

Device Modeling Report

COMPONENTS: THYRISTOR
PART NUMBER: MCR12DSN
MANUFACTURER: ON SEMICONDUCTOR



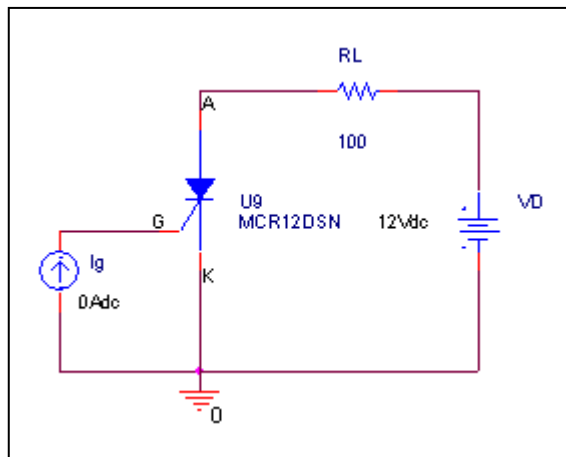
Bee Technologies Inc.

DIODE MODEL

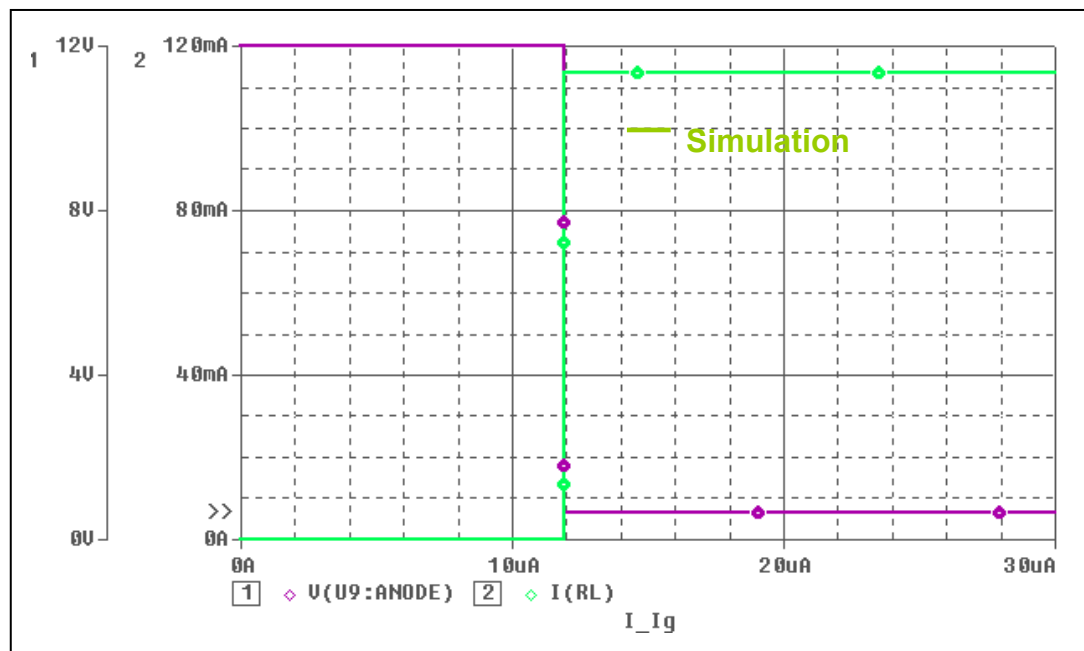
Pspice model Parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

IG-VT Characteristic

Evaluation Circuit



Simulation result

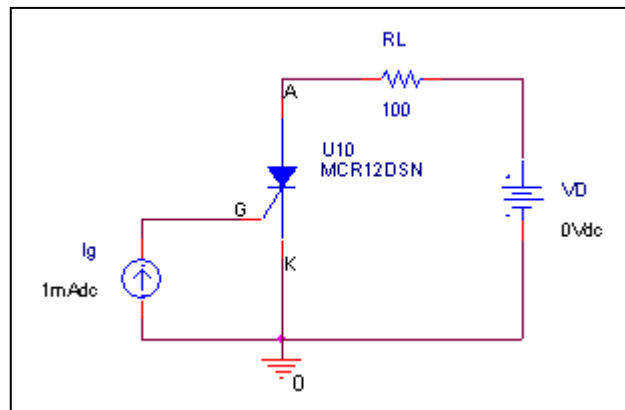


Comparison Table

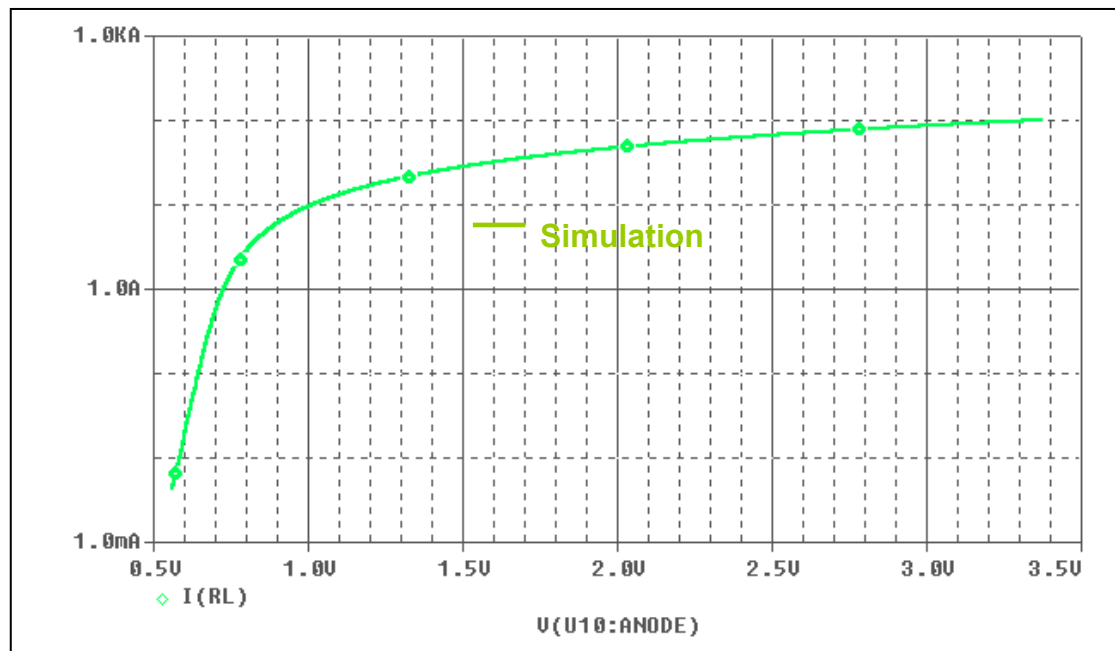
	Measurement	Simulation	% Error
I_{GT} (uA)	12	11.950	-0.41667
V_{GT} (V)	0.65	0.648862	-0.17508

ITM-VTM Characteristic

Evaluation Circuit



Simulation result

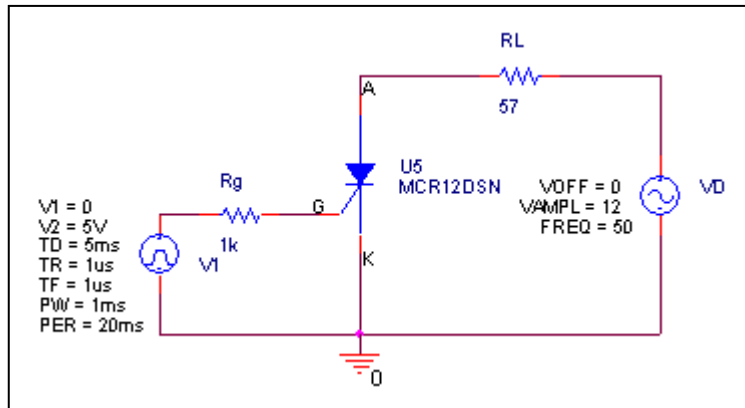


Comparison Table

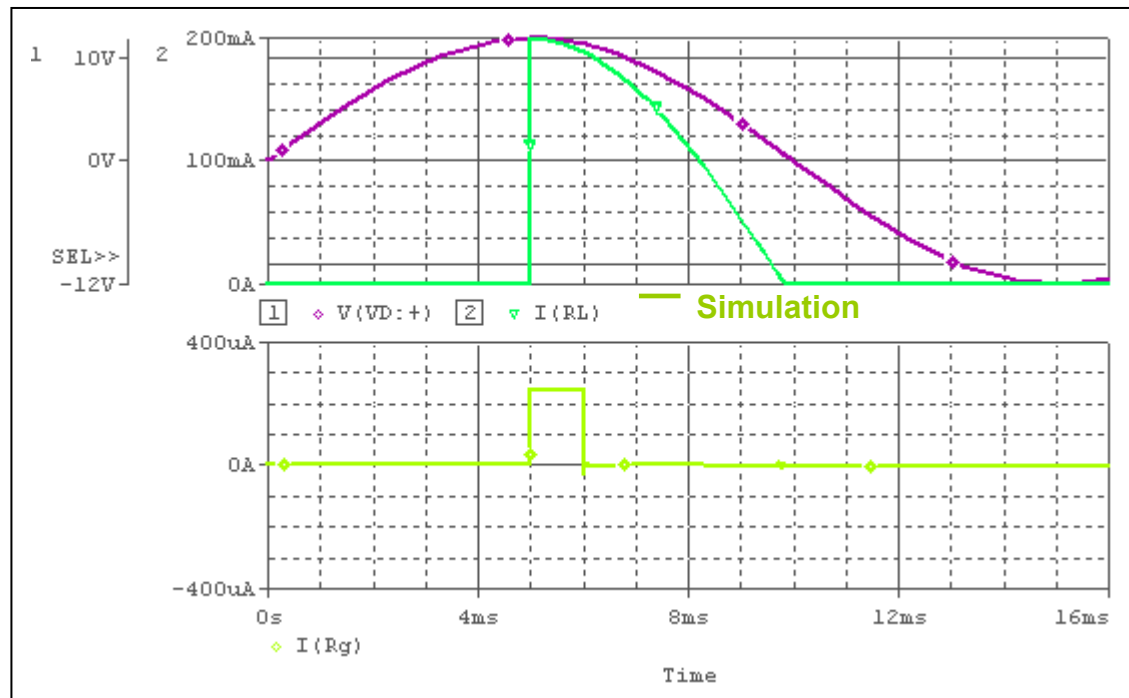
At ITM=20A	Measurement	Simulation	% Error
VTM(V)	1.3	1.3045	0.34615

Holding Characteristic (IH)

Evaluation Circuit



Simulation result

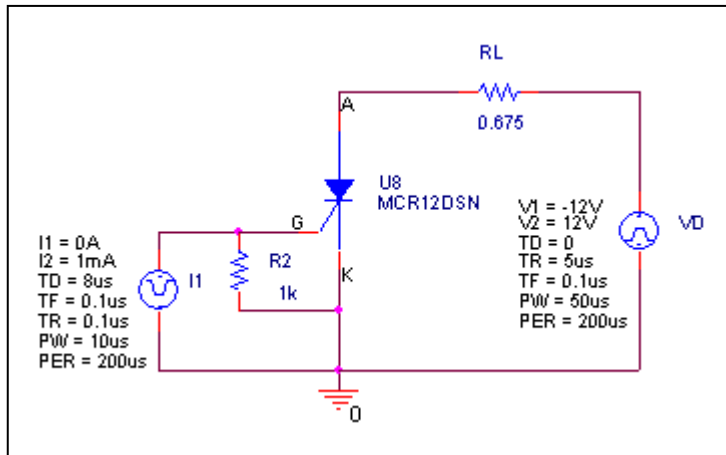


Comparison Table

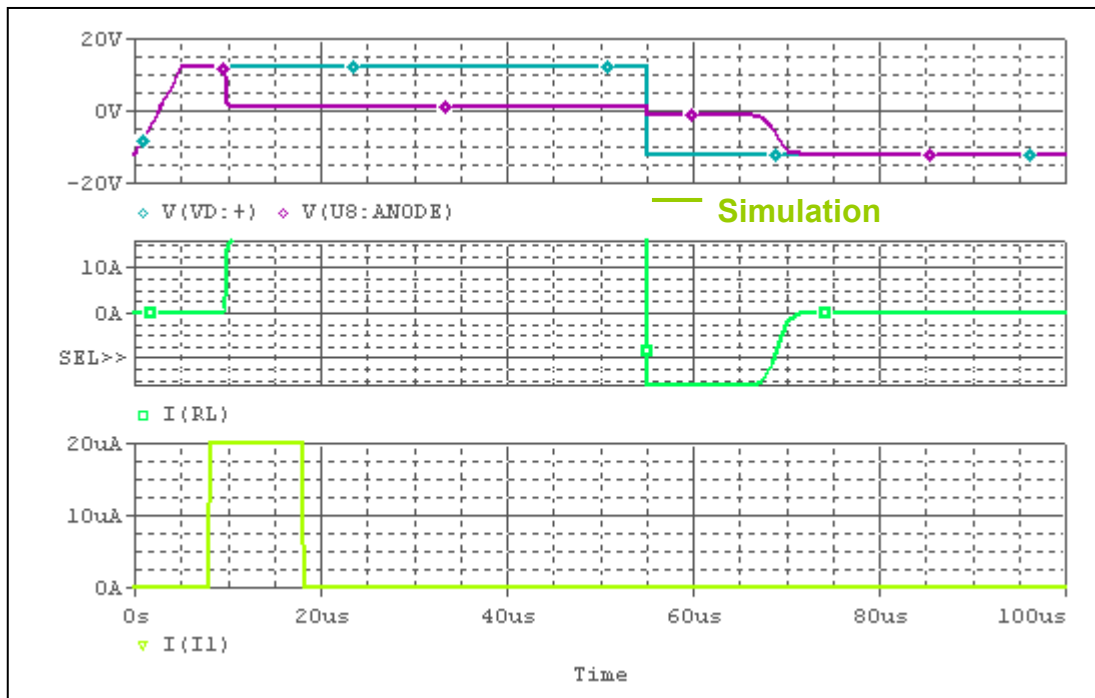
VD=12V	Measurement	Simulation	% Error
IH(mA)	1.0	1.0234	2.34000

Switching Time Characteristic

Evaluation Circuit



Simulation result



Comparison Table

	Measurement	Simulation	%Error
Ton(us)	2.0	2.0204	1.0200