

# Device Modeling Report

COMPONENTS: THYRISTOR  
PART NUMBER: 2N5061  
MANUFACTURER: ON SEMICONDUCTOR



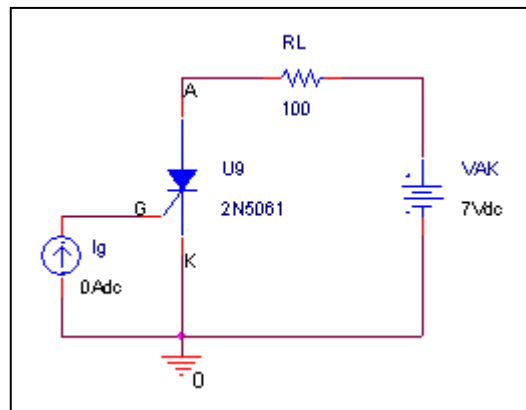
**Bee Technologies Inc.**

## DIODE MODEL

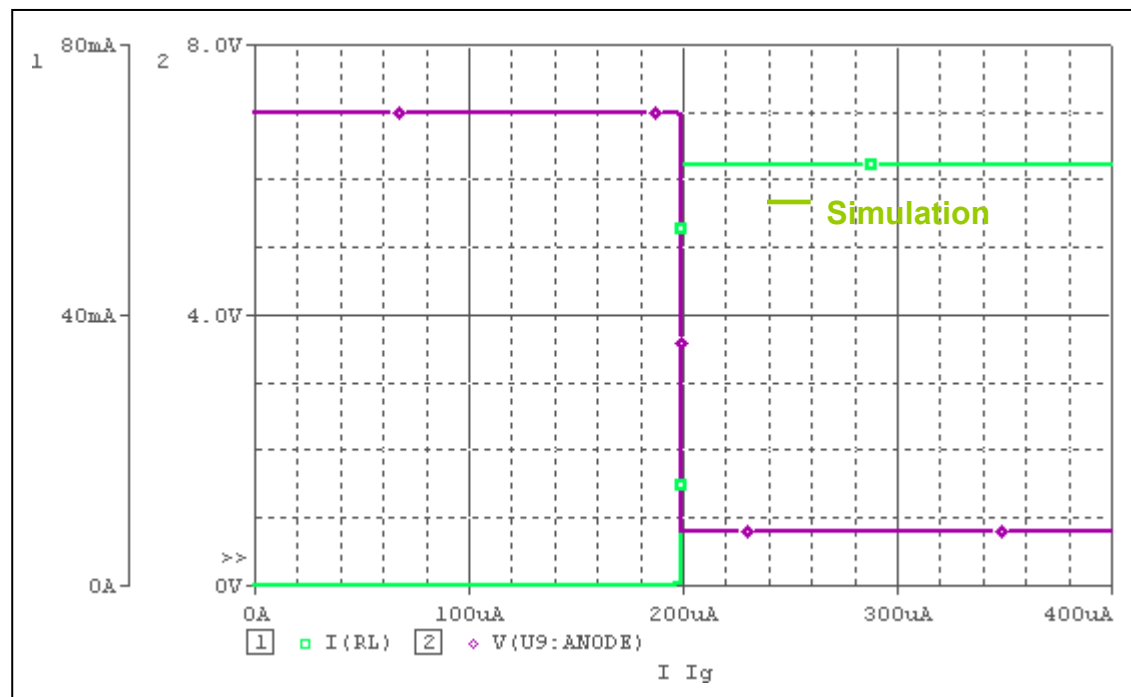
| Pspice model<br>Parameter | Model description                           |
|---------------------------|---------------------------------------------|
| IS                        | Saturation Current                          |
| N                         | Emission Coefficient                        |
| 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                                |

## IG-VT Characteristic

### Evaluation Circuit



### Simulation result

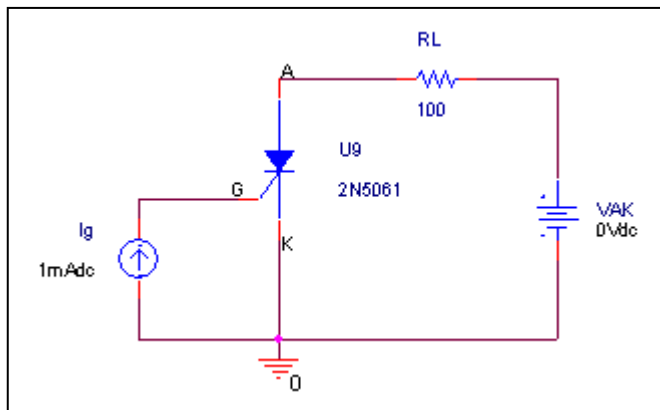


### Comparison Table

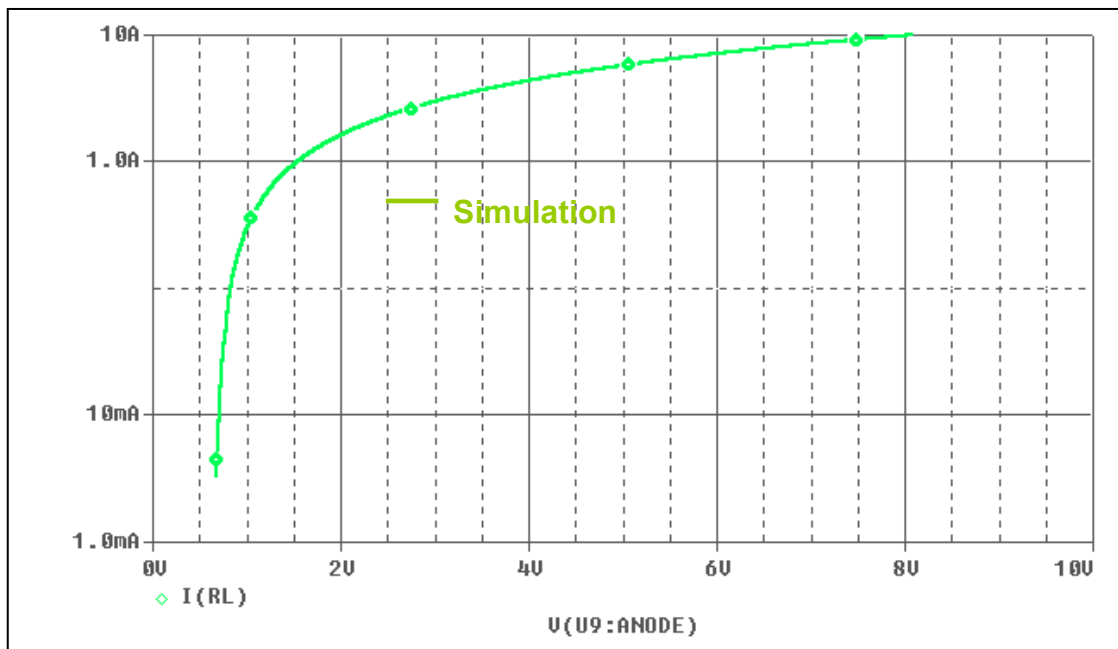
|               | Measurement | Simulation | % Error  |
|---------------|-------------|------------|----------|
| $I_{GT}$ (uA) | 200(max)    | 199.048    | -0.47600 |
| $V_{GT}$ (V)  | 0.8(max)    | 0.792363   | -0.95463 |

## ITM-VTM Characteristic

### Evaluation Circuit



### Simulation result

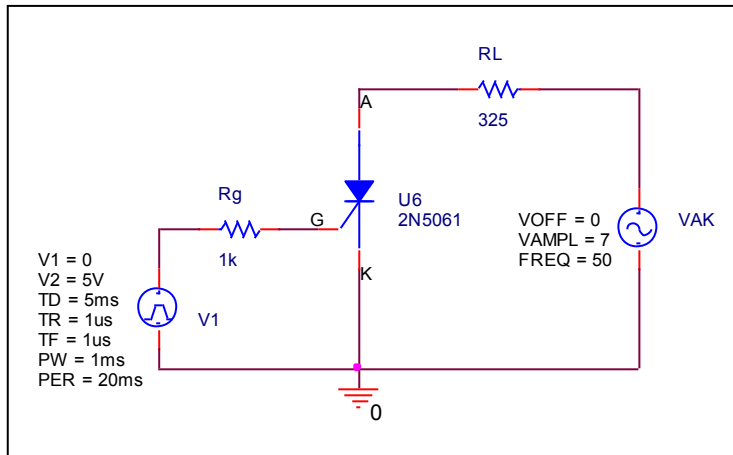


### Comparison Table

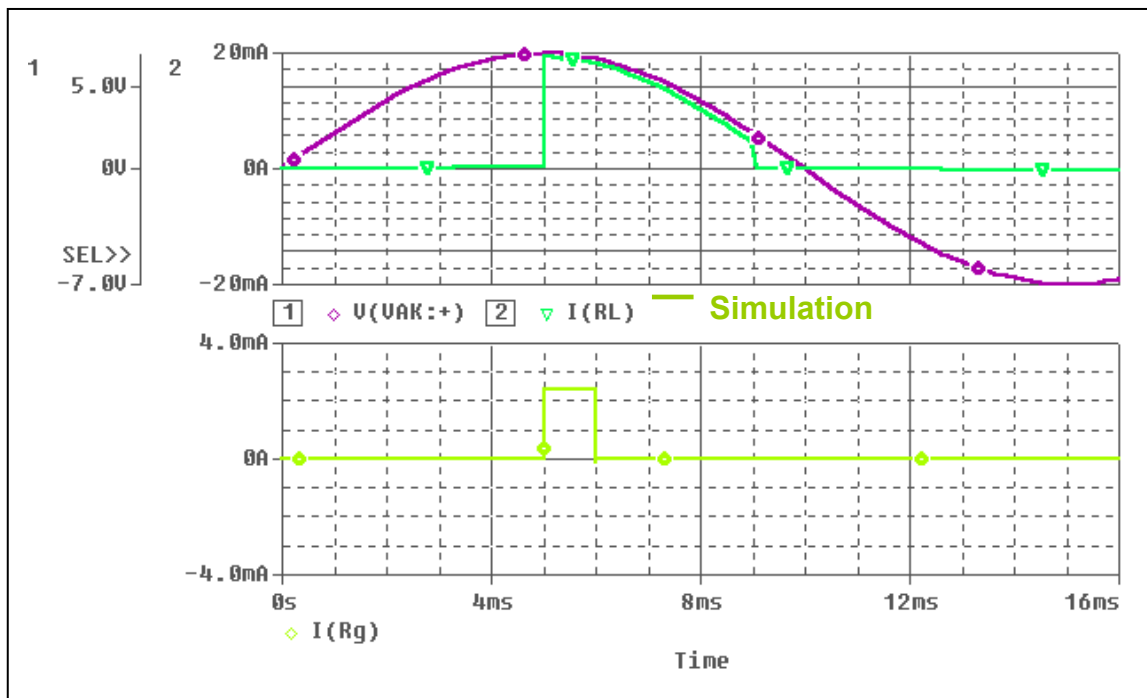
| At ITM=1.2 | Measurement | Simulation | % Error  |
|------------|-------------|------------|----------|
| VTM(V)     | 1.7(max)    | 1.6970     | -0.17647 |

## Holding Characteristic (IH)

### Evaluation Circuit



### Simulation result

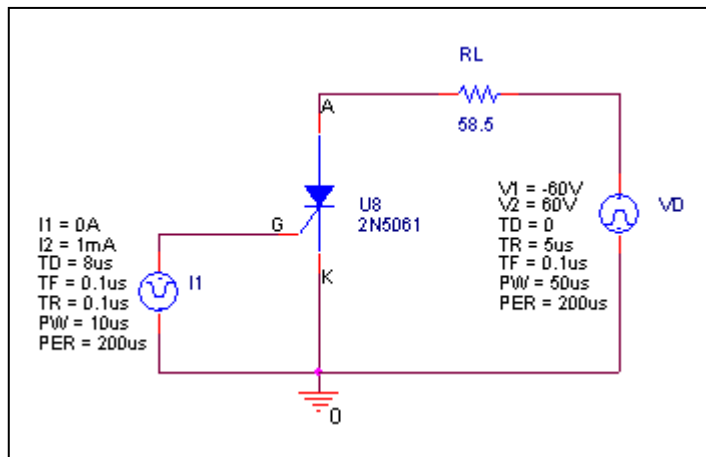


### Comparison Table

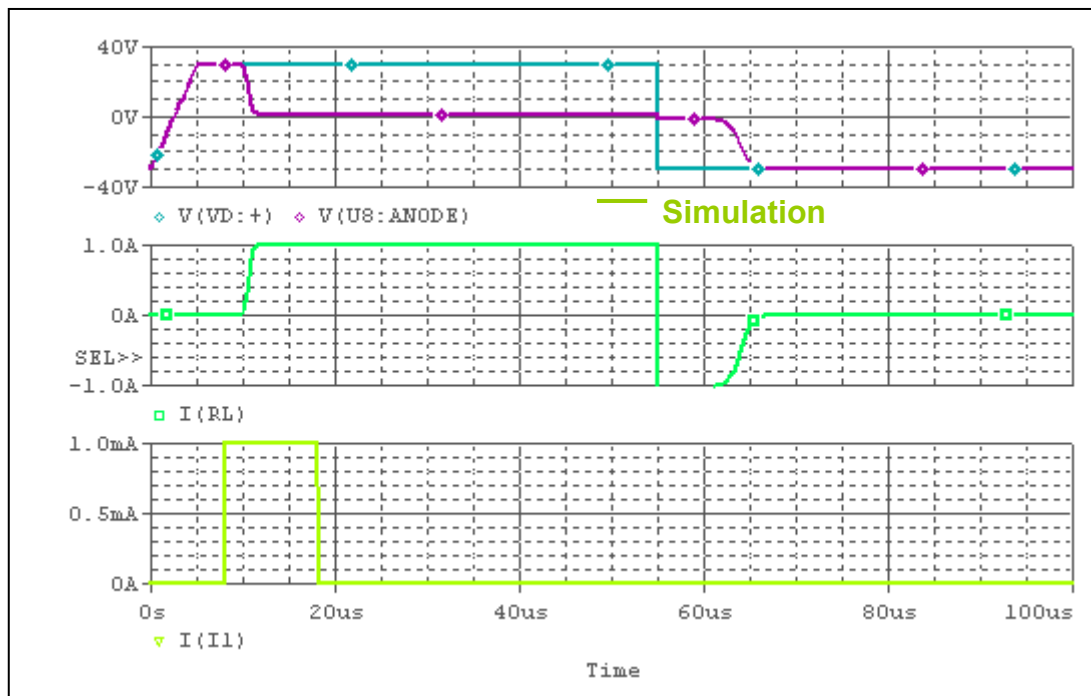
| VD=7V  | Measurement | Simulation | % Error  |
|--------|-------------|------------|----------|
| IH(mA) | 5(max)      | 4.7542     | -4.91600 |

## Switching Time Characteristic

### Evaluation Circuit



### Simulation result



### Comparison Table

|                 | Measurement | Simulation    | %Error         |
|-----------------|-------------|---------------|----------------|
| <b>Ton(us)</b>  | <b>3</b>    | <b>3.0158</b> | <b>0.52667</b> |
| <b>Toff(us)</b> | <b>10</b>   | <b>10.033</b> | <b>0.33000</b> |