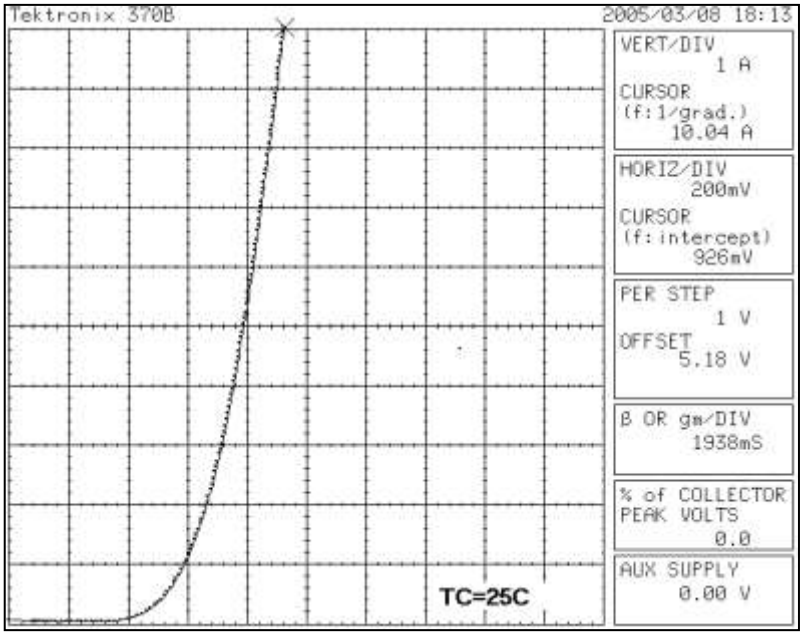
# Device Modeling Report

COMPONENTS:
DIODE/ GENERAL PURPOSE RECTIFIER / PROFESSIONAL
PART NUMBER: RHRG7560
MANUFACTURER: INTERSIL
REMARK: TC= 25C


**Bee Technologies Inc.**

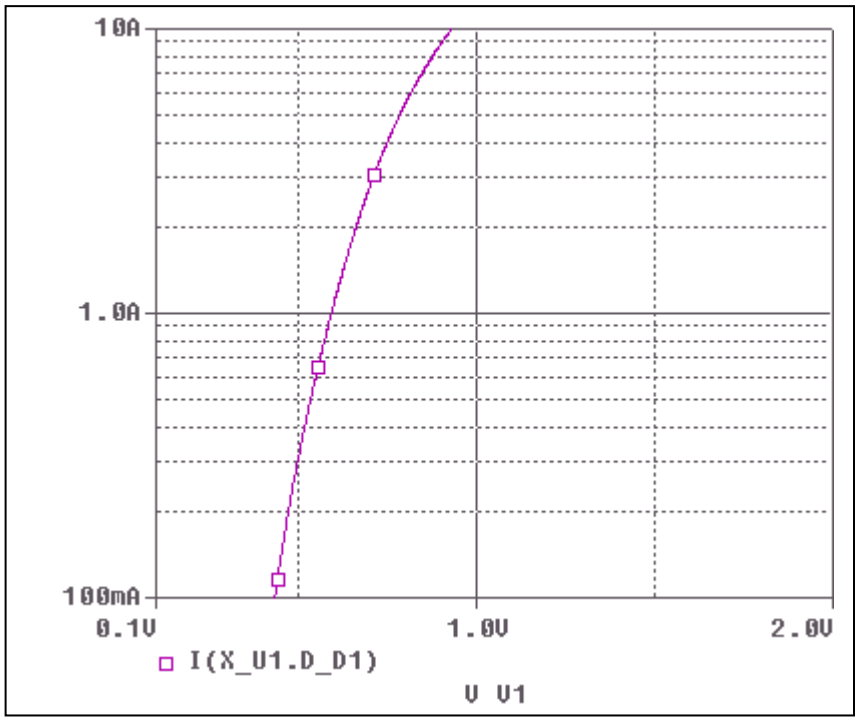
| PSpice model parameter | Model description |
|---|---|
| IS | Saturation Current |
| N | Emission Coefficient |
| RS | Series Resistance |
| IKF | High-injection Knee Current |
| CJO | Zero-bias Junction Capacitance |
| M | Junction Grading Coefficient |
| VJ | Junction Potential |
| ISR | Recombination 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 Reference

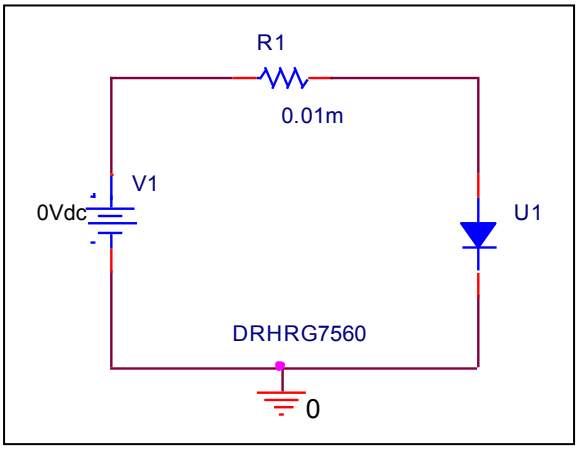


## Forward Current Characteristic

Circuit Simulation Result

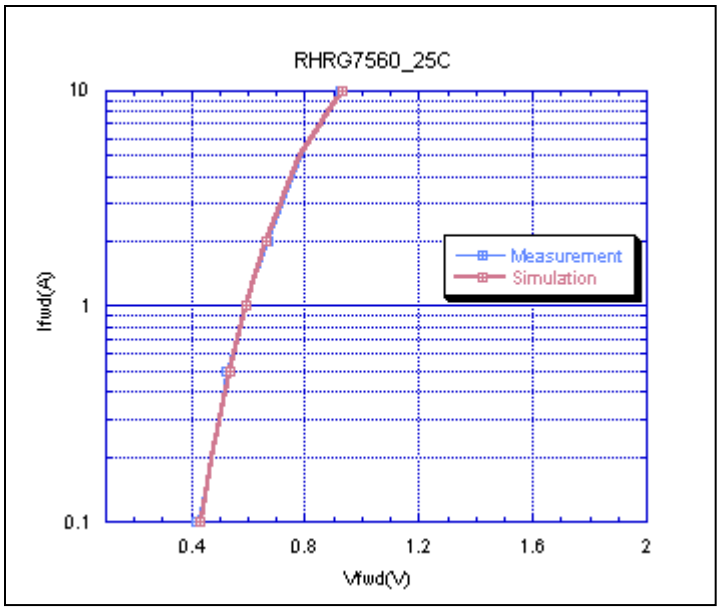



Evaluation Circuit



## Comparison Graph

Circuit Simulation Result

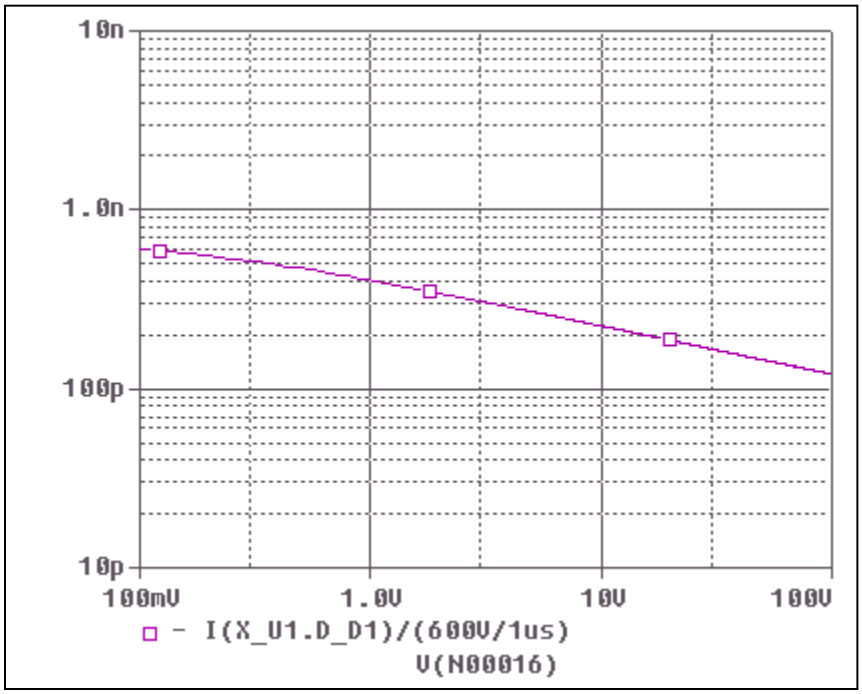



Simulation Result

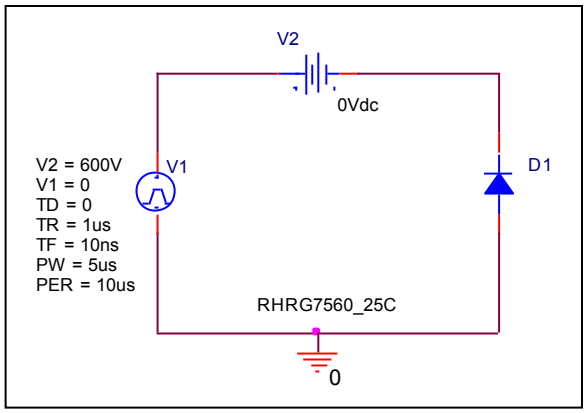
| Ifwd(A) | Vfwd(V) Measurement | Vfwd(V) Simulation | %Error |
|---|---|---|---|
| 0.1 | 0.416 | 0.432 | -3.85 |
| 0.2 | 0.470 | 0.470 | 0.00 |
| 0.5 | 0.526 | 0.534 | -1.52 |
| 1 | 0.590 | 0.593 | -0.51 |
| 2 | 0.668 | 0.662 | 0.90 |
| 5 | 0.790 | 0.784 | 0.76 |
| 10 | 0.926 | 0.928 | -0.22 |

## Capacitance Characteristic

Circuit Simulation Result

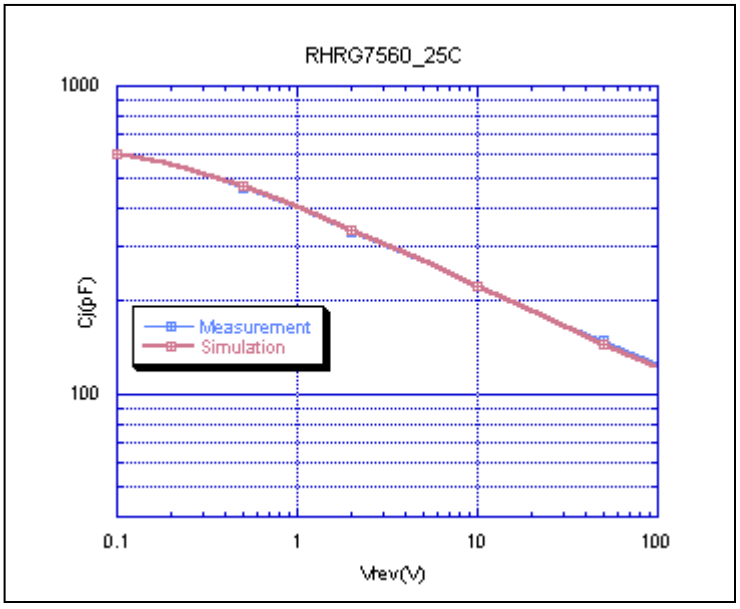



Evaluation Circuit



## Comparison Graph

Circuit Simulation Result

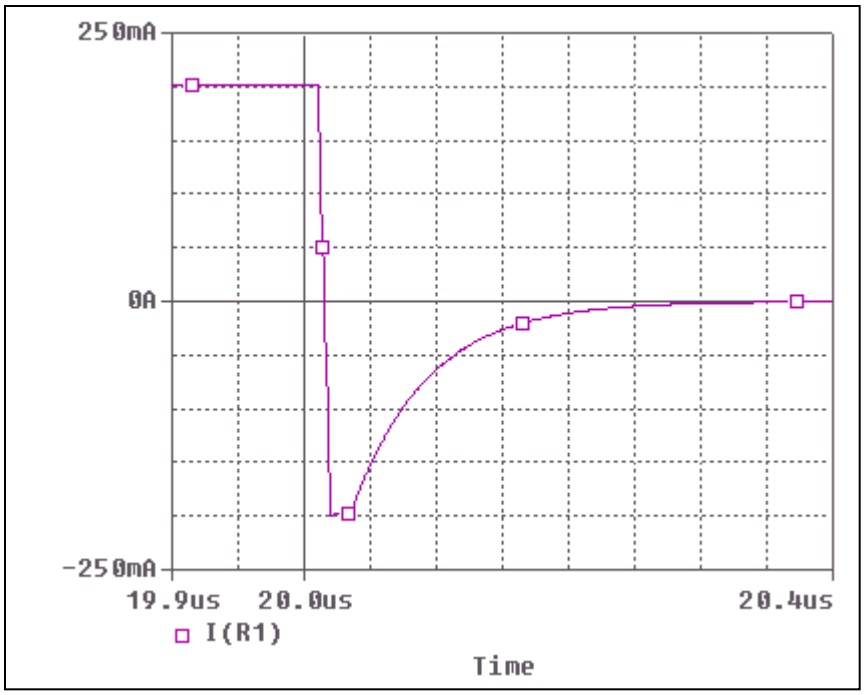



Simulation Result

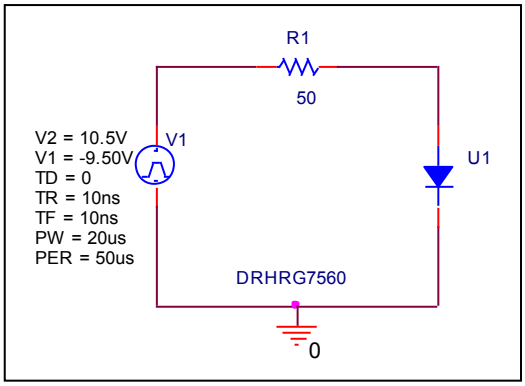
| Vrev(V) | Cj(pF) Measurement | Cj(pF) Simulation | %Error |
|---|---|---|---|
| 0 | 662.120 | 662.120 | 0.00 |
| 0.1 | 600.220 | 603.052 | -0.47 |
| 0.2 | 554.420 | 551.880 | 0.46 |
| 0.5 | 466.330 | 470.482 | -0.89 |
| 1 | 399.710 | 404.184 | -1.12 |
| 2 | 335.330 | 341.509 | -1.84 |
| 5 | 266.330 | 270.132 | -1.43 |
| 10 | 225.220 | 224.453 | 0.34 |
| 20 | 188.100 | 186.585 | 0.81 |
| 50 | 149.100 | 145.643 | 2.32 |
| 100 | 124.200 | 120.557 | 2.93 |

## Reverse Recovery Characteristic

Circuit Simulation Result



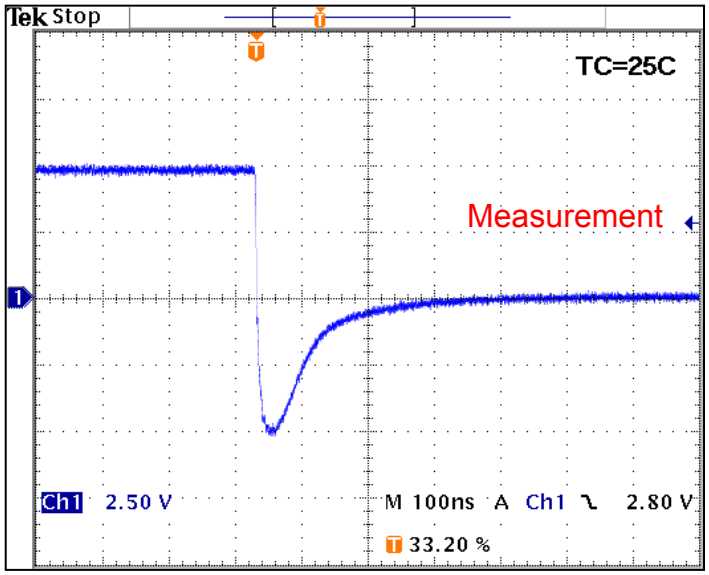

Evaluation Circuit



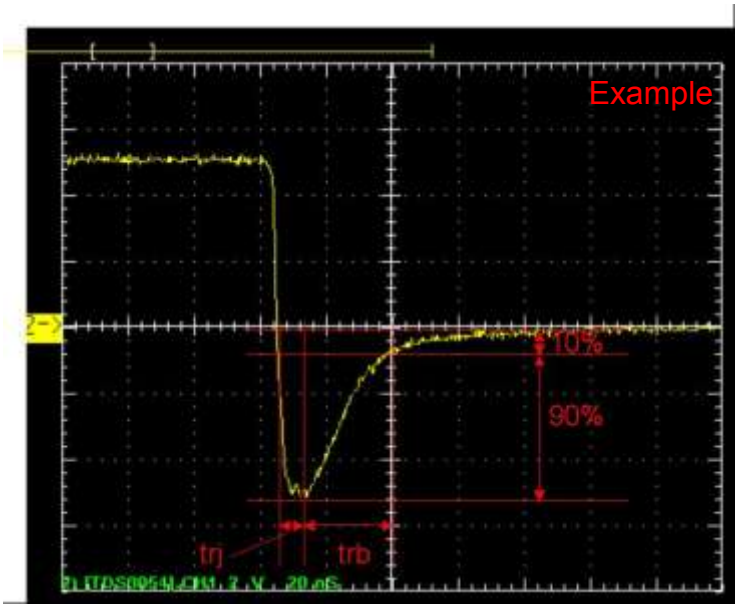

Compare Measurement vs. Simulation

| Symbol | Measurement | | Simulation | | %Error |
|---|---|---|---|---|---|
| trj | 20 | ns | 20 | ns | 0.00 |
| trb | 130 | ns | 130.1 | ns | 0.07 |

## Reverse Recovery Characteristic Reference




**Trj =20 (ns)**
**Trb=130 (ns)**
**Conditions: Ifwd=Irev=0.2(A), Rl=50**




Relation between trj and trb