

# Device Modeling Report

COMPONENTS:  
DIODE/ SCHOOTKY RECTIFIER / STANDARD  
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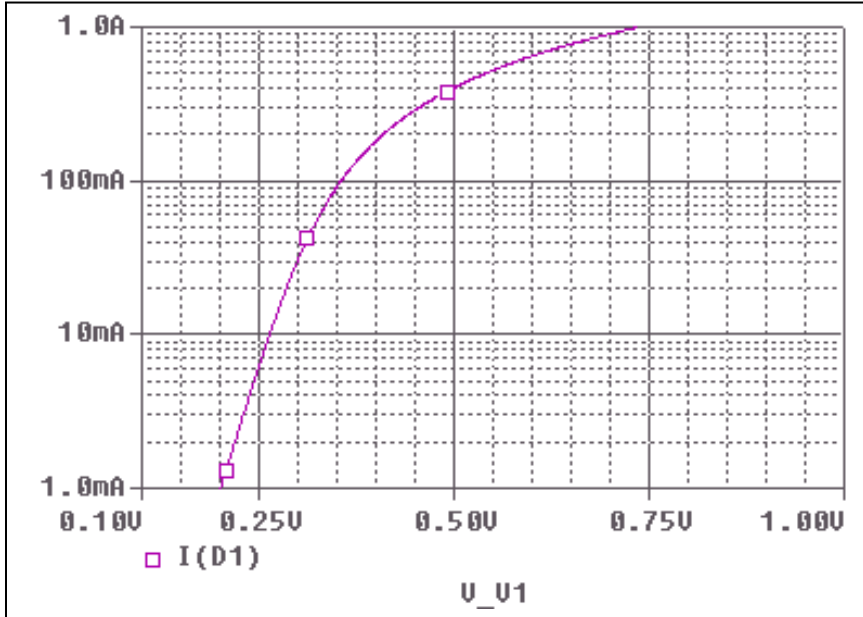


**Bee Technologies Inc.**

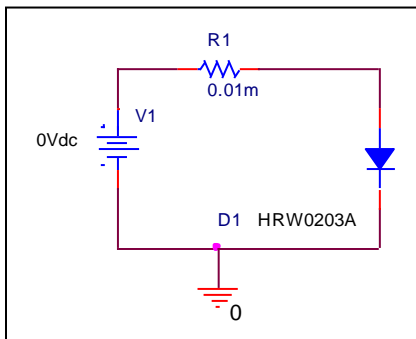
| PSpice model parameter | Model description                           |
|------------------------|---|
| IS                     | Saturation Current                          |
| N                      | Emission Coefficient                        |
| RS                     | Series Resistance                           |
| 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

## Circuit Simulation Result

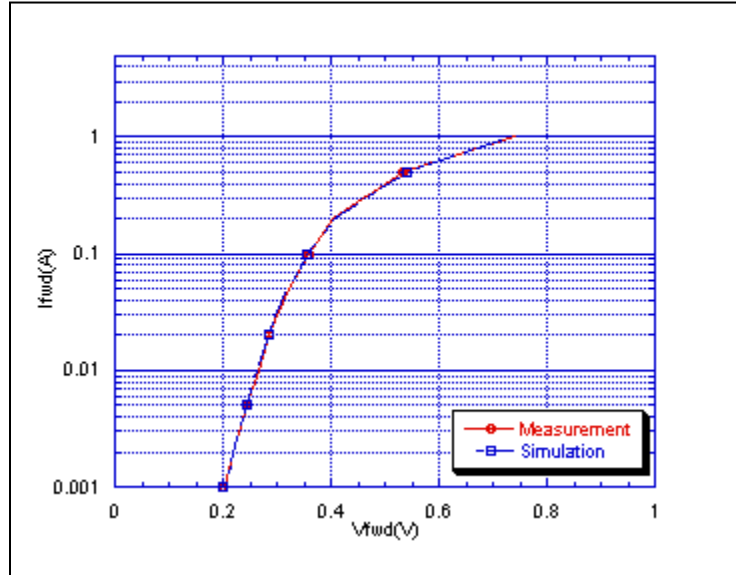


## Evaluation Circuit



# Comparison Graph

## Circuit Simulation Result

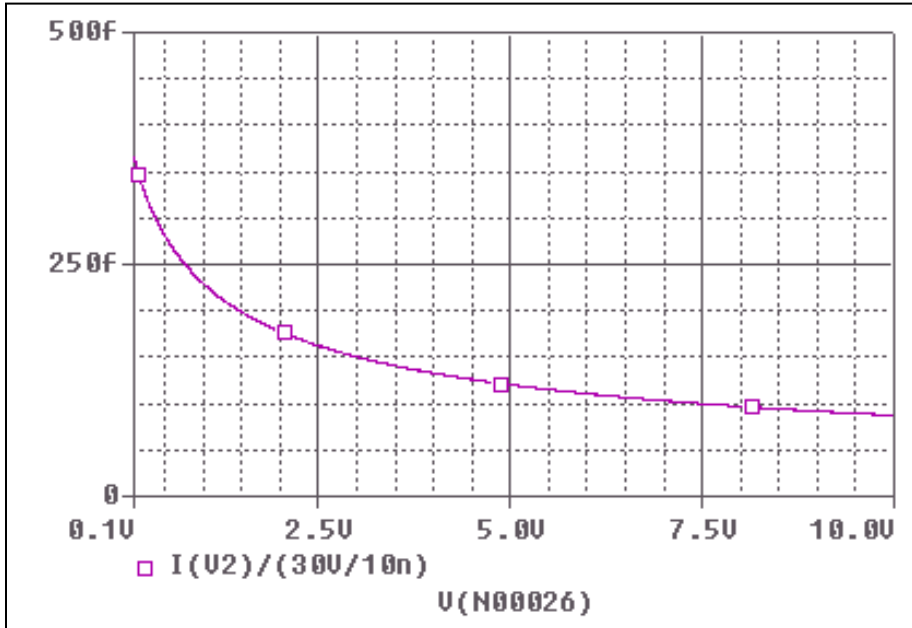


## Simulation Result

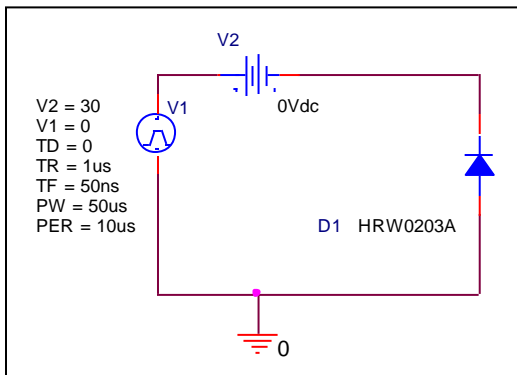
| $I_{fwd}(A)$ | $V_{fwd}(V)$ Measurement | $V_{fwd}(V)$ Simulation | %Error |
|--------------|--------------------------|-------------------------|--------|
| 0.001        | 0.200                    | 0.201                   | 0.40   |
| 0.01         | 0.265                    | 0.264                   | -0.53  |
| 0.02         | 0.285                    | 0.285                   | 0.04   |
| 0.05         | 0.323                    | 0.320                   | -0.90  |
| 0.1          | 0.360                    | 0.356                   | -1.25  |
| 0.2          | 0.403                    | 0.409                   | 1.49   |
| 0.5          | 0.535                    | 0.540                   | 0.93   |
| 1            | 0.740                    | 0.737                   | -0.46  |

# Junction Capacitance Characteristic

## Circuit Simulation Result

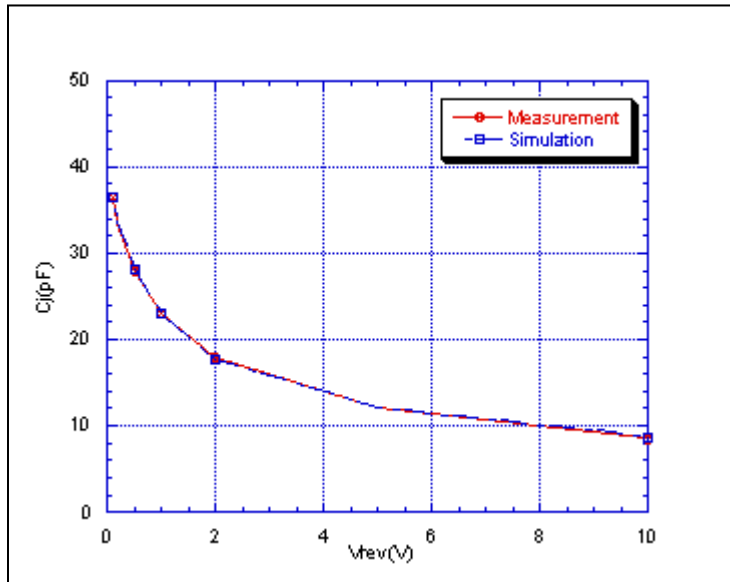


## Evaluation Circuit



# Comparison Graph

## Circuit Simulation Result



## Simulation Result

| $V_{rev}$ (V) | $C_j$ (pF)<br>Measurement | $C_j$ (pF)<br>Simulation | %Error |
|---------------|---------------------------|--------------------------|--------|
| 0.1           | 36.500                    | 36.440                   | -0.16  |
| 0.2           | 33.500                    | 33.680                   | 0.54   |
| 0.5           | 28.000                    | 28.100                   | 0.36   |
| 1             | 23.000                    | 22.970                   | -0.13  |
| 2             | 17.800                    | 17.780                   | -0.11  |
| 5             | 12.200                    | 12.020                   | -1.48  |
| 10            | 8.500                     | 8.700                    | 2.35   |