# Device Modeling Report

COMPONENTS:THYRISTOR
PART NUMBER:MCR264-8
MANUFACTURER: MOTOROLA SEMICONDUCTOR

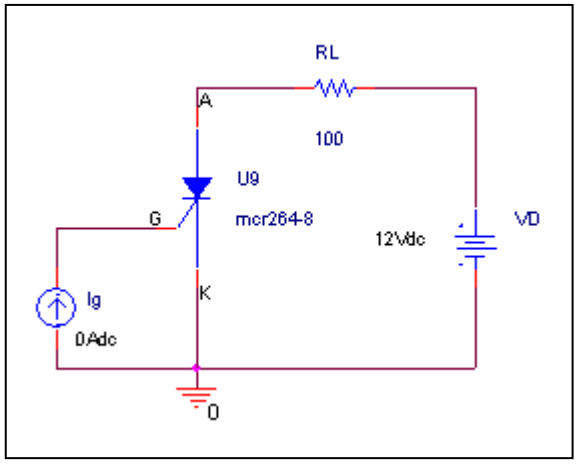

**Bee Technologies Inc.**

## DIODE MODEL

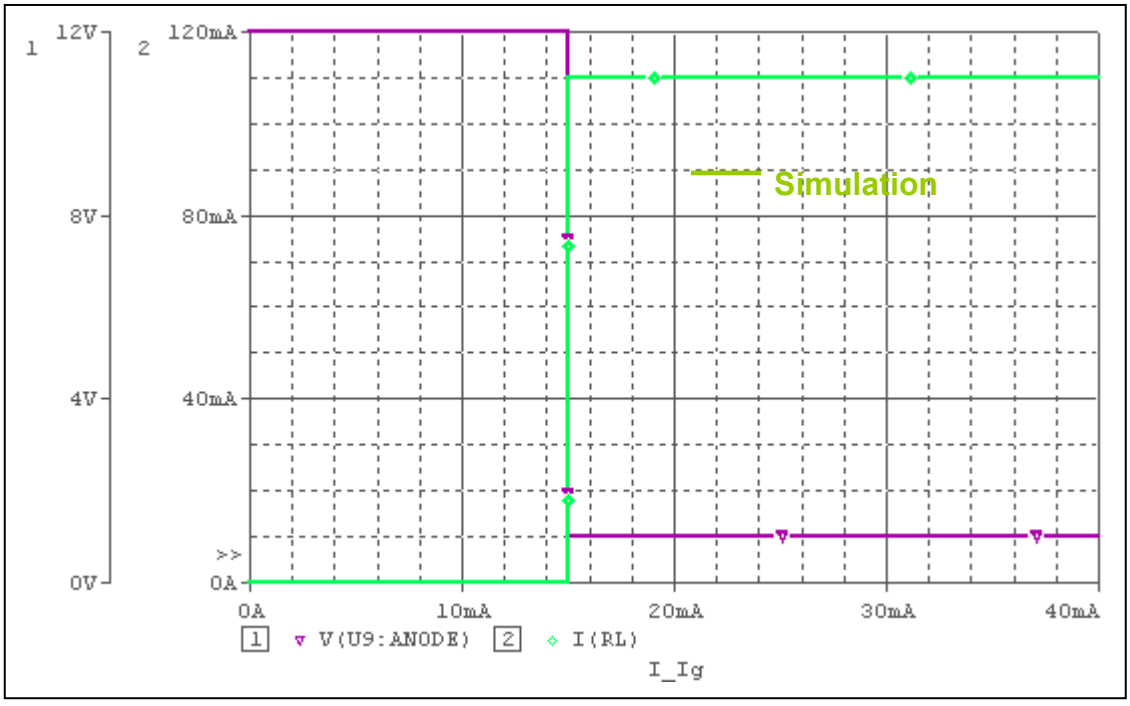
| Pspice model Parameter | Model description |
|---|---|
| IS | Saturation Current |
| N | Emission Coefficient |
| RS | Series Resistance |
| IKF | High-injection Knee Current |
| CJO | Zero-bias Junction Capacitance |
| M | Junction Grading Coefficient |
| VJ | Junction Potential |
| ISR | Recombination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

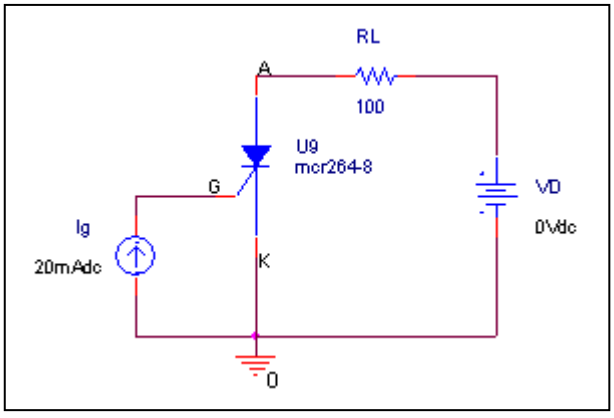



## Comparison Table

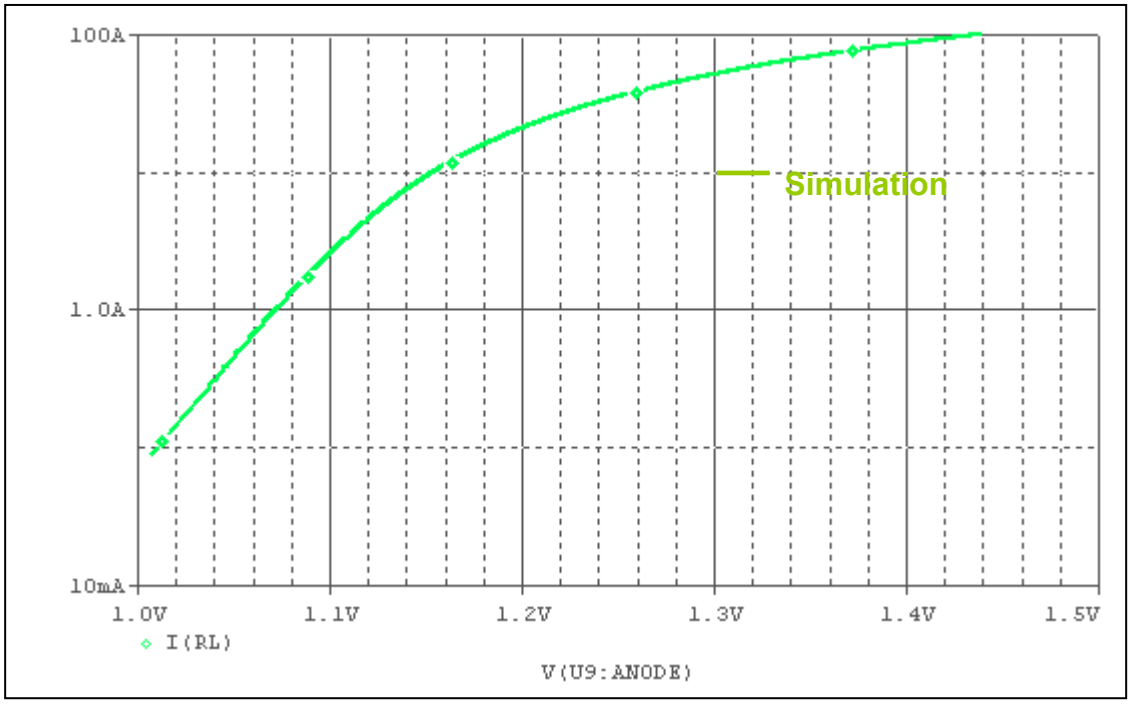
| | Measurement | Simulation | % Error |
|---|---|---|---|
| $IG_T$ (mA) | 15 | 14.960 | -0.26667 |
| $V_{GT}$ (V) | 1 | 1.0124 | 1.24000 |

## ITM-VTM Characteristic

Evaluation Circuit




Simulation result

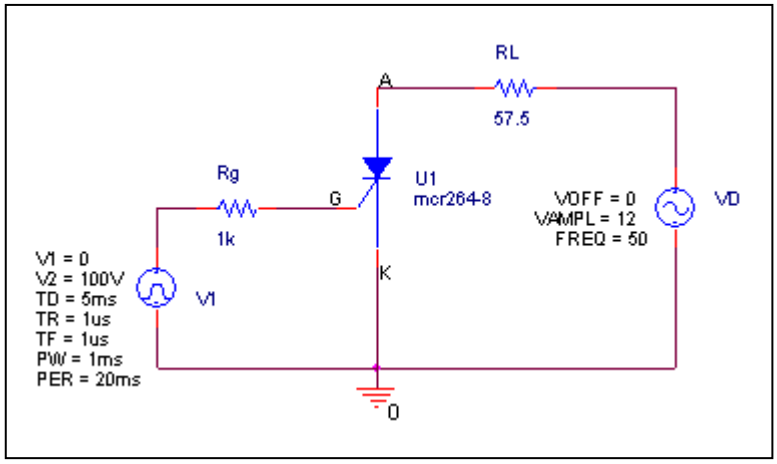



## Comparison Table

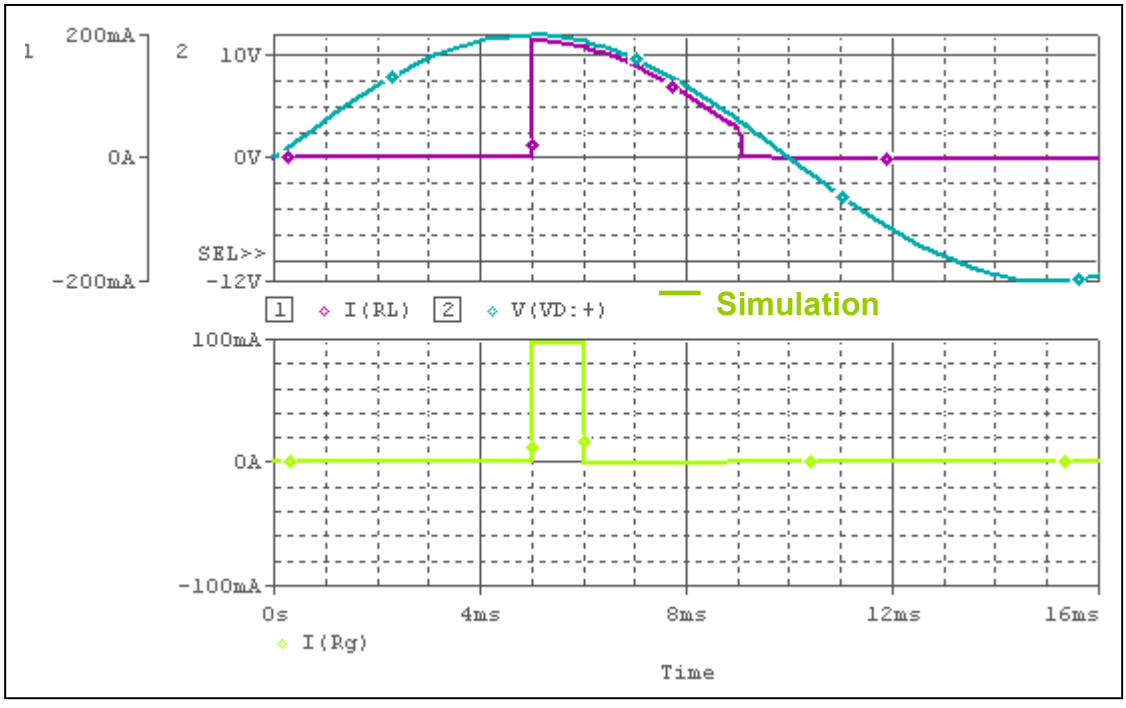
| At ITM=80A | Measurement | Simulation | % Error |
|---|---|---|---|
| VTM(V) | 1.4 | 1.3828 | -1.22857 |

## Holding Characteristic (IH)

Evaluation Circuit




Simulation result

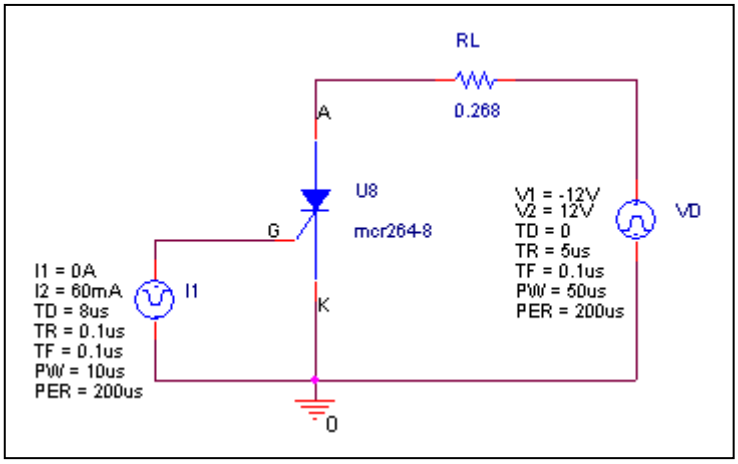



## Comparison Table

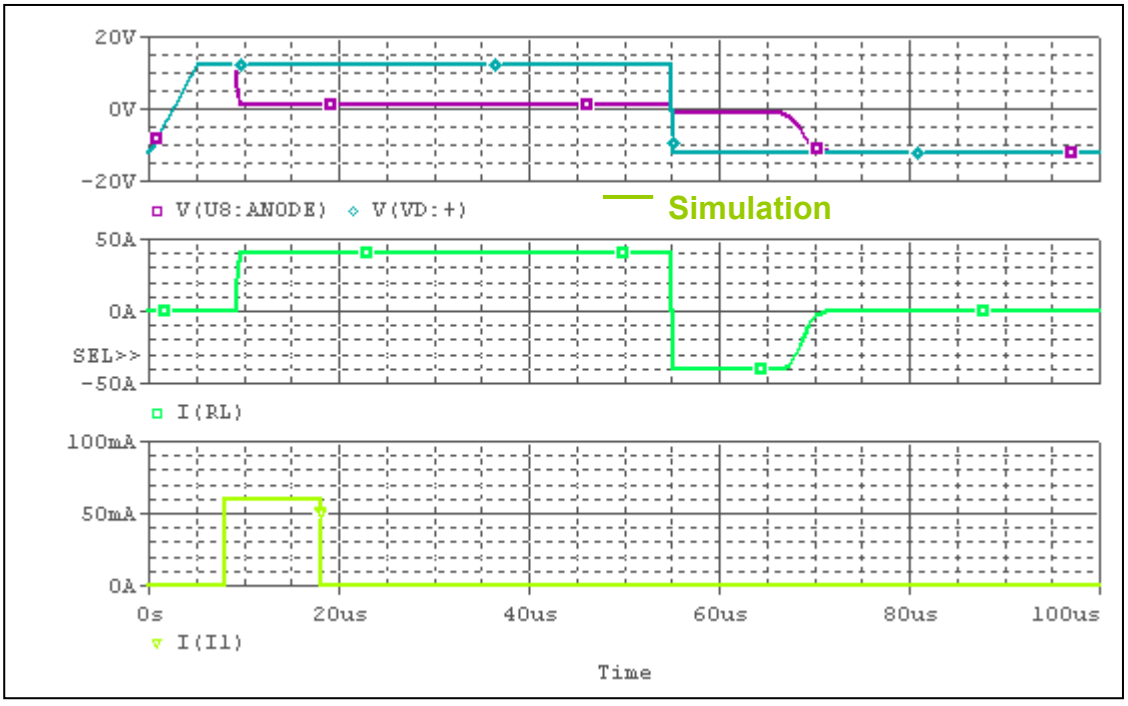
| VD=12V | Measurement | Simulation | % Error |
|---|---|---|---|
| IH(mA) | 30 | 30.046 | 0.15333 |

## Switching Time Characteristic

Evaluation Circuit




Simulation result




## Comparison Table

| | Measurement | Simulation | %Error |
|---|---|---|---|
| Ton(us) | 1.5 | 1.5032 | 0.21333 |