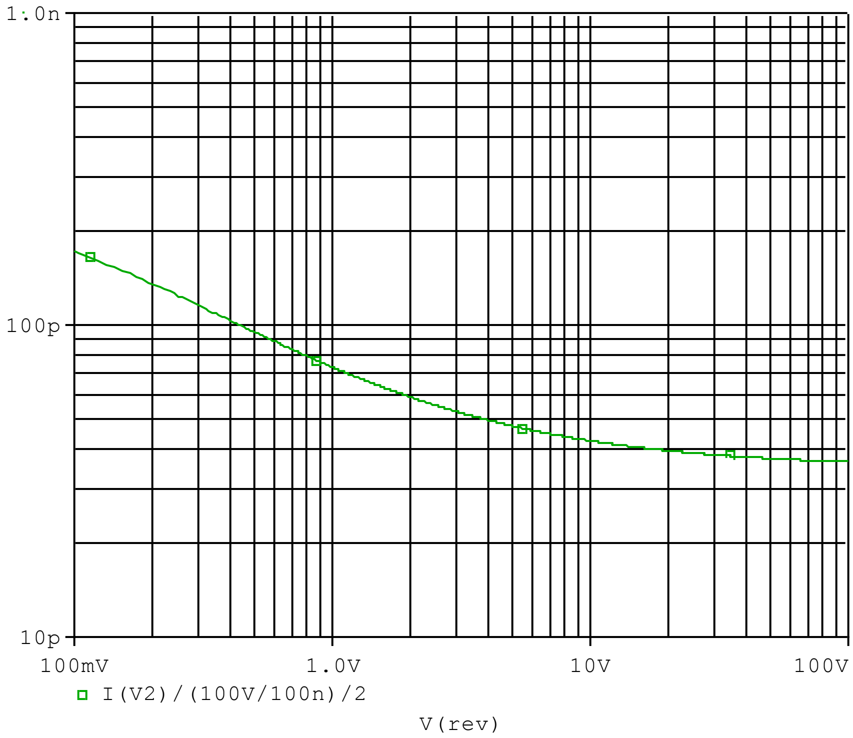


Simulation Result

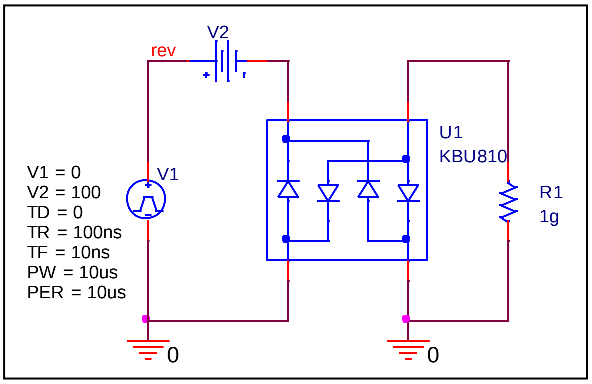
I_F (A)	V_F (V)		%Error
	Measurement	Simulation	
0.1	0.650	0.642	-1.23
0.2	0.683	0.679	-0.59
0.5	0.725	0.729	0.55
1.0	0.760	0.768	1.05
2.0	0.800	0.807	0.88
5.0	0.860	0.862	0.23
10.0	0.910	0.909	-0.11
20.0	0.970	0.966	-0.41
50.0	1.085	1.074	-1.01
100.0	1.200	1.208	0.67

Capacitance Characteristic

Circuit Simulation Result

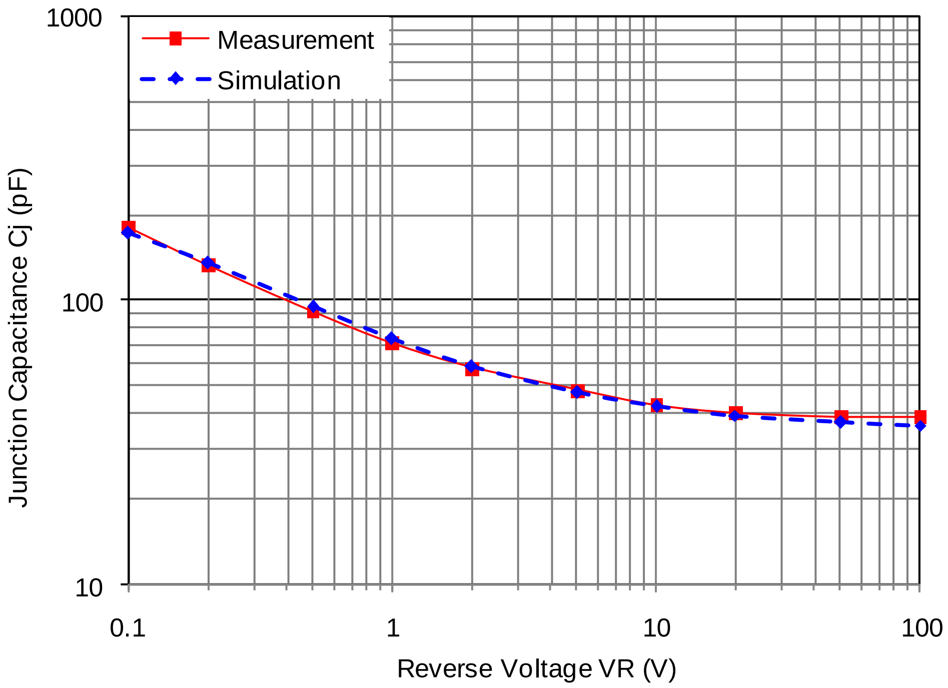


Evaluation Circuit



Comparison Graph

Circuit Simulation Result

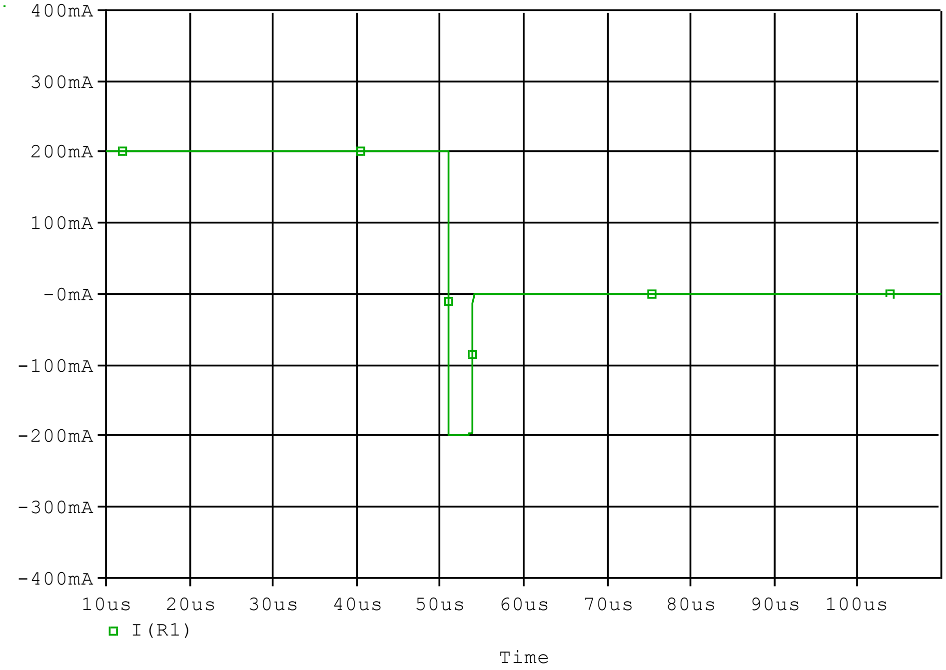


Simulation Result

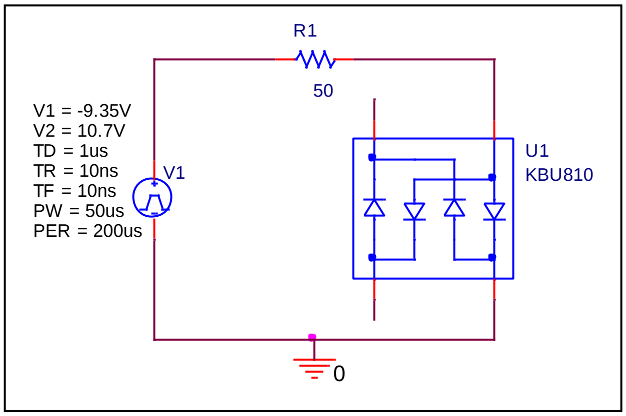
V_R (V)	Cj (pF)		%Error
	Measurement	Simulation	
0.1	182.000	173.240	-4.81
0.2	133.000	135.611	1.96
0.5	91.500	94.874	3.69
1.0	71.000	73.290	3.23
2.0	58.000	58.806	1.39
5.0	48.500	47.428	-2.21
10.0	43.000	42.548	-1.05
20.0	40.500	39.561	-2.32
50.0	39.000	37.341	-4.25

Reverse Recovery Characteristic

Circuit Simulation Result



Evaluation Circuit

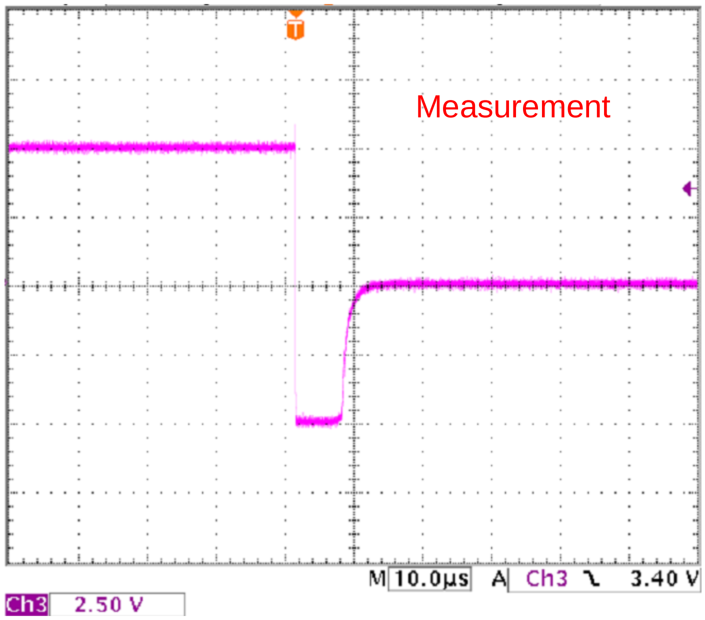


Compare Measurement vs. Simulation

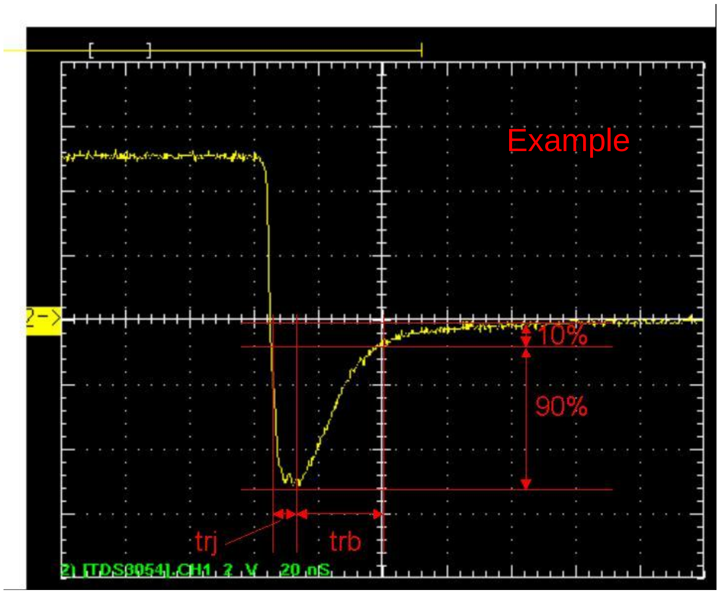
Parameter		Measurement	Simulation	%Error
trj	**us**	**2.800**	**2.757**	**-1.539**

Reverse Recovery Characteristic

Reference



Trj = 2.80(us)
Trb= 3.20(us)
Conditions: Ifwd=0.2A,Irev=0.2A, Rl=50



Relation between trj and trb