

Device Modeling Report

COMPONENTS: THYRISTOR
PART NUMBER: MCR225-10FP
MANUFACTURER: MOTOROLA SEMICONDUCTOR



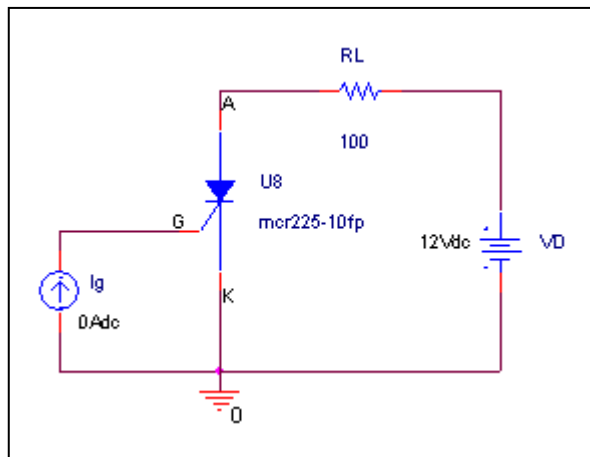
Bee Technologies Inc.

DIODE MODEL

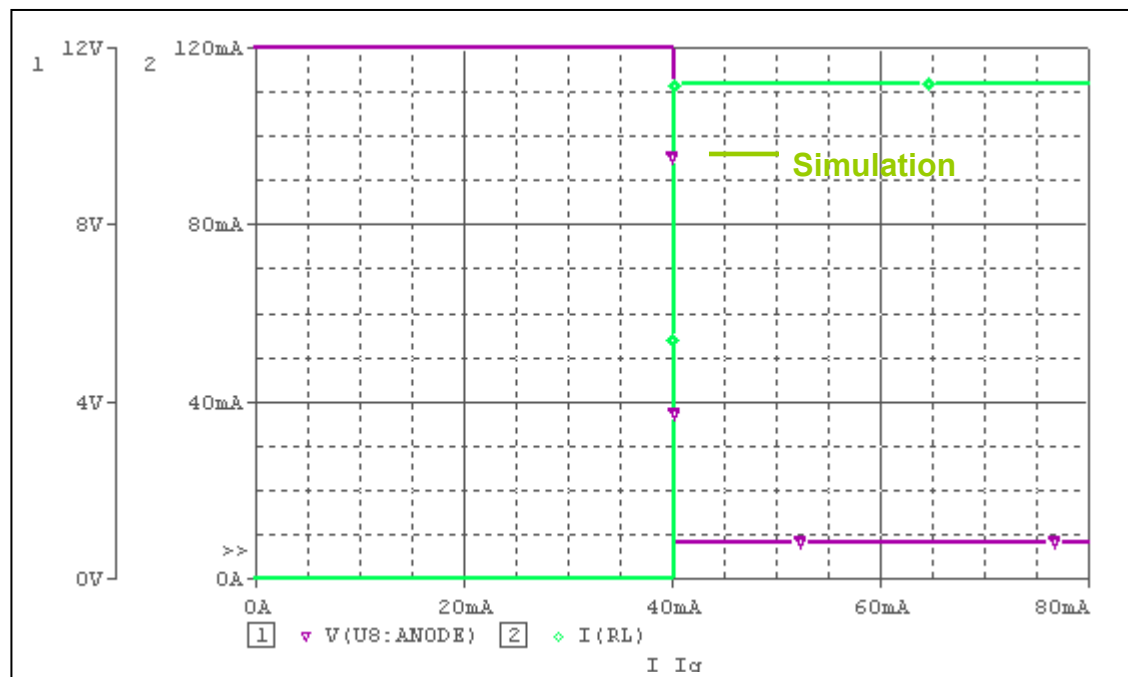
Pspice model Parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

IG-VT Characteristic

Evaluation Circuit



Simulation result

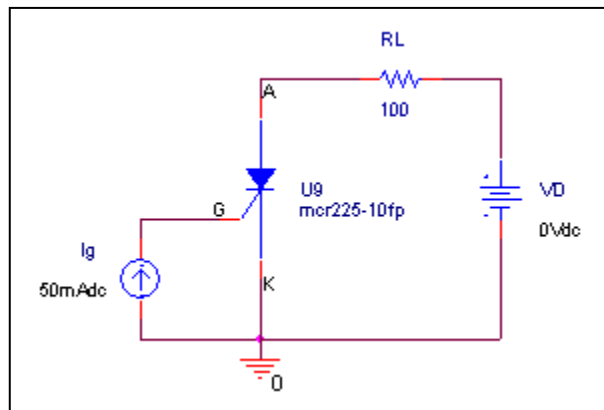


Comparison Table

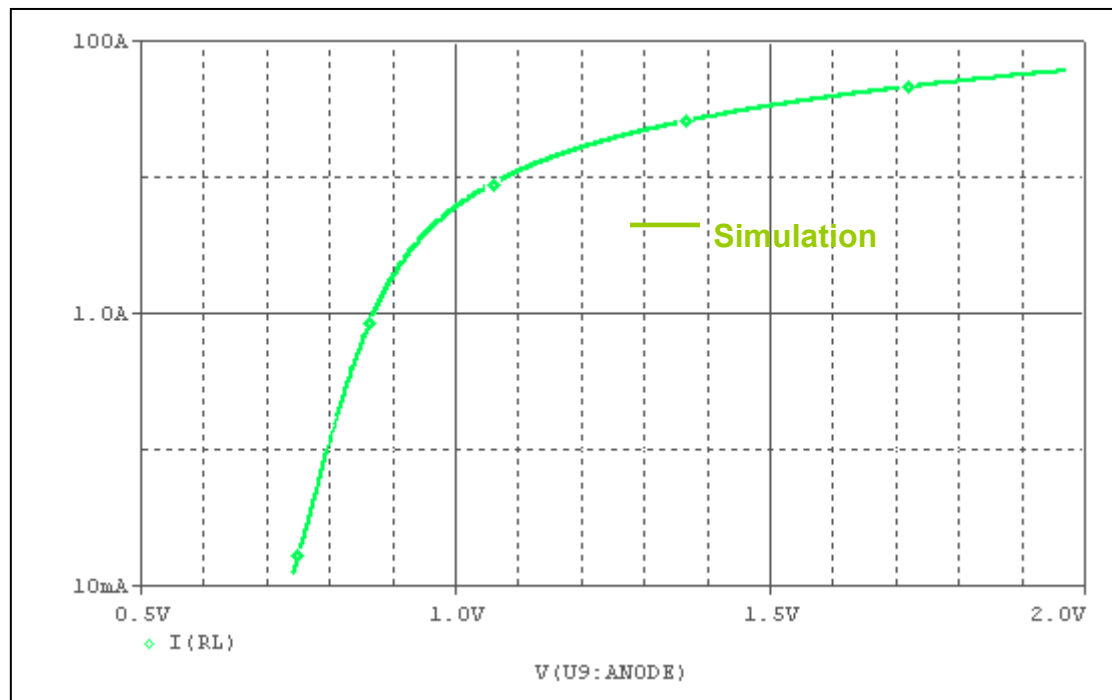
	Measurement	Simulation	% Error
I_{GT} (mA)	40(max)	40	0
V_{GT} (V)	0.8	0.799504	-0.06200

ITM-VTM Characteristic

Evaluation Circuit



Simulation result

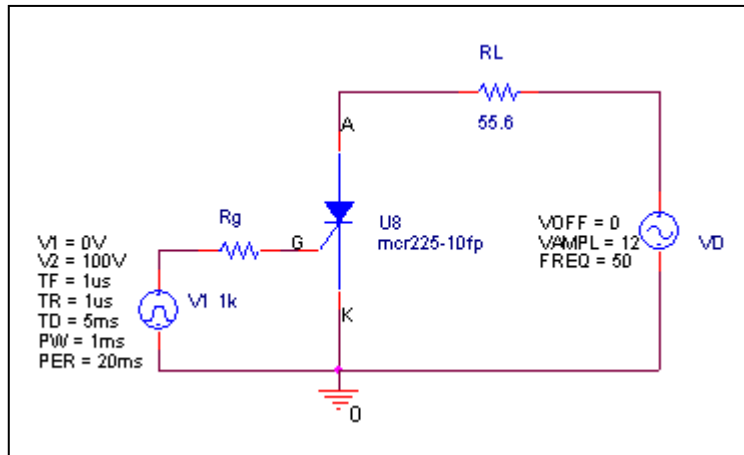


Comparison Table

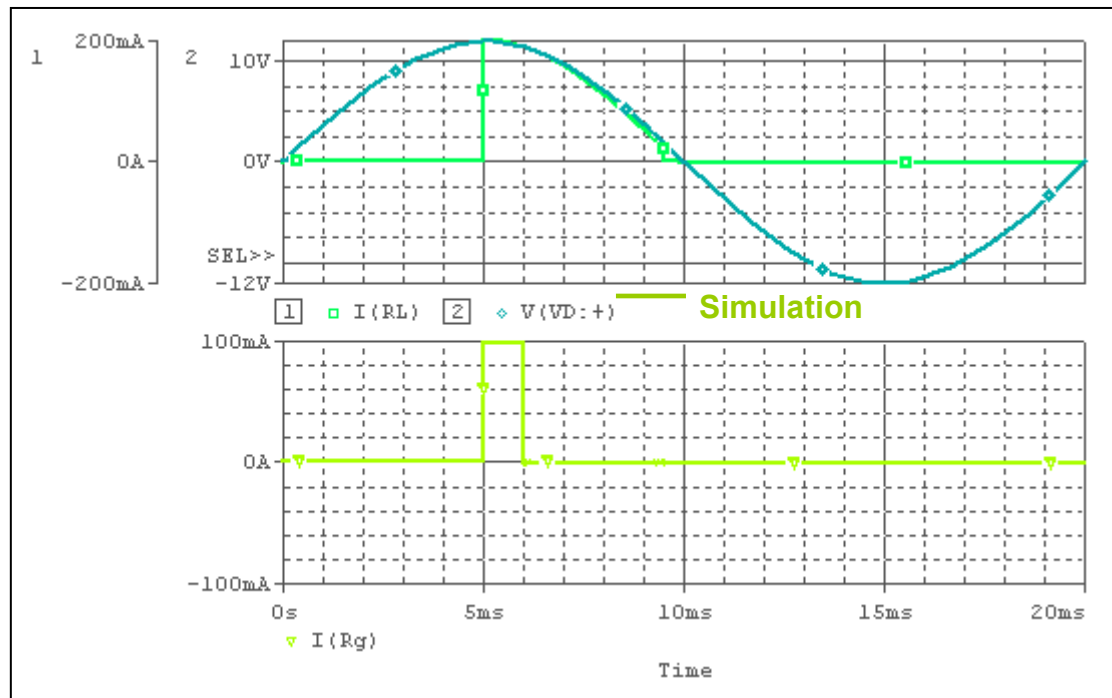
At ITM=50A	Measurement	Simulation	% Error
VTM(V)	1.8(max)	1.7969	-0.17222

Holding Characteristic (IH)

Evaluation Circuit



Simulation result

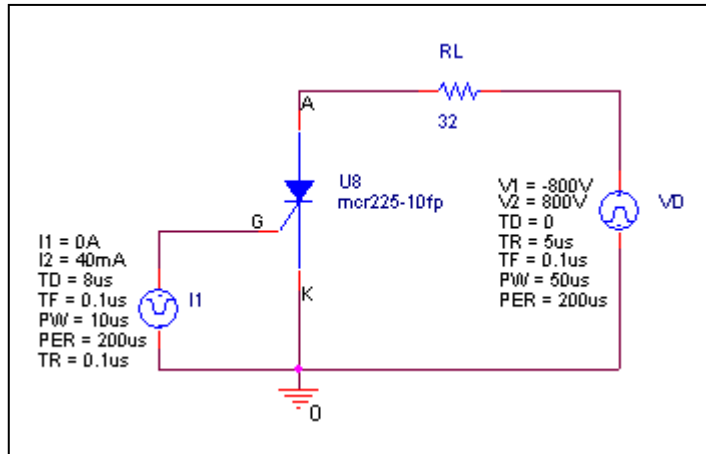


Comparison Table

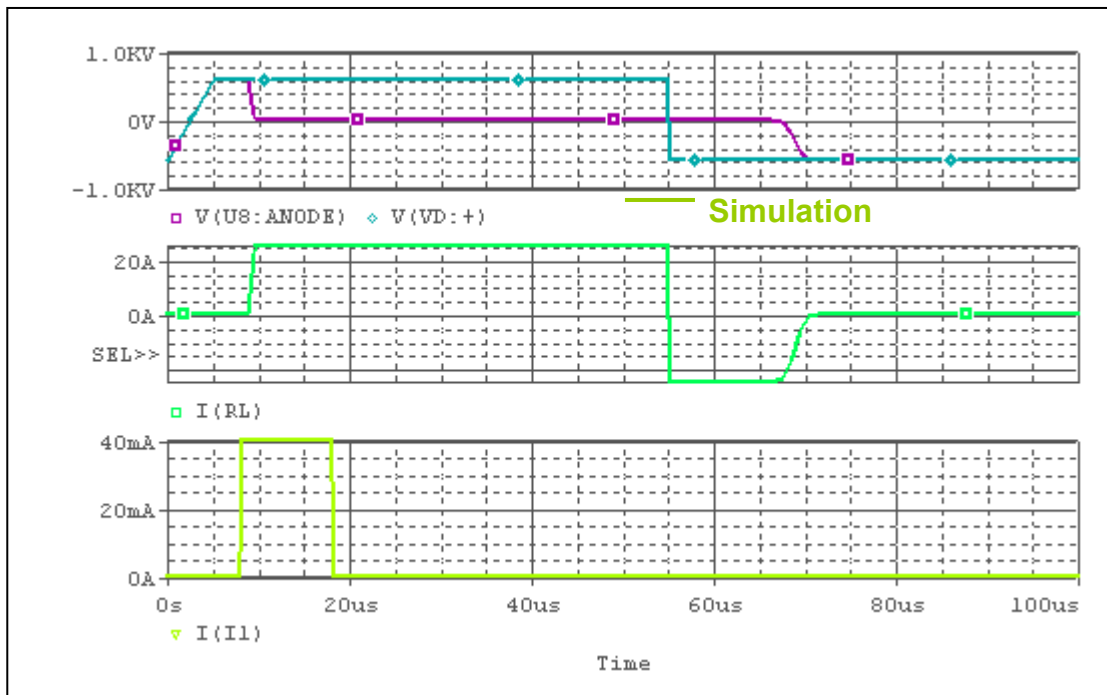
VD=12V	Measurement	Simulation	% Error
IH(mA)	20	20.154	0.77000

Switching Time Characteristic

Evaluation Circuit



Simulation result



Comparison Table

	Measurement	Simulation	%Error
Ton(us)	1.5	1.5269	1.79333
Toff(us)	15	15.014	0.09333