

# Device Modeling Report

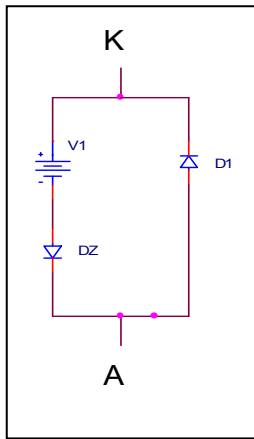
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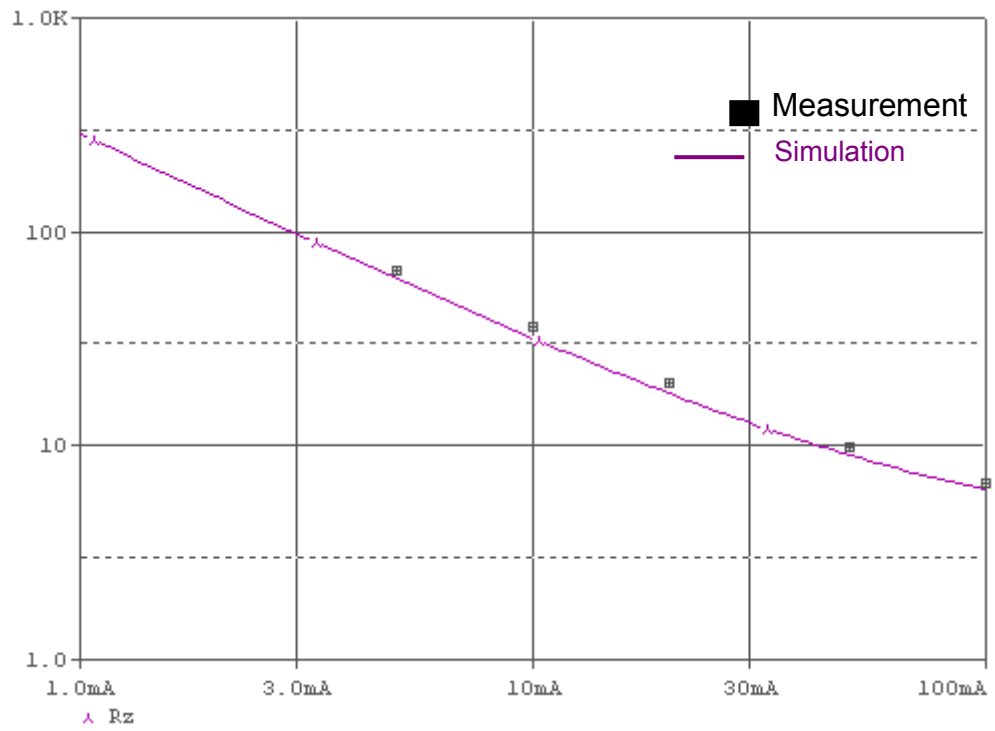
**Bee Technologies Inc.**

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

### Equivalent circuit

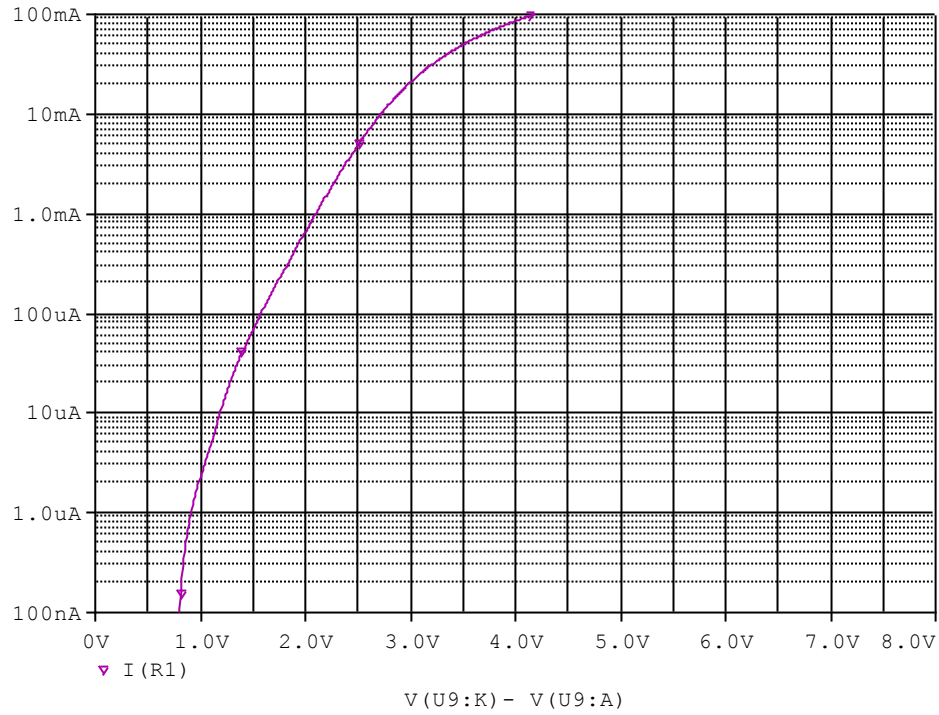


## Reverse Dynamic Impedance Characteristic

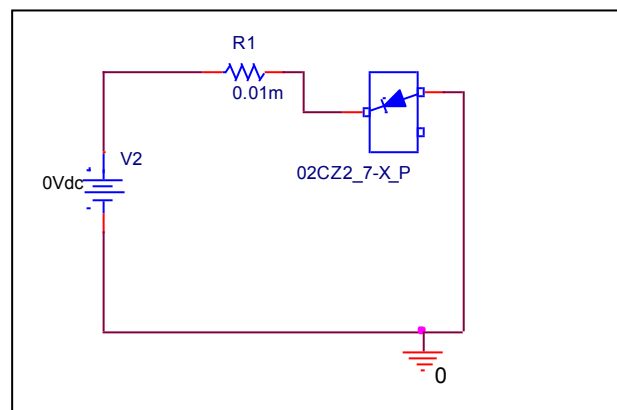


# Reverse Characteristic

## Circuit Simulation result

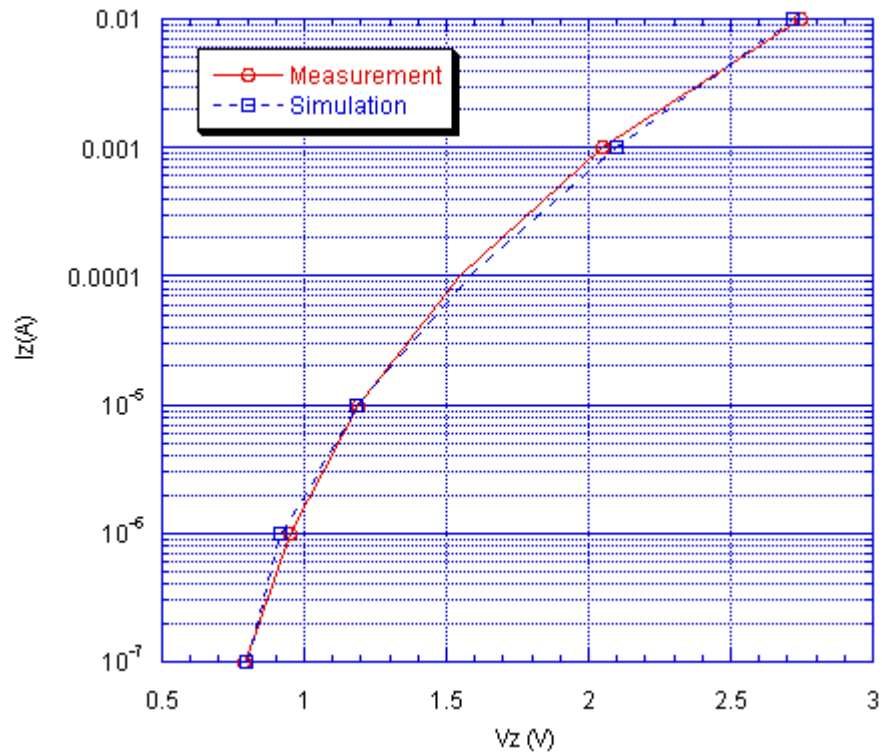


## Evaluation circuit



## Comparison Graph

### Circuit Simulation Result

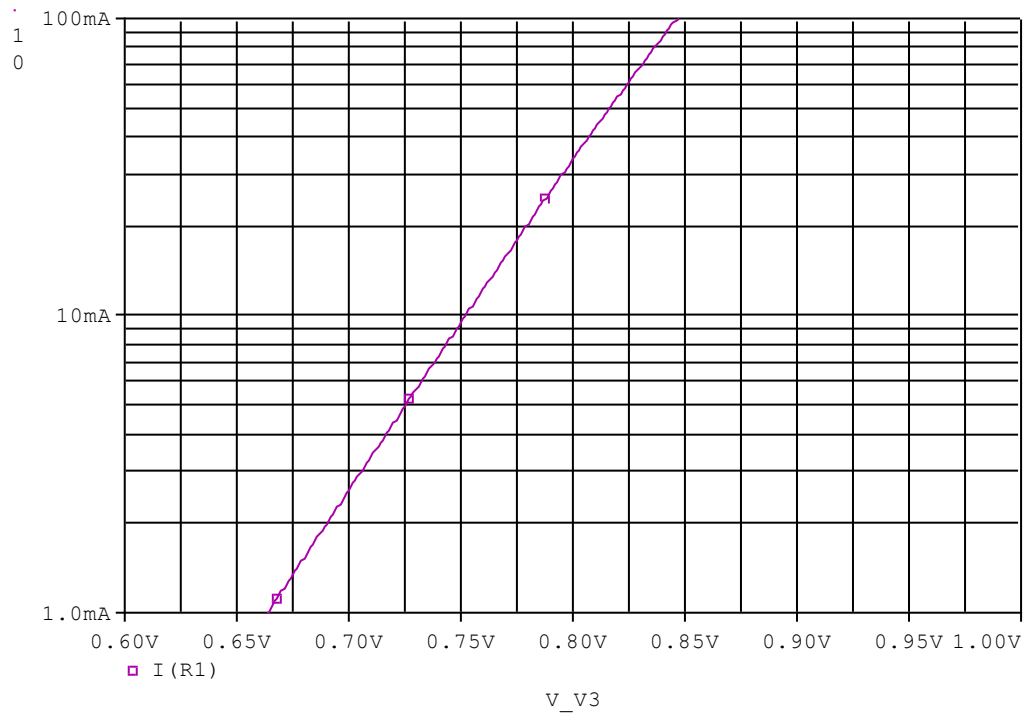


### Simulation Result

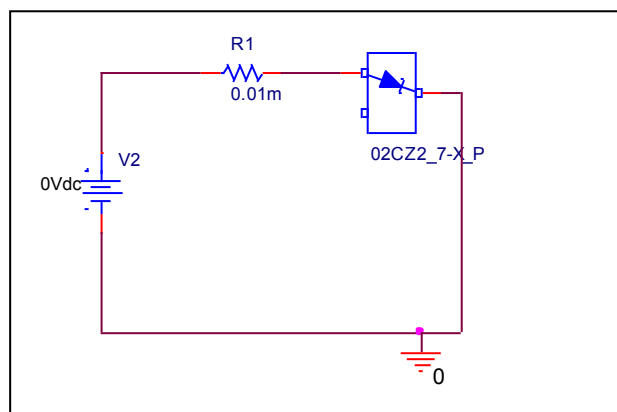
$I_z$ (A)	$V_z$ (V)		Error (%)
	Measurement	Simulation	
100n	0.790	0.798	1.074
1u	0.950	0.913	-3.895
10u	1.187	1.185	-0.168
100u	1.550	1.584	2.194
1m	2.050	2.101	2.488
10m	2.750	2.720	-1.091

# Forward Characteristic

## Circuit Simulation result

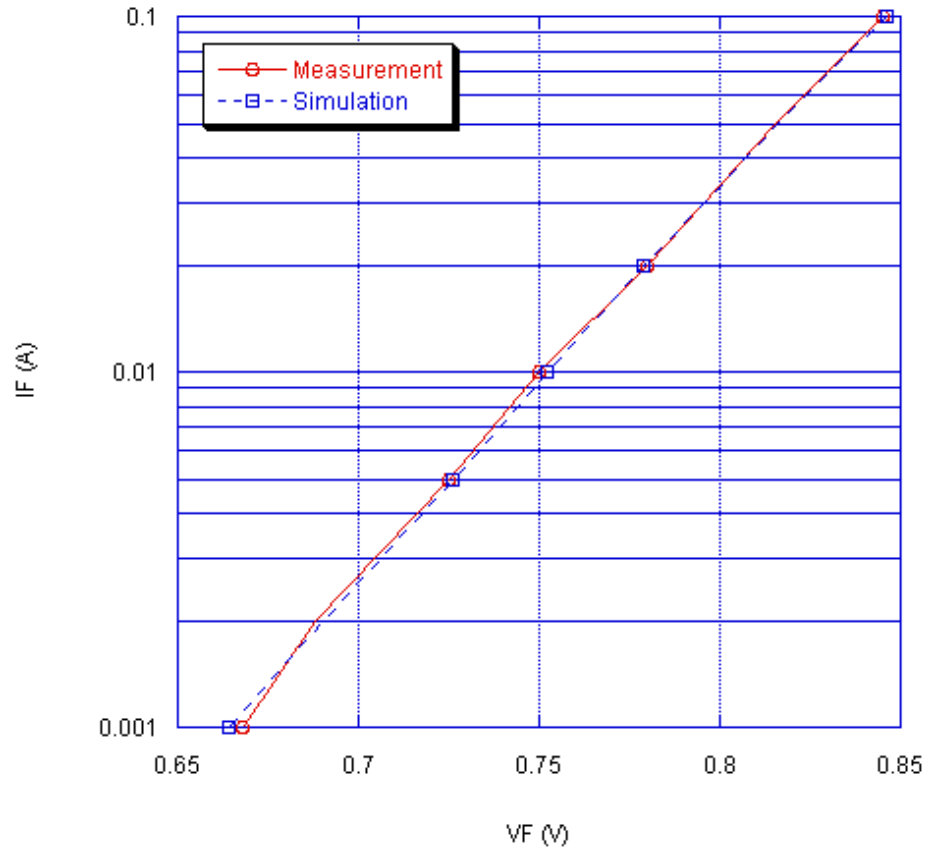


## Evaluation circuit



## Comparison Graph

### Circuit Simulation Result

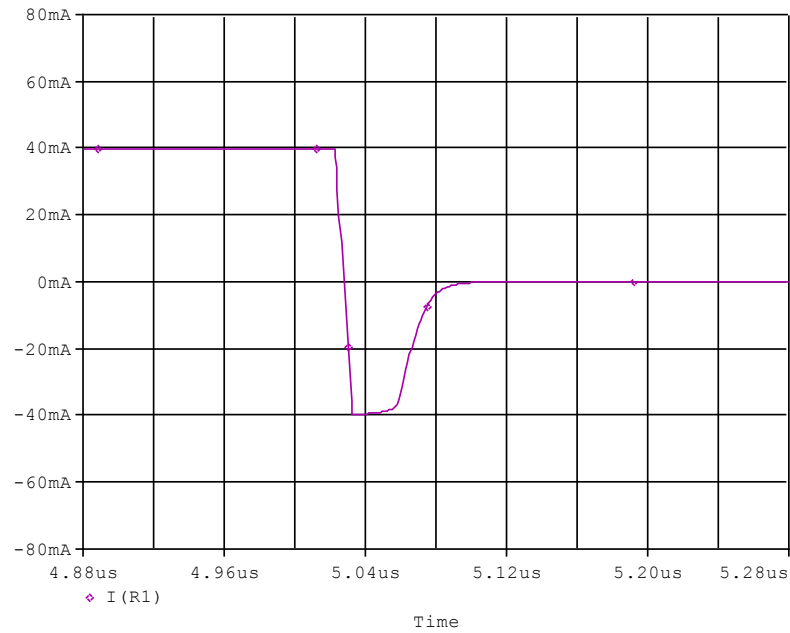


### Simulation Result

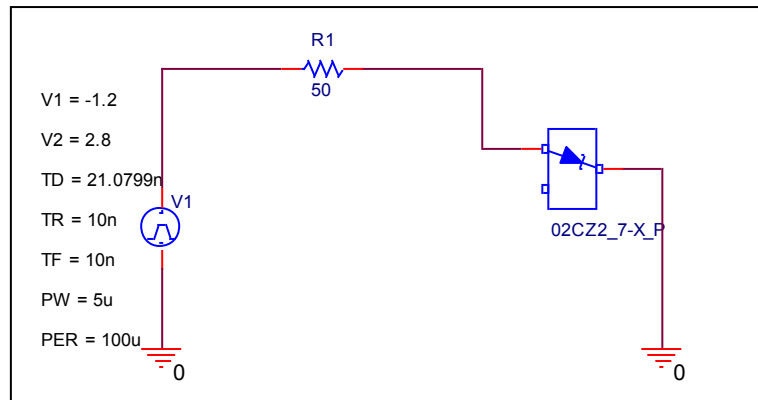
$I_F$ (A)	$V_F$ (V)		Error (%)
	Measurement	Simulation	
1m	0.668	0.664	-0.567
2m	0.688	0.690	0.392
5m	0.725	0.726	0.081
10m	0.750	0.752	0.323
20m	0.780	0.779	-0.124
50m	0.815	0.816	0.163
100m	0.845	0.846	0.171

# Reverse Recovery Characteristic

## Circuit Simulation Result



## Evaluation Circuit



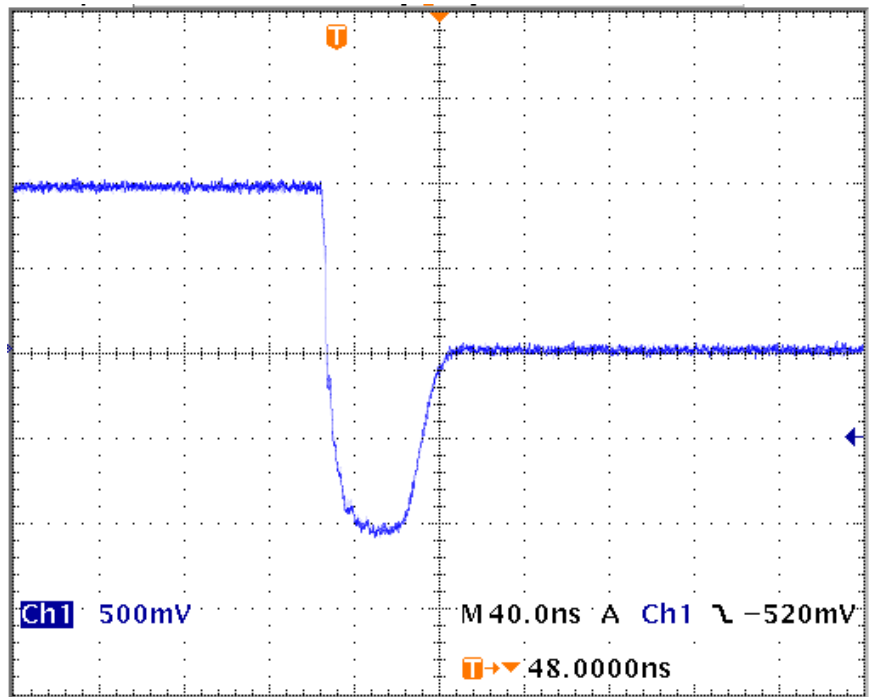
## Compare Measurement vs. Simulation

	Measurement		Simulation		Error (%)
<b>trj</b>	24.000	ns	23.864	ns	-0.567
<b>trb</b>	28.000	ns	27.790	ns	-0.750
<b>trr</b>	52.000	ns	51.654	ns	-0.665

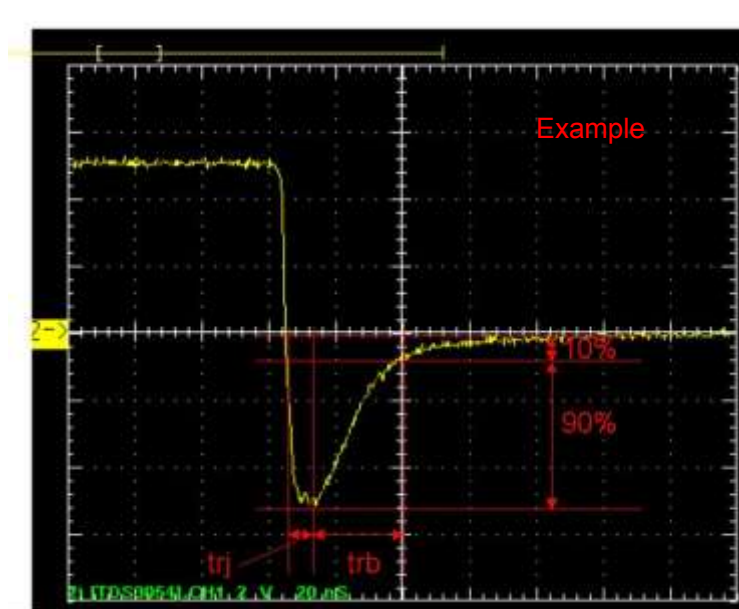


# Reverse Recovery Characteristic

Reference



Trj=24(ns)  
Trb=28(ns)  
Conditions: Ifwd=Irev=0.04(A), RI=50



Relation between trj and trb