

Device Modeling Report

COMPONENTS: THYRISTOR
PART NUMBER: 3P4J
MANUFACTURER: NEC CORPORATION



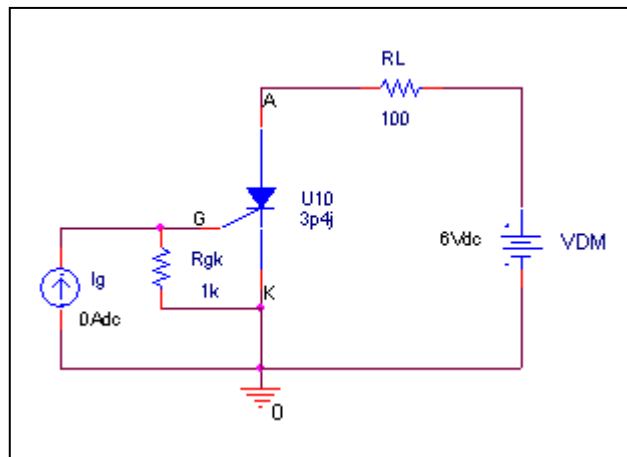
Bee Technologies Inc.

DIODE MODEL

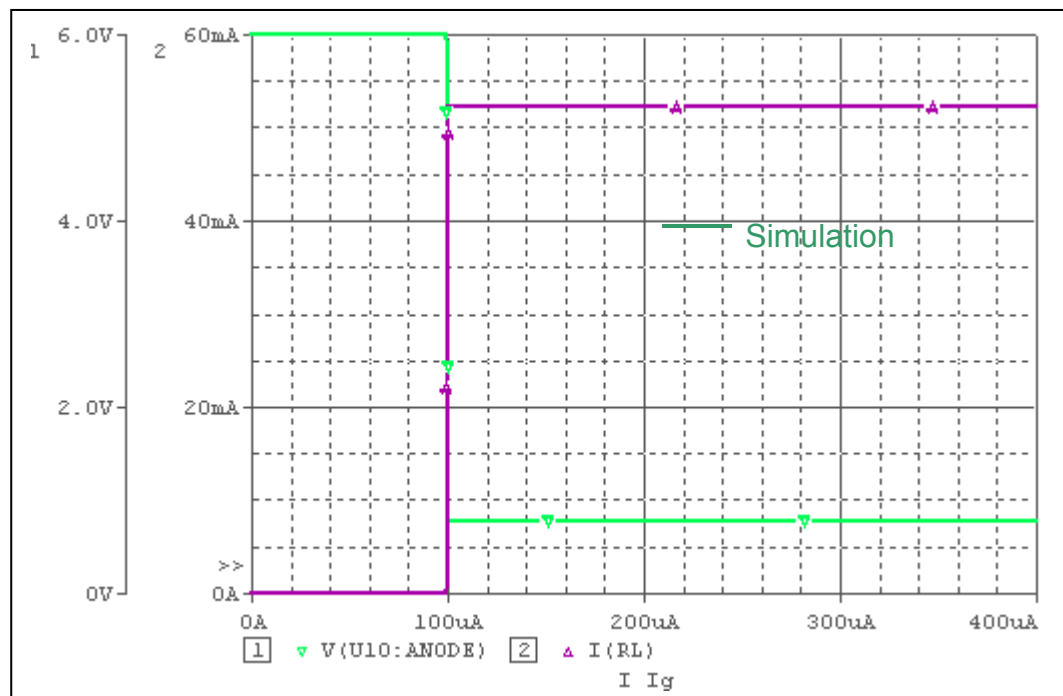
Pspice model Parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

IG-VT Characteristic

Evaluation Circuit



Simulation result

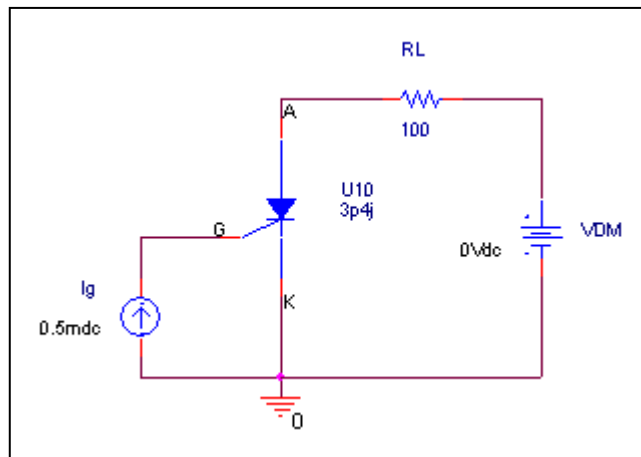


Comparison Table

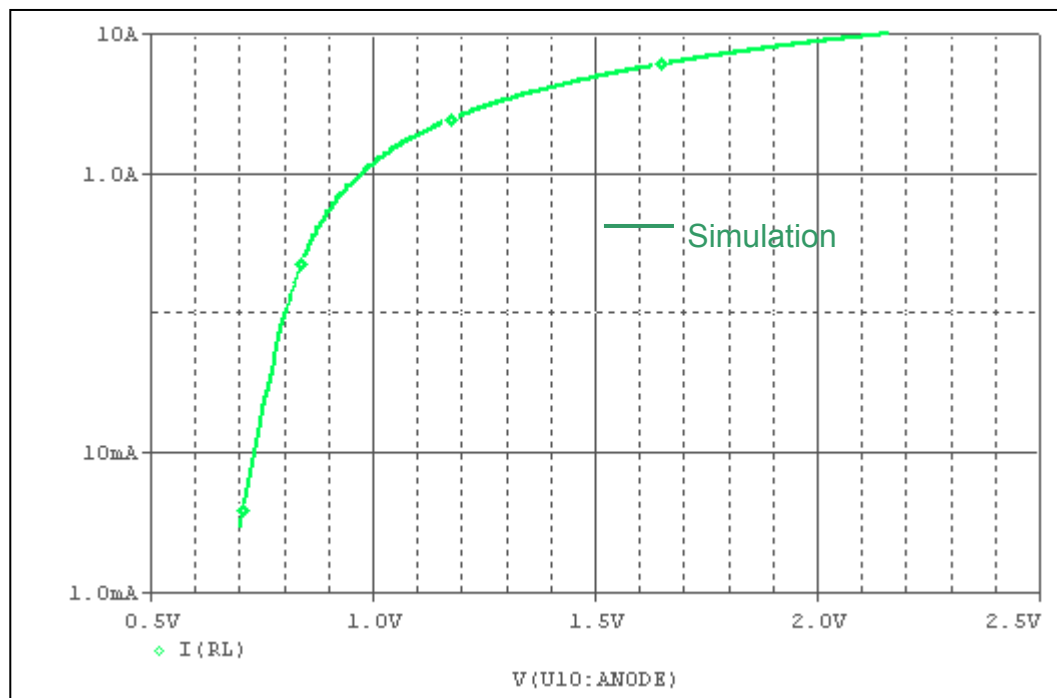
	Measurement	Simulation	% Error
IG (μA)	100(max)	99.048	0.9520
VT (V)	0.8(max)	0.779404	2.5745

ITM-VTM Characteristic

Evaluation Circuit



Simulation result

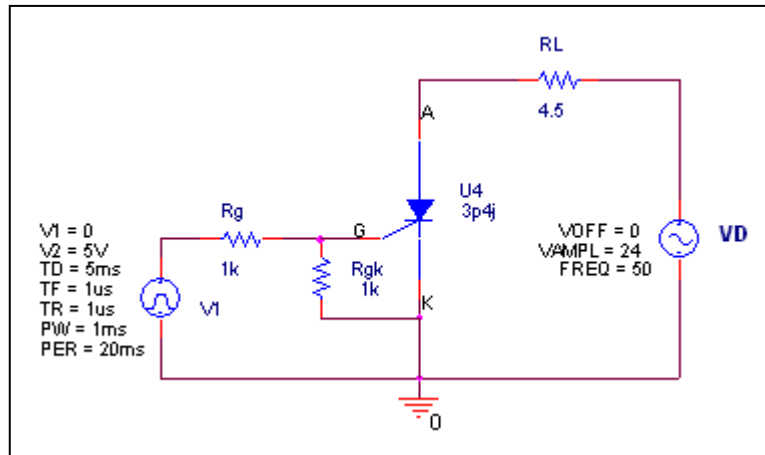


Comparison Table

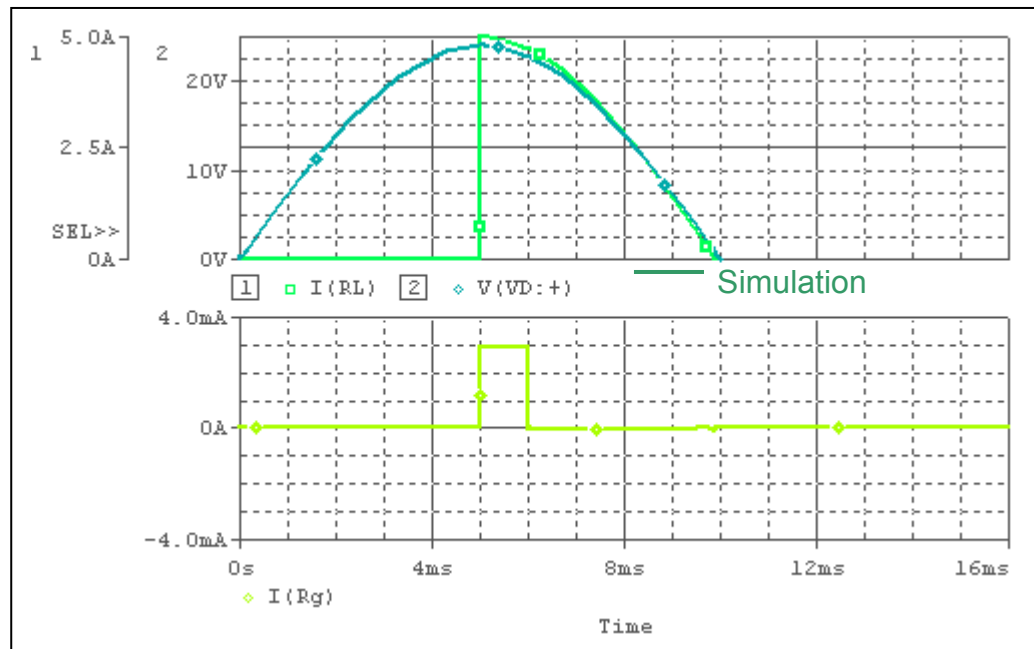
At ITM=4A	Measurement	Simulation	% Error
VTM(V)	1.4	1.3875	0.8929

Holding Characteristic (IH)

Evaluation Circuit



Simulation result



Comparison Table

$V_{DM}=24V, I_{TM}=5A$	Measurement	Simulation	% Error
$I_H(mA)$	5(max)	4.8479	3.0420