Device Modeling Report

COMPONENTS: Zener Diode
PART NUMBER: DF2B6.8FS
MANUFACTURER: TOSHIBA

Bee Technologies Inc.

SPICE MODEL

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*PART NUMBER: DF2B6.8FS
*MANUFACTURER: TOSHIBA
*REMARK: STANDARD MODEL
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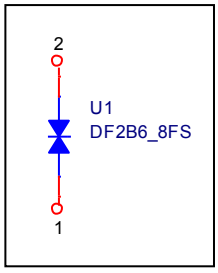
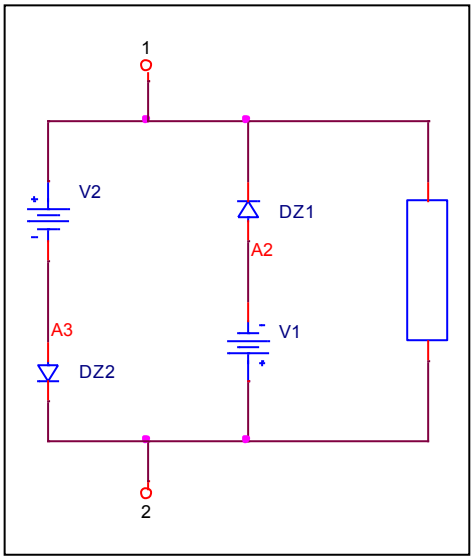
.SUBCKT DF2B6_8FS   2 1
D_DZ1              A2 1 DR1
V_V2              1 A3 6.4Vdc
V_V1              2 A2 6.3Vdc
D_DZ2              A3 2 DR2
DC1 2 K1 D1
DC2 1 K1 D2
.MODEL DR1 D
+ IS=3.6381E-15 N=1.3236 RS=4.9095 IKF=9.2604
.MODEL DR2 D
+ IS=2.3373E-15 N=.94583 RS=1.0000E-6 IKF=0
.MODEL D1 D
+ N=0.001 CJO=16.432E-12 M=.11907 VJ=2.6467
.MODEL D2 D
+ N=0.001 CJO=16.432E-12 M=.11907 VJ=2.6467
.ENDS
*$
```

Circuit Configuration



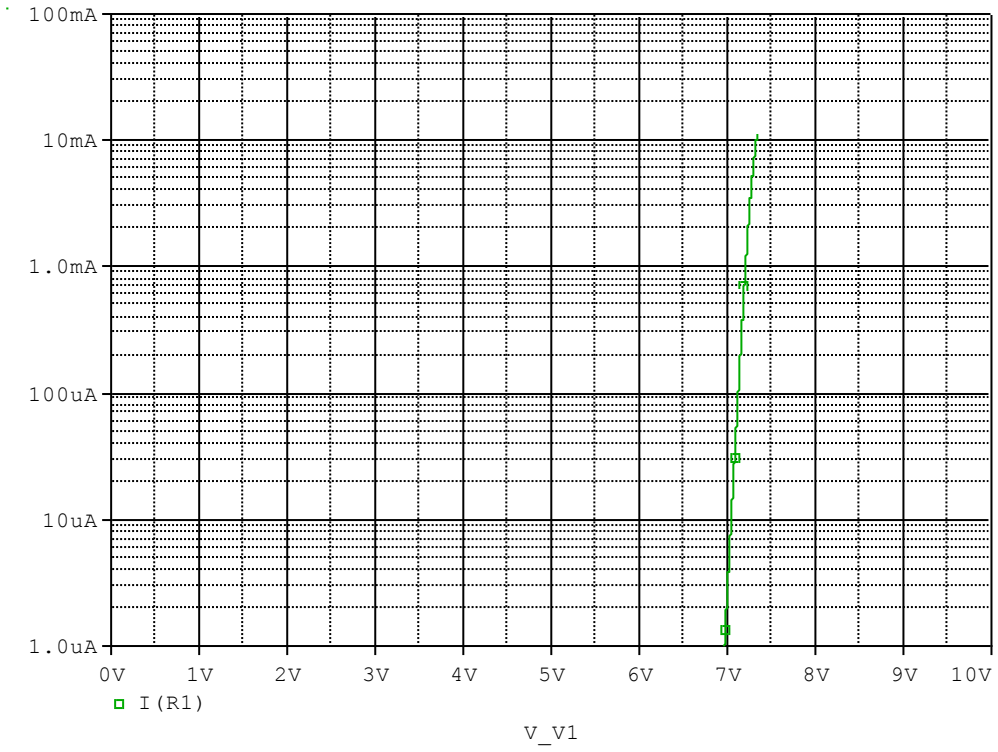
Equivalent circuit



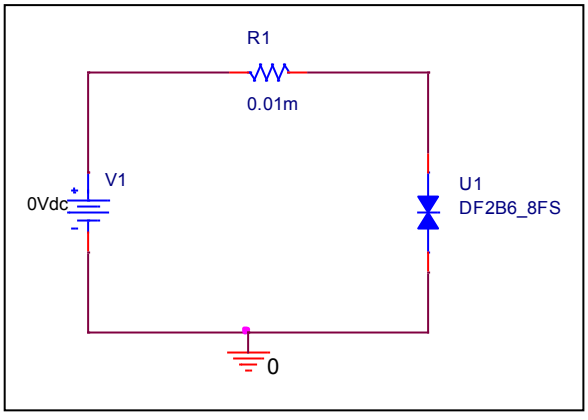
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
TT	Transit Time

Reverse Characteristic (PIN1-2)

Circuit Simulation result

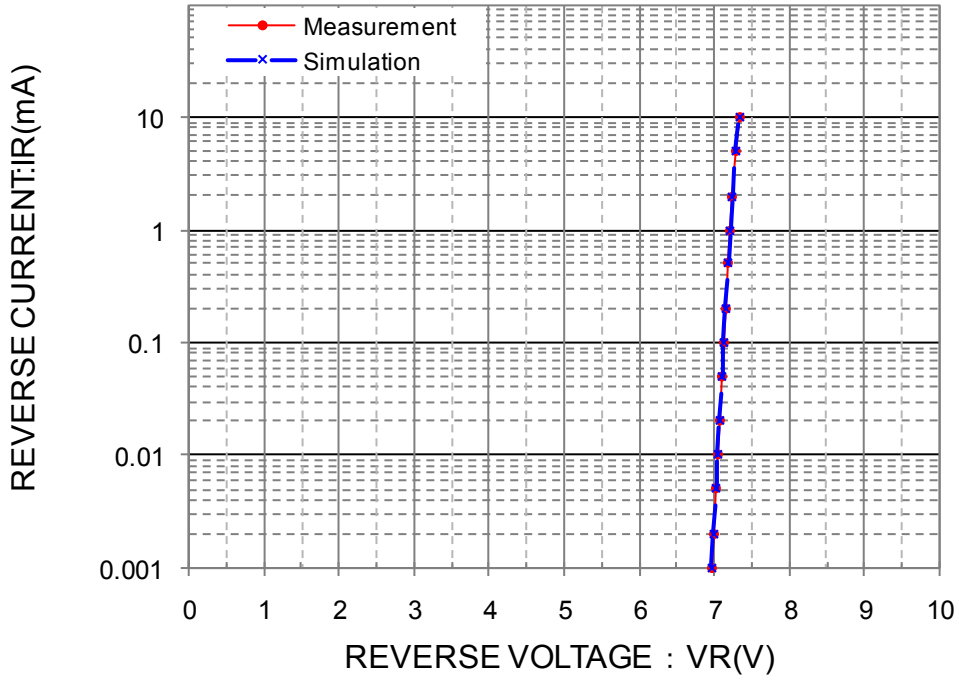


Evaluation circuit



Comparison Graph

Circuit Simulation Result

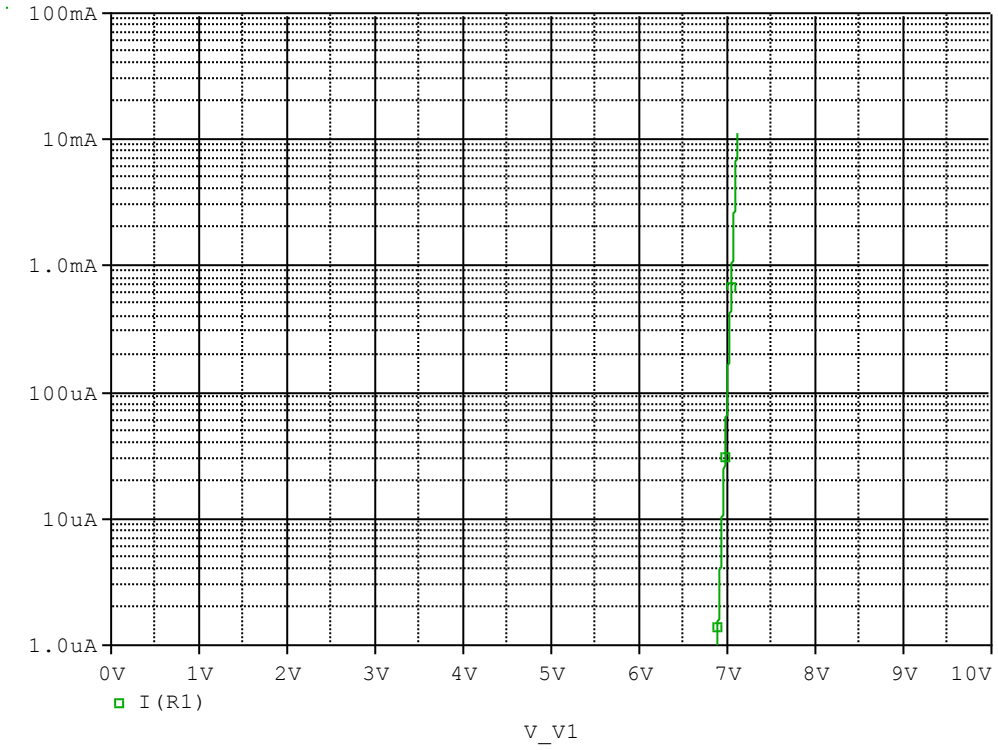


Simulation Result

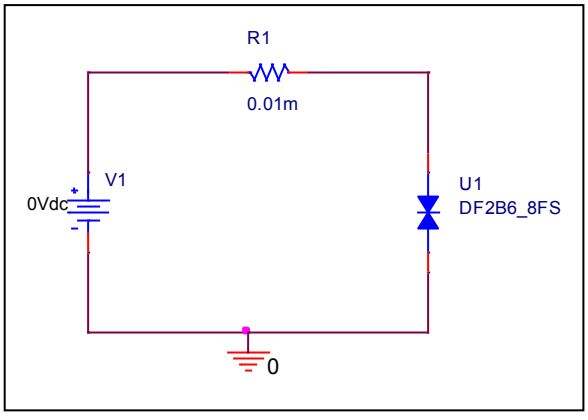
I_R (mA)	V_R(V)		%Error
	Measurement	Simulation	
0.001	6.960	6.965	0.07
0.002	6.990	6.989	-0.02
0.005	7.020	7.020	0.00
0.01	7.050	7.044	-0.09
0.02	7.070	7.068	-0.03
0.05	7.100	7.099	-0.01
0.1	7.120	7.123	0.04
0.2	7.150	7.147	-0.04
0.5	7.180	7.180	0.01
1	7.200	7.206	0.09
2	7.240	7.235	-0.07
5	7.280	7.281	0.02
10	7.330	7.330	-0.01

Reverse Characteristic (PIN2-1)

Circuit Simulation result

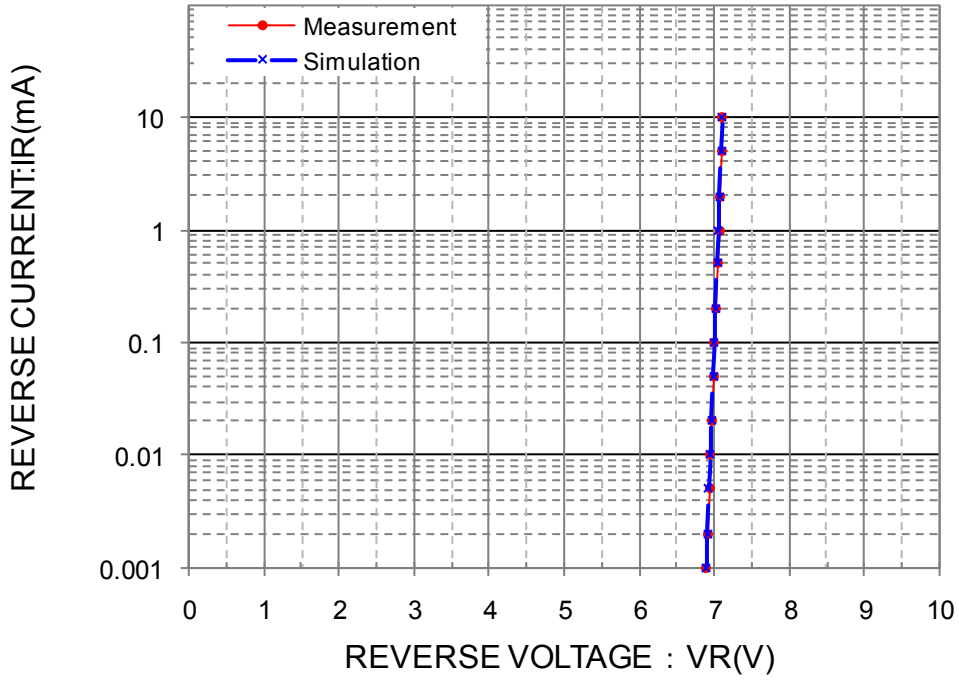


Evaluation circuit



Comparison Graph

Circuit Simulation Result

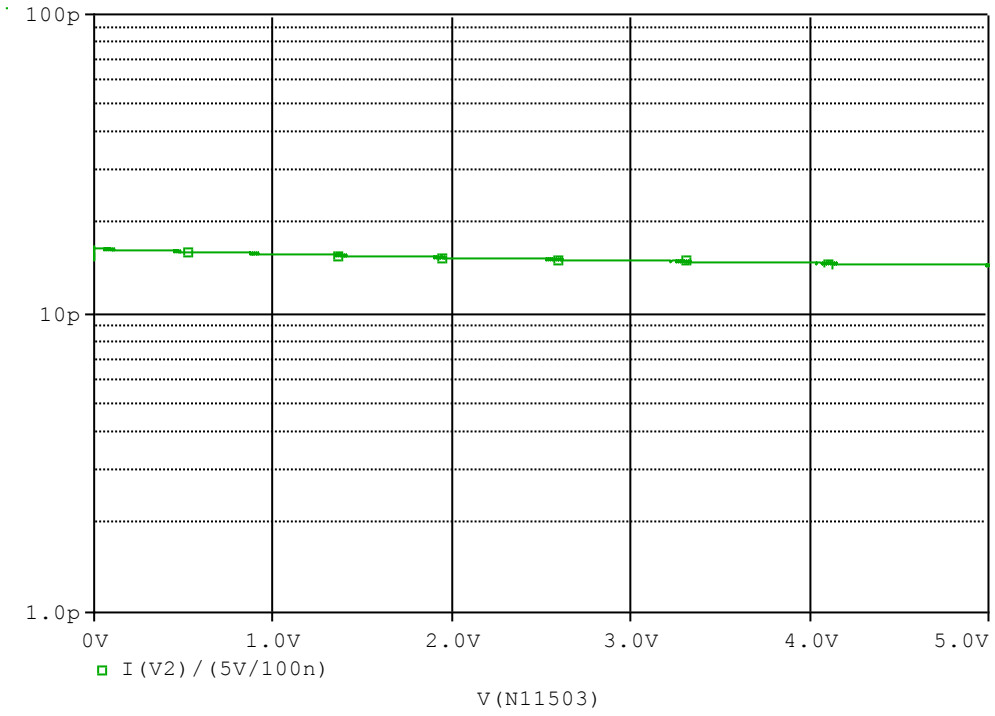


Simulation Result

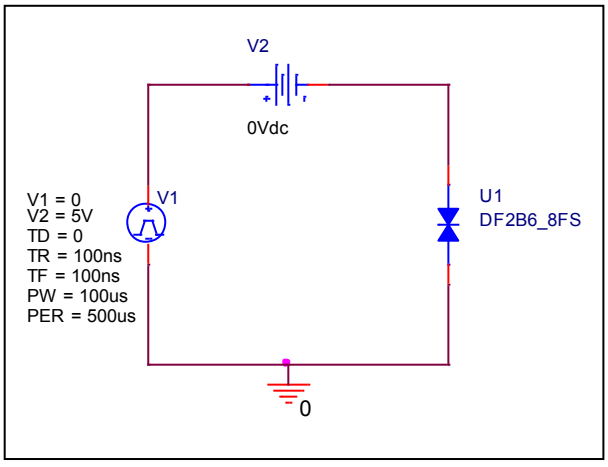
I_R (mA)	V_R(V)		%Error
	Measurement	Simulation	
0.001	6.890	6.886	-0.06
0.002	6.900	6.903	0.04
0.005	6.930	6.926	-0.06
0.01	6.950	6.943	-0.11
0.02	6.960	6.960	-0.01
0.05	6.980	6.982	0.03
0.1	7.000	6.999	-0.02
0.2	7.020	7.016	-0.06
0.5	7.040	7.038	-0.03
1	7.060	7.055	-0.07
2	7.070	7.072	0.03
5	7.090	7.095	0.06
10	7.110	7.112	0.02

Capacitance Characteristic

Circuit Simulation Result

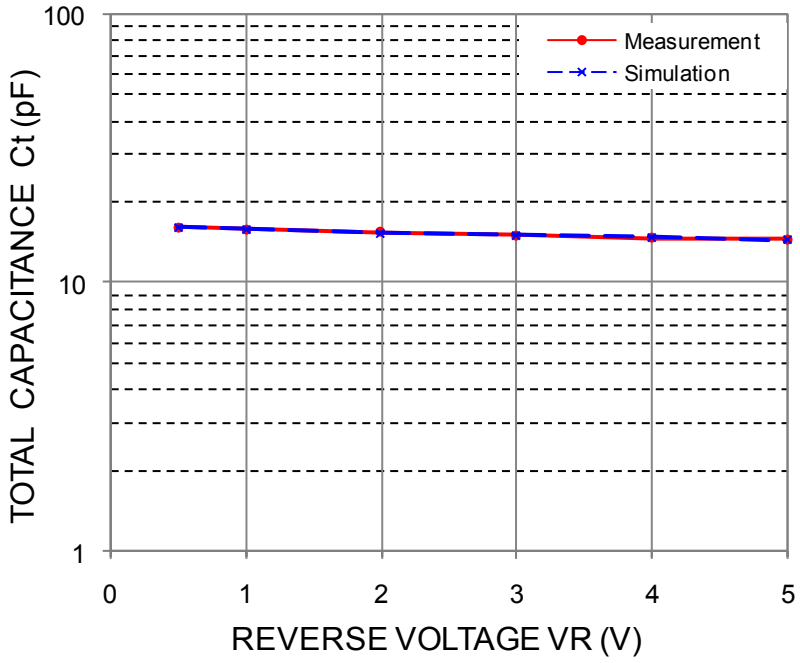


Evaluation Circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

V_R (V)	Ct (pF)		%Error
	Measurement	Simulation	
0.5	16.100	16.085	-0.09
1	15.800	15.828	0.18
2	15.400	15.370	-0.19
3	15.000	15.018	0.12
4	14.700	14.735	0.24
5	14.500	14.461	-0.27