# Device Modeling Report

COMPONENTS:THYRISTOR
PART NUMBER:MCR22-6
MANUFACTURER: MOTOROLA SEMICONDUCTOR

Bee Technologies

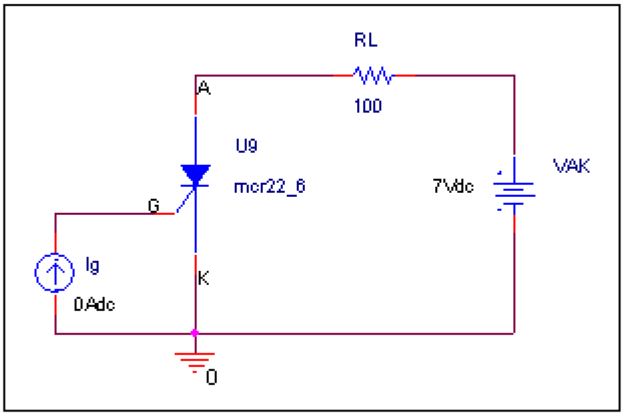
**Bee Technologies Inc.**

## DIODE MODEL

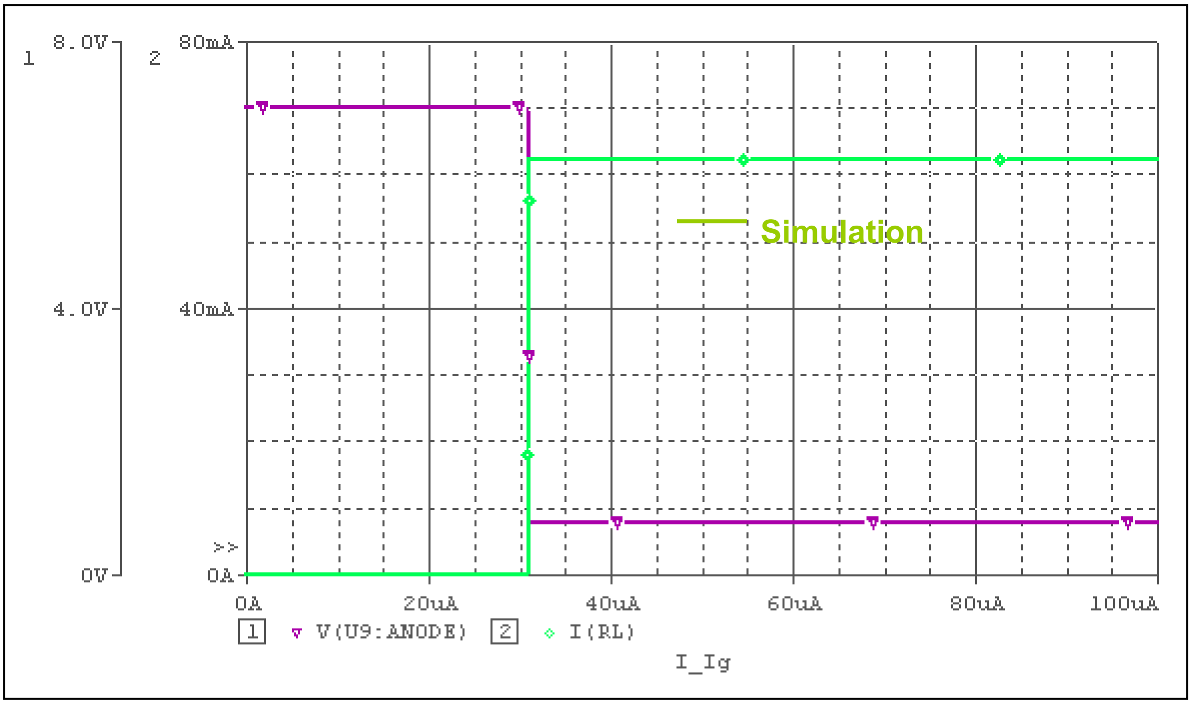
| Pspice model Parameter | Model description |
|---|---|
| IS | Saturation Current |
| N | Emission Coefficient |
| RS | Series Resistance |
| IKF | High-injection Knee Current |
| CJO | Zero-bias Junction Capacitance |
| M | Junction Grading Coefficient |
| VJ | Junction Potential |
| ISR | Recombination Current Saturation Value |
| BV | Reverse Breakdown Voltage(a positive value) |
| IBV | Reverse Breakdown Current(a positive value) |
| TT | Transit Time |

# IG-VT Characteristic

## Evaluation Circuit



## Simulation result

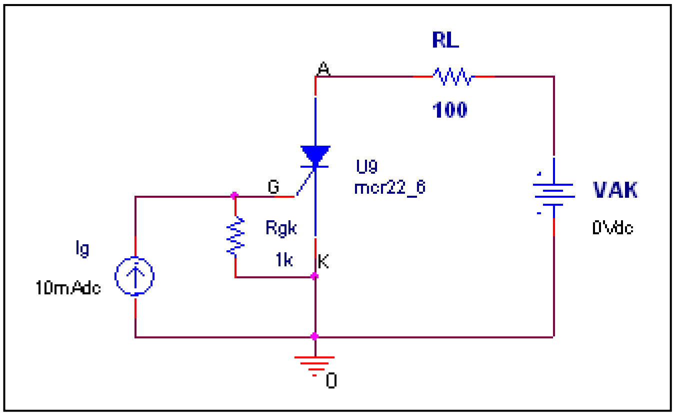


# Comparison Table

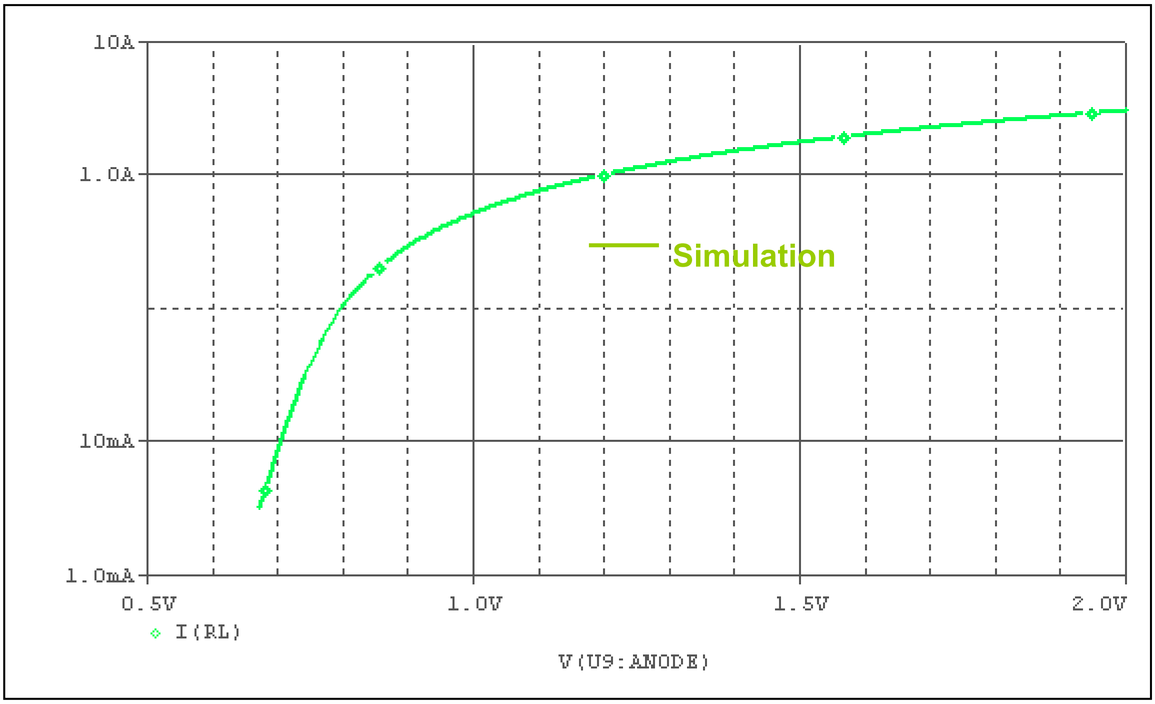
| | Measurement | Simulation | % Error |
|---|---|---|---|
| $I_{GT}$ ( uA) | 30 | 30.800 | 2.66667 |
| $V_{GT}$ (V) | 0.8(max) | 0.771116 | -3.61050 |

# ITM-VTM Characteristic

Evaluation Circuit



Simulation result

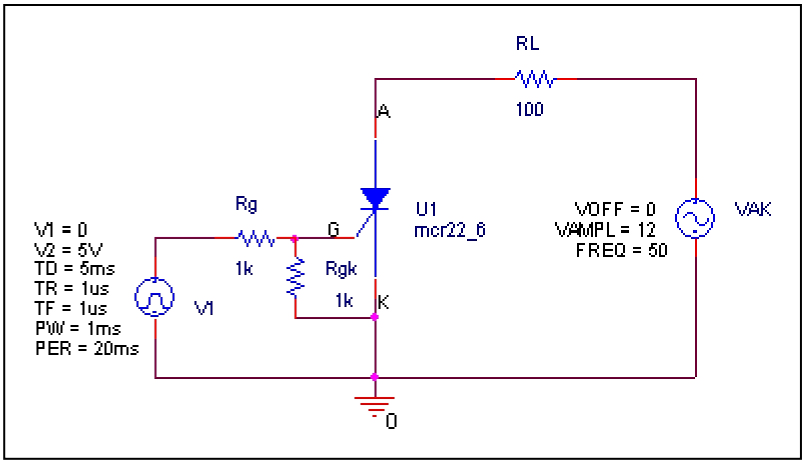


## Comparison Table

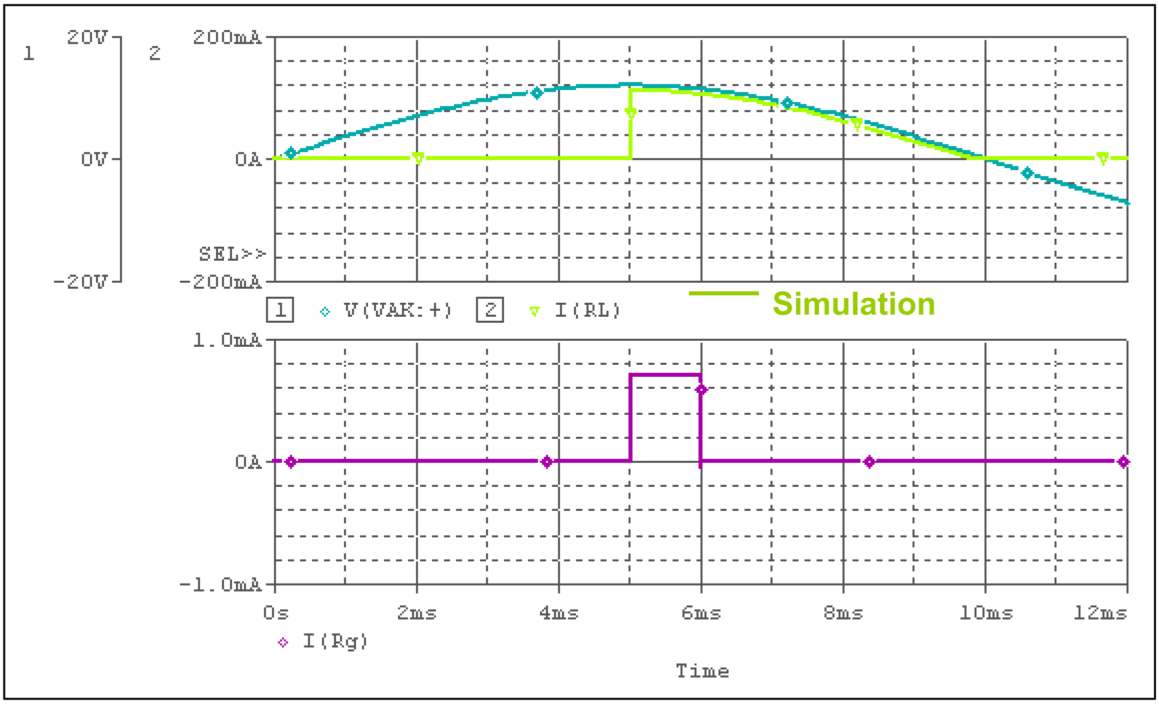
| At ITM=1A | Measurement | Simulation | % Error |
|---|---|---|---|
| VTM(V) | 1.2 | 1.1981 | -0.15833 |

# Holding Characteristic (IH)

## Evaluation Circuit



## Simulation result



## Comparison Table

| VAK=12V | Measurement | Simulation | % Error |
|---|---|---|---|
| IH(mA) | 2 | 2.0528 | 2.64000 |