

# Device Modeling Report

COMPONENTS: THYRISTOR  
PART NUMBER: 2N6508  
MANUFACTURER: ON SEMICONDUCTOR



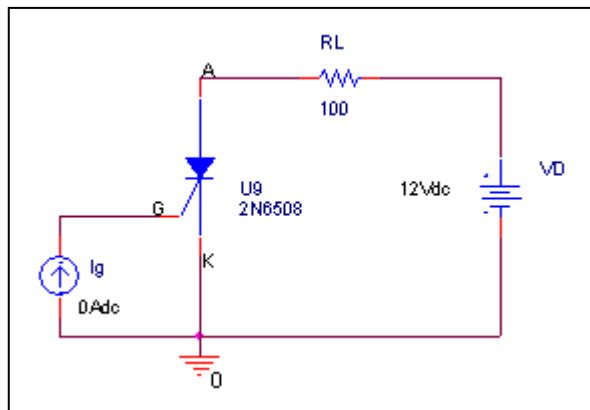
**Bee Technologies Inc.**

## DIODE MODEL

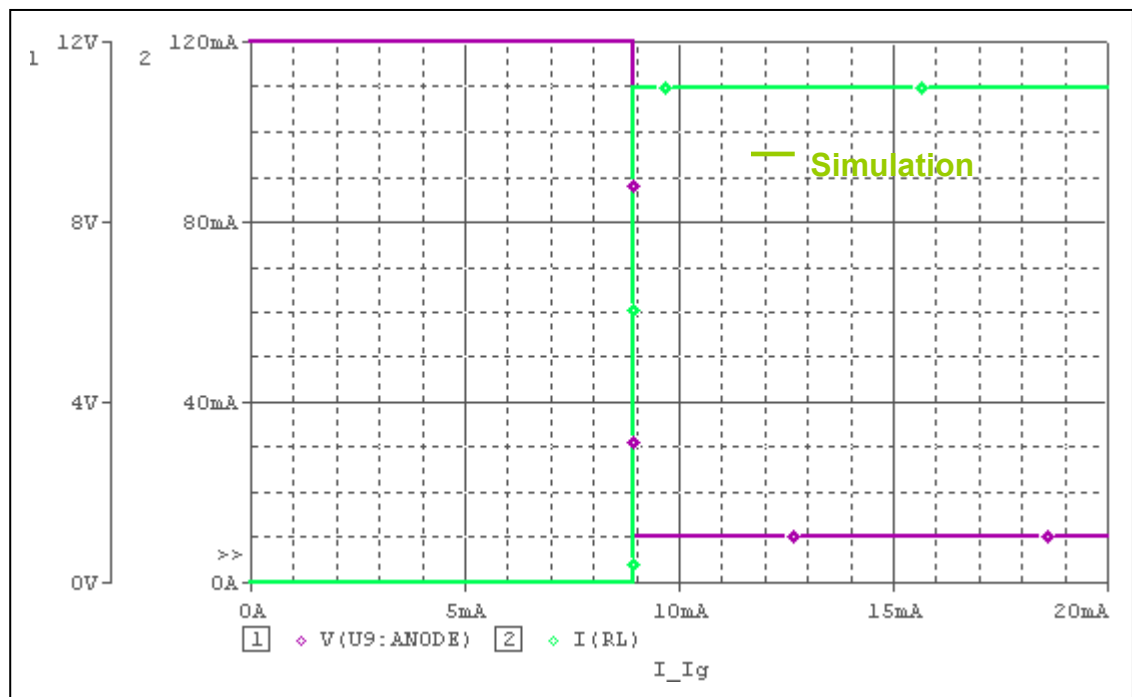
| Pspice model<br>Parameter | Model description                           |
|---------------------------|---------------------------------------------|
| IS                        | Saturation Current                          |
| N                         | Emission Coefficient                      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

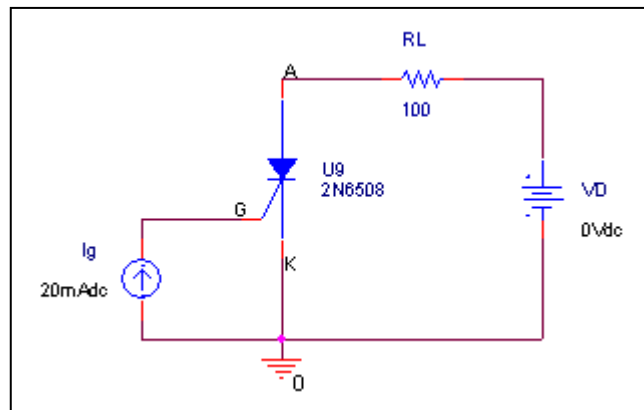


### Comparison Table

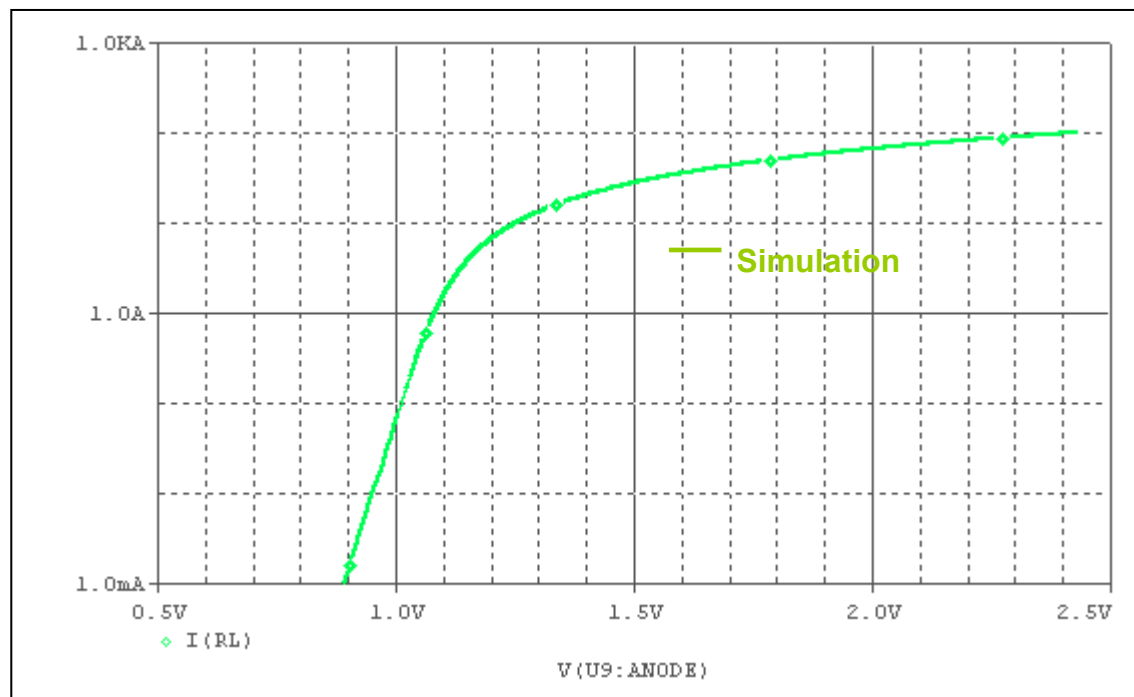
|               | Measurement | Simulation | % Error  |
|---------------|-------------|------------|----------|
| $I_{GT}$ (mA) | 9           | 8.9300     | -0.77778 |
| $V_{GT}$ (V)  | 1.0         | 1.0135     | 1.35000  |

## ITM-VTM Characteristic

### Evaluation Circuit



### Simulation result

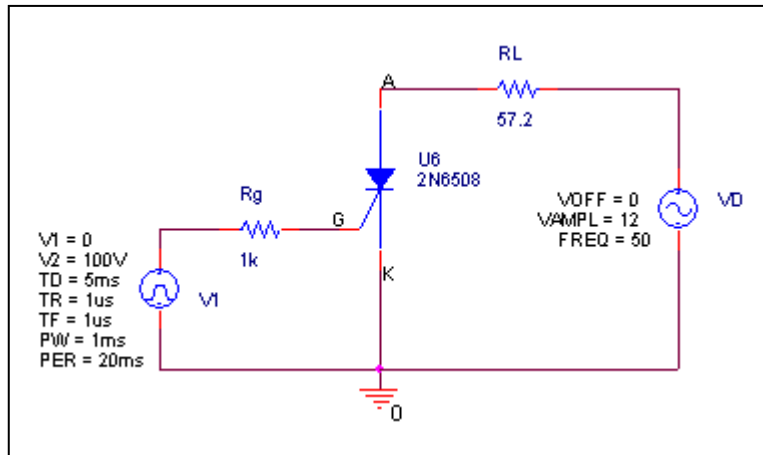


### Comparison Table

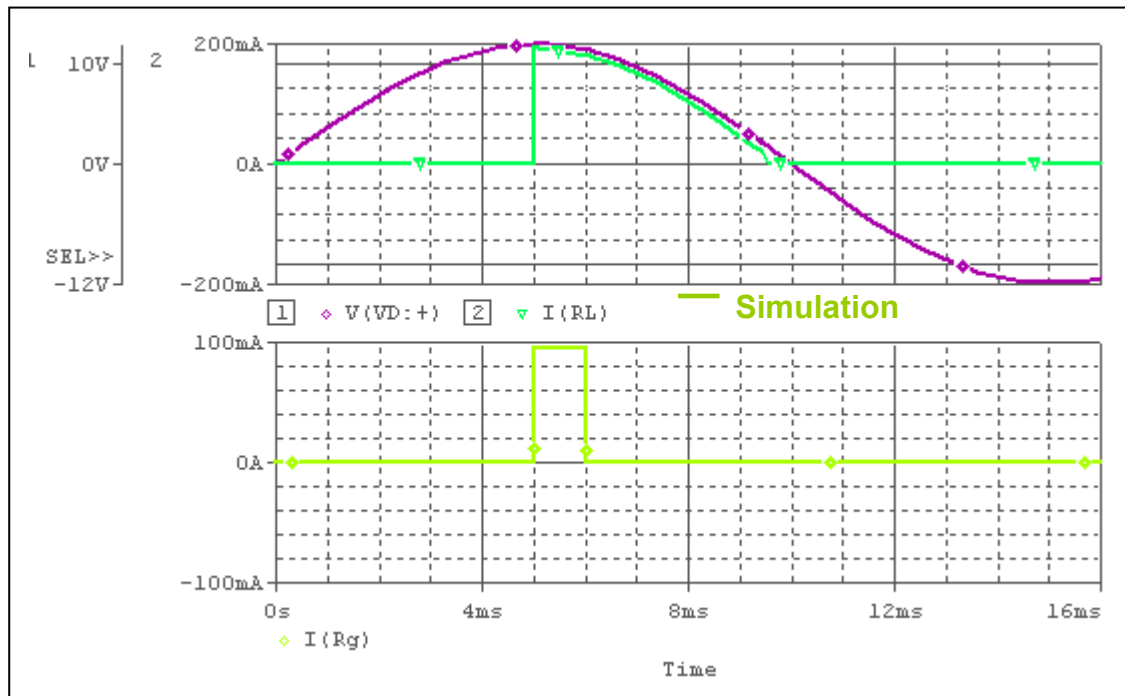
| At ITM=50 | Measurement | Simulation | % Error  |
|-----------|-------------|------------|----------|
| VTM(V)    | 1.8(max)    | 1.7919     | -0.45000 |

## Holding Characteristic (IH)

### Evaluation Circuit



### Simulation result

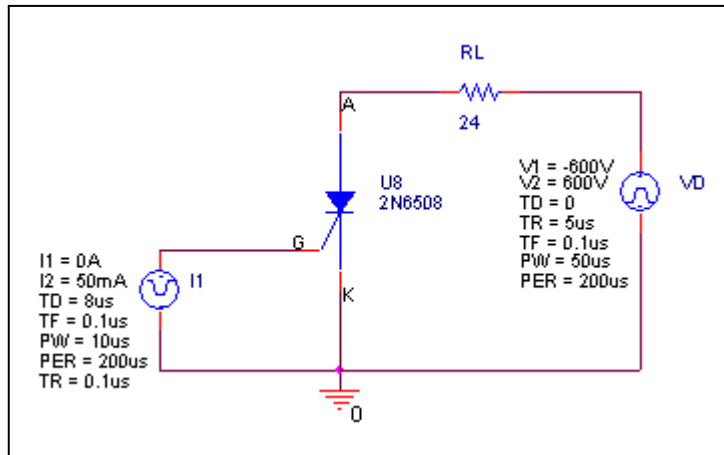


### Comparison Table

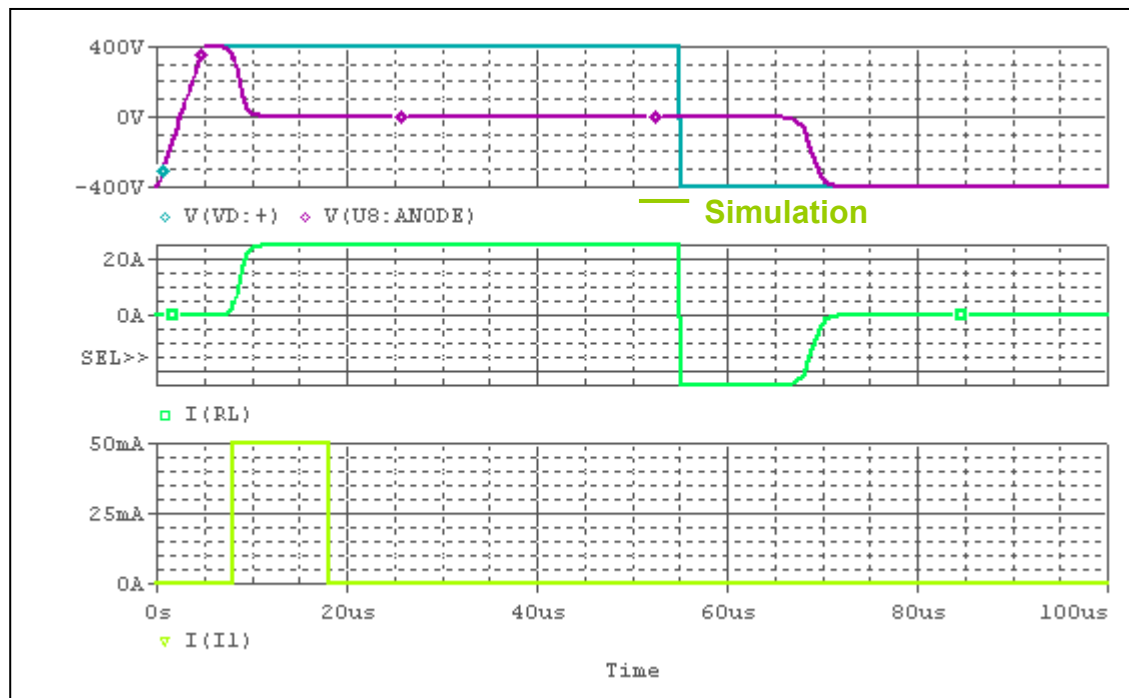
| VD=12V | Measurement | Simulation | % Error  |
|--------|-------------|------------|----------|
| IH(mA) | 18          | 17.503     | -2.76111 |

## Switching Time Characteristic

### Evaluation Circuit



### Simulation result



### Comparison Table

|          | Measurement | Simulation | %Error   |
|----------|-------------|------------|----------|
| Ton(us)  | 1.5         | 1.4983     | -0.11333 |
| Toff(us) | 15          | 15.014     | 0.09333  |