

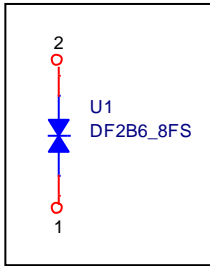
# Device Modeling Report

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

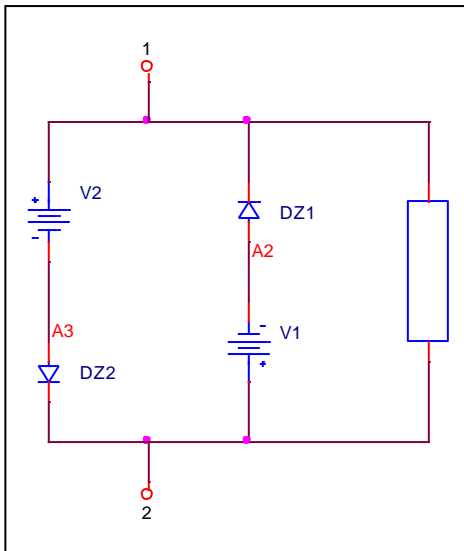


**Bee Technologies Inc.**

## Circuit Configuration



## Equivalent circuit

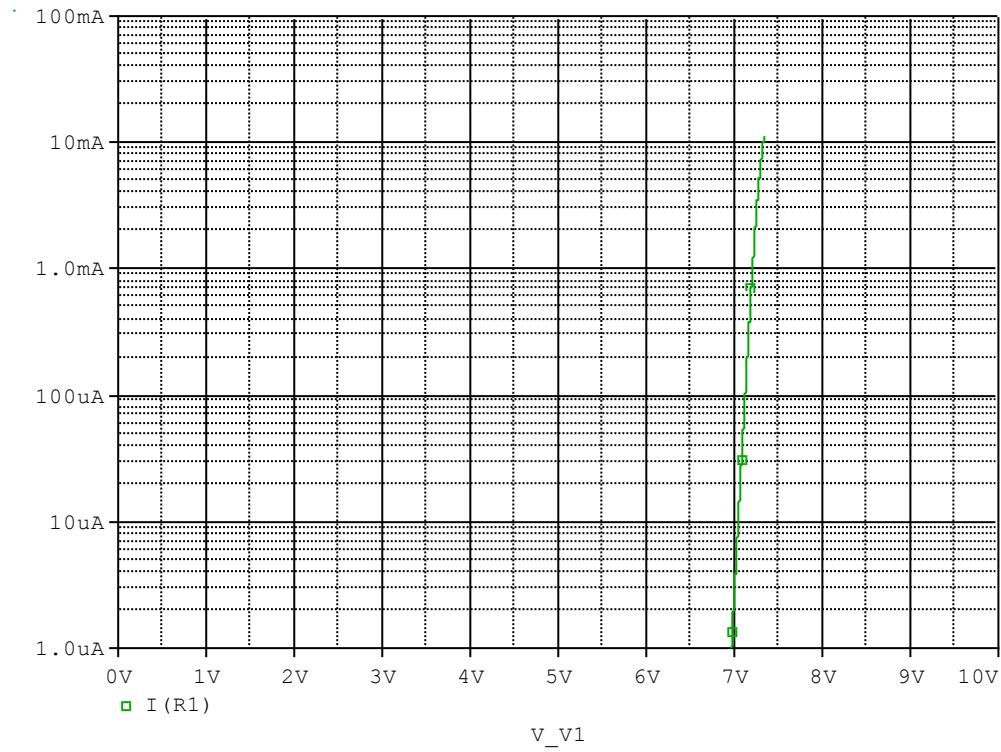


<b>PSpice model parameter</b>	<b>Model description</b>
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
TT	Transit Time

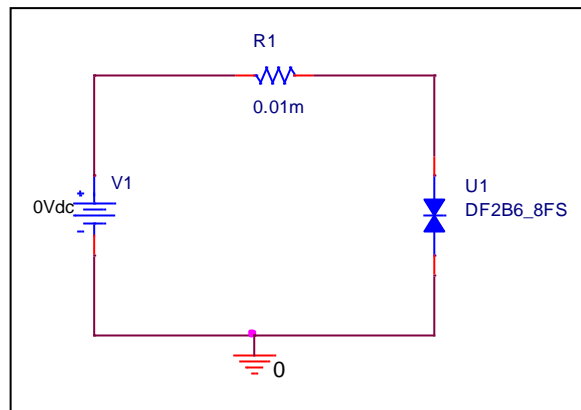
# Reverse Characteristic

(PIN1-2)

## Circuit Simulation result

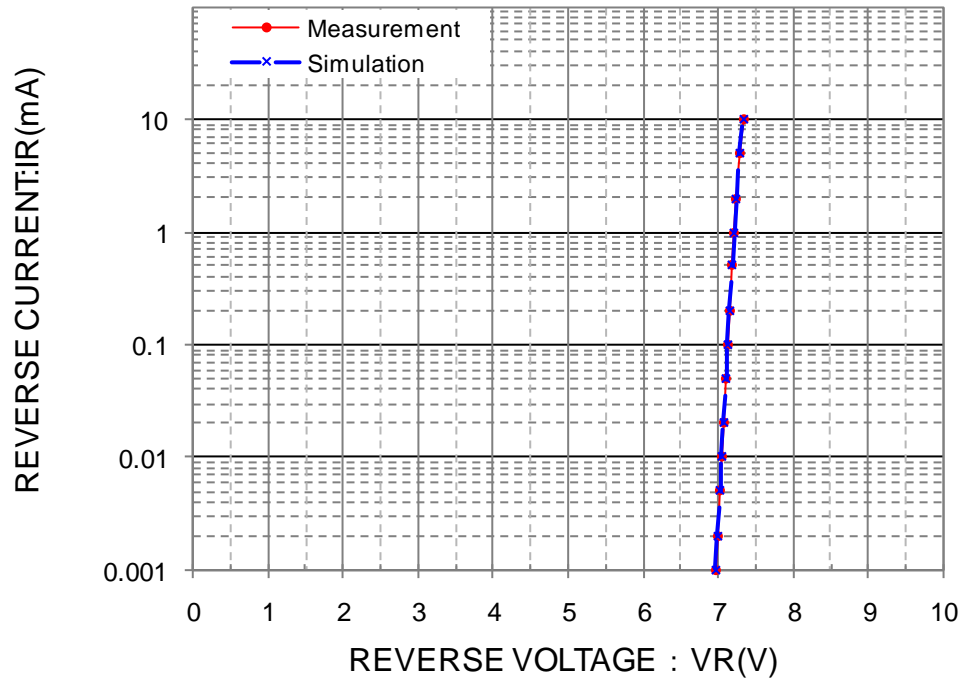


## Evaluation circuit



## Comparison Graph

Circuit Simulation Result



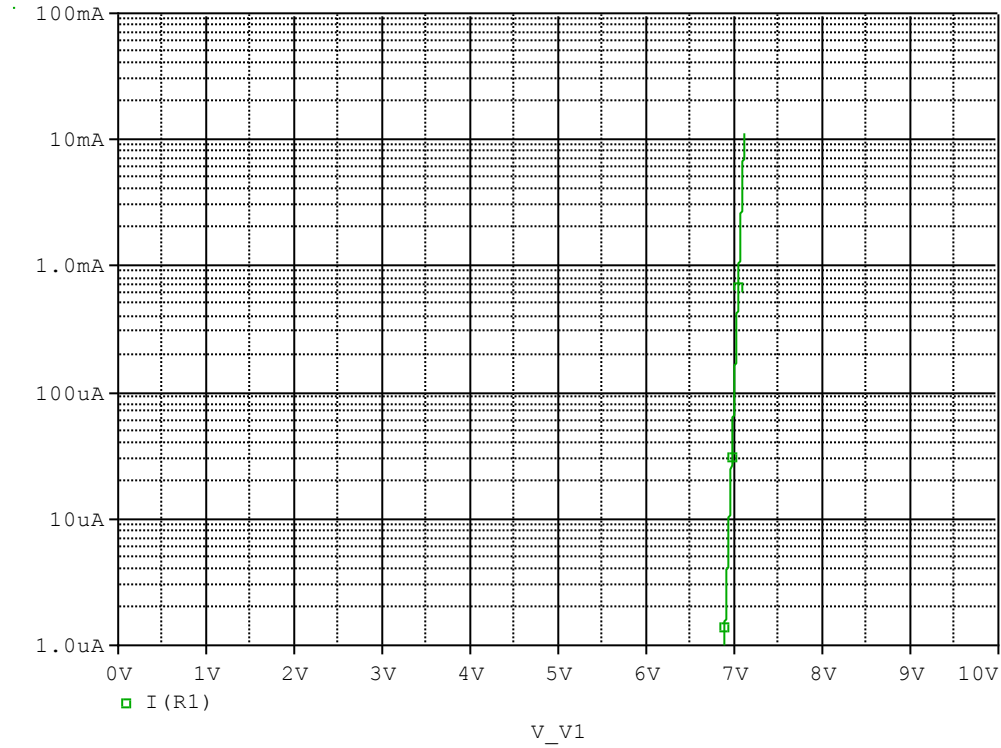
Simulation Result

$I_R$ (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

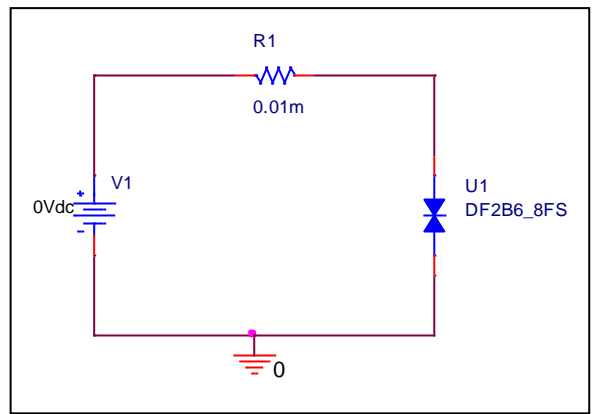
# Reverse Characteristic

(PIN2-1)

## Circuit Simulation result

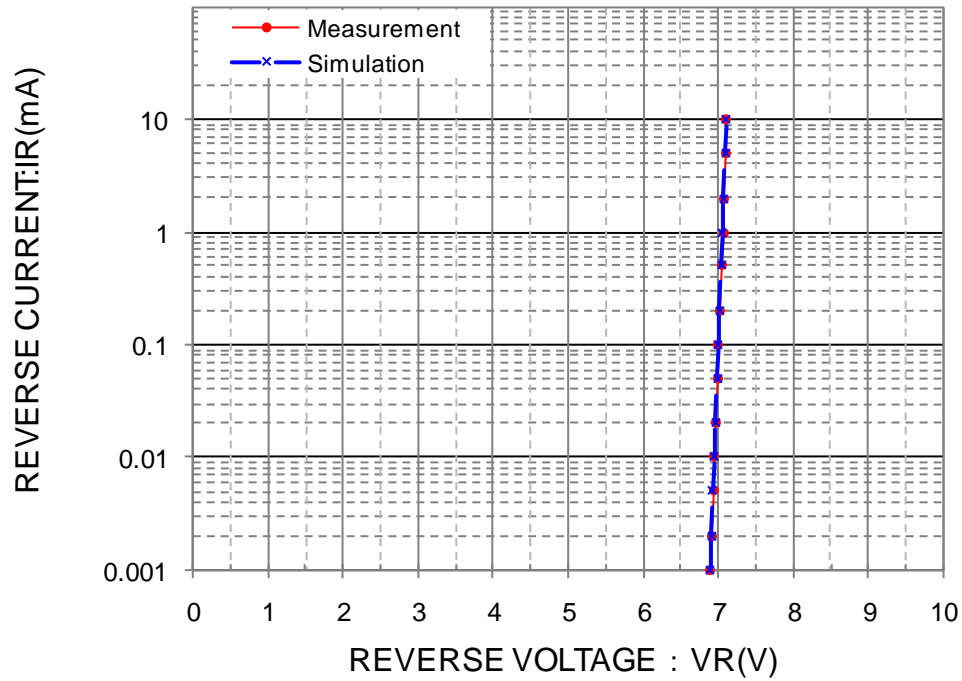


## Evaluation circuit



## Comparison Graph

Circuit Simulation Result

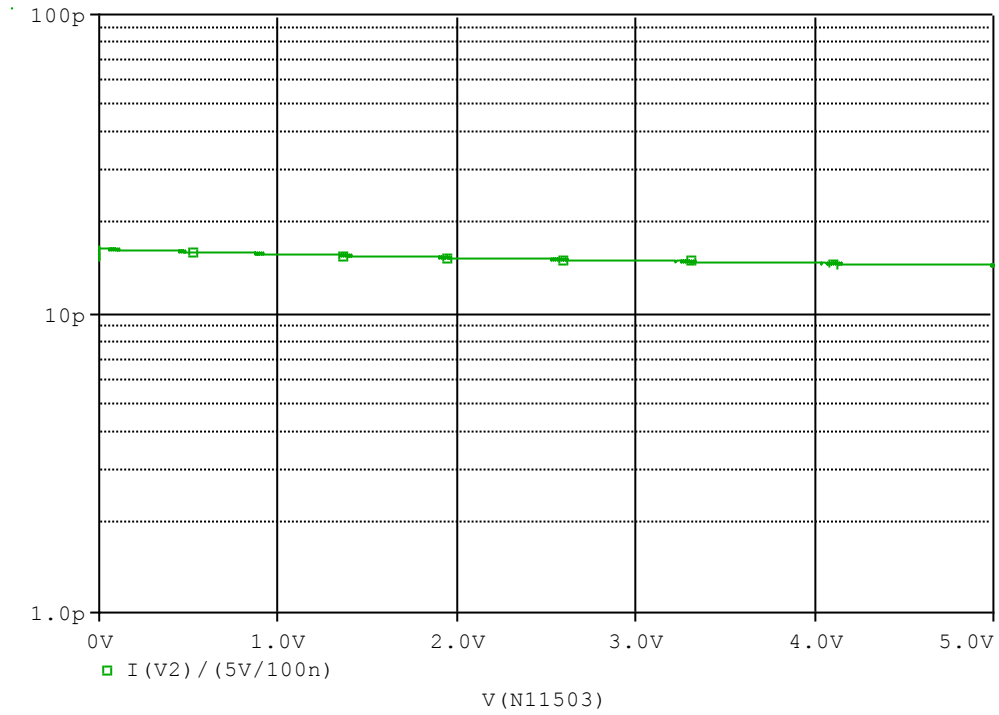


Simulation Result

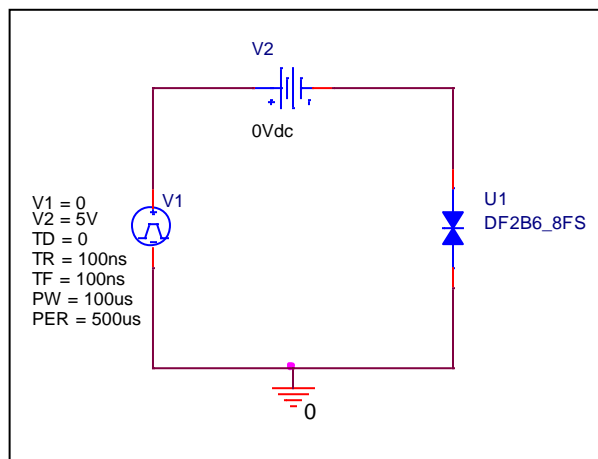
$I_R$ (mA)	$V_R$ (V)		%Error
	Measurement	Simulation	
0.001	6.890	6.886	-0.06
0.002	6.900	6.903	0.04
0.005	6.930	6.926	-0.06
0.01	6.950	6.943	-0.11
0.02	6.960	6.960	-0.01
0.05	6.980	6.982	0.03
0.1	7.000	6.999	-0.02
0.2	7.020	7.016	-0.06
0.5	7.040	7.038	-0.03
1	7.060	7.055	-0.07
2	7.070	7.072	0.03
5	7.090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

# Capacitance Characteristic

## Circuit Simulation Result



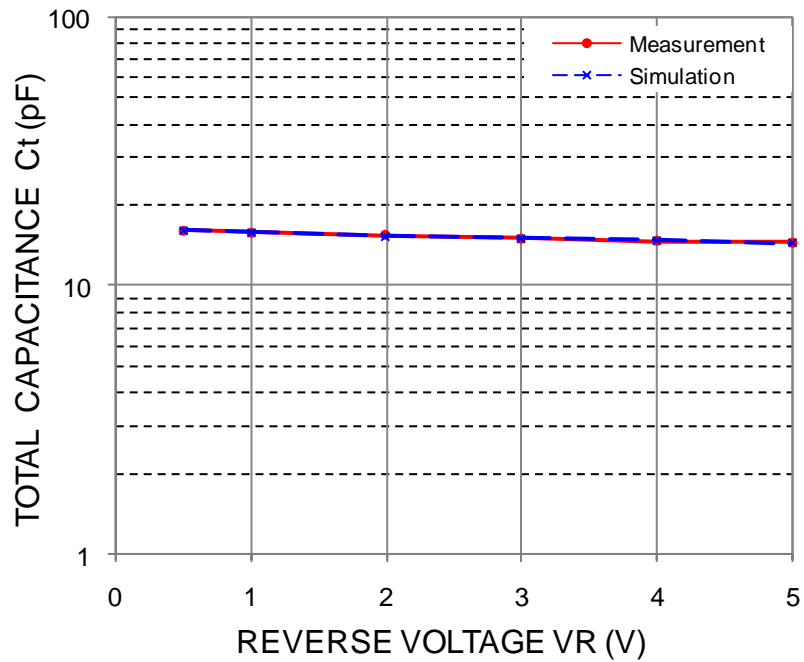
## Evaluation Circuit





## Comparison Graph

### Circuit Simulation Result



### Simulation Result

$V_R$ (V)	$C_t$ (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