

Device Modeling Report

COMPONENTS: THYRISTOR
PART NUMBER: 8P4M
MANUFACTURER: NEC



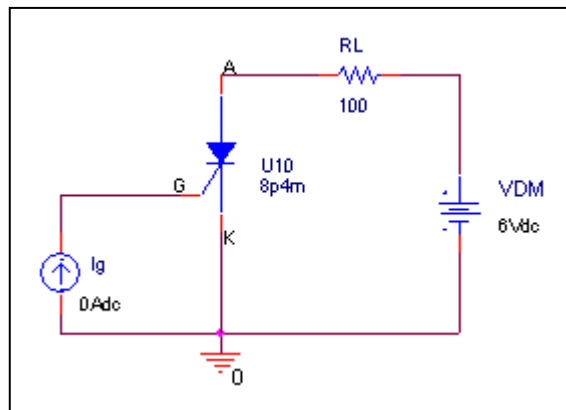
Bee Technologies Inc.

DIODE MODEL

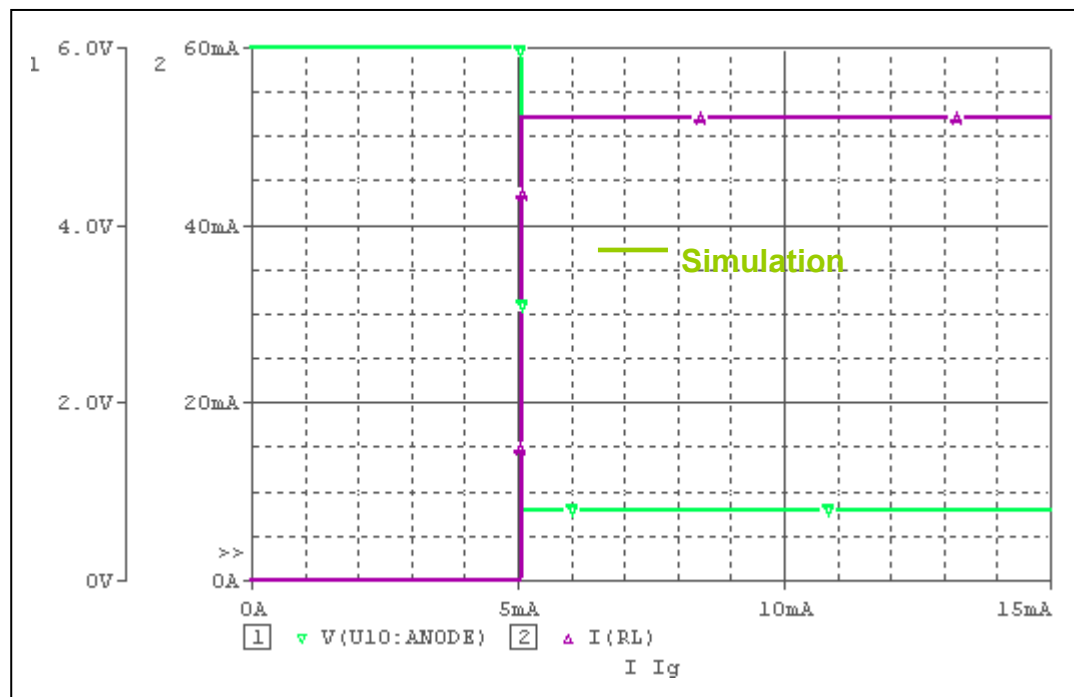
Pspice model Parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

IG-VT Characteristic

Evaluation Circuit



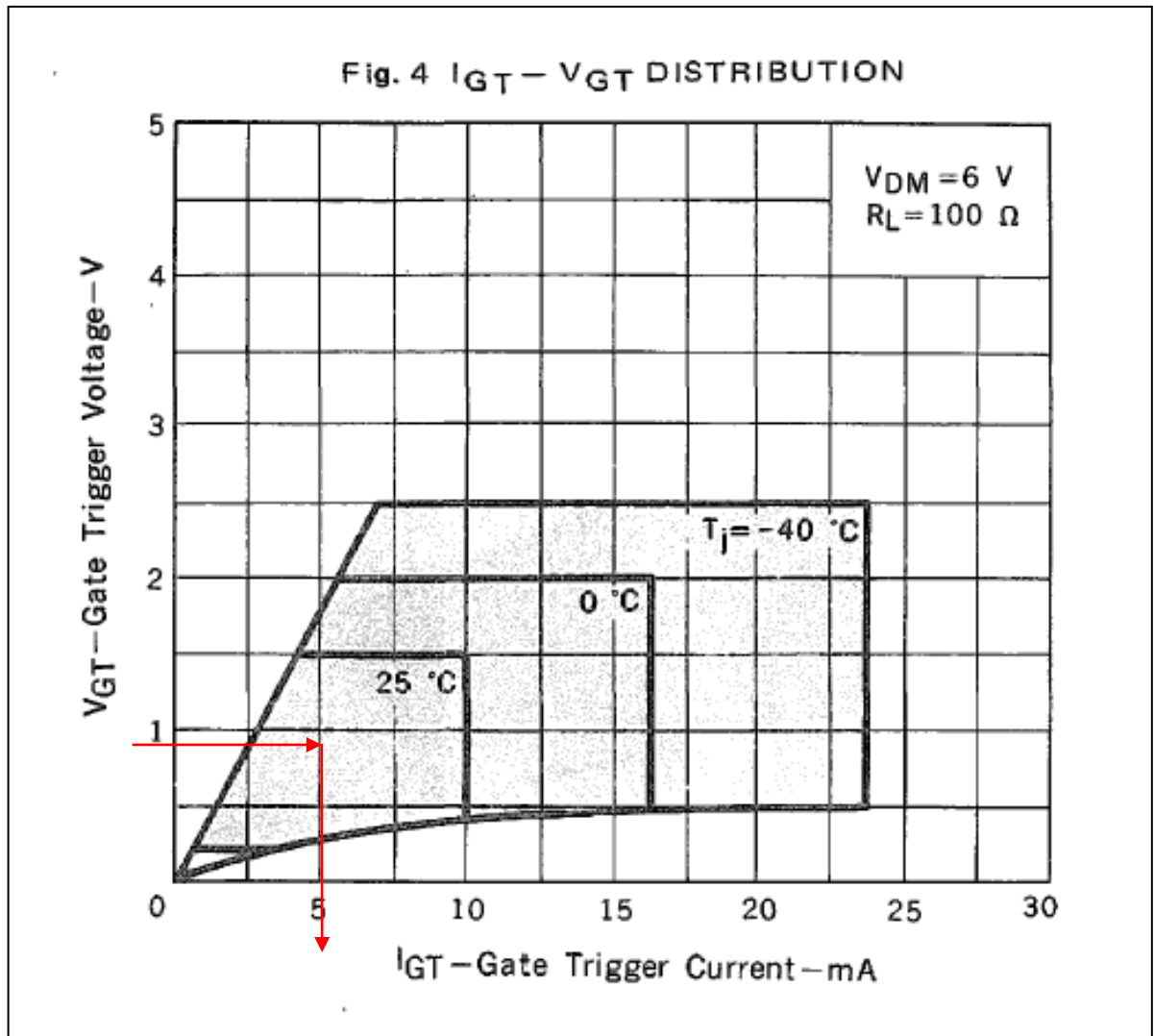
Simulation result



Comparison Table (** See Reference)

	Measurement	Simulation	% Error
I_{GT} (mA)	5	5.0357	-0.7140
V_{GT} (V)	0.8	0.793682	0.7898

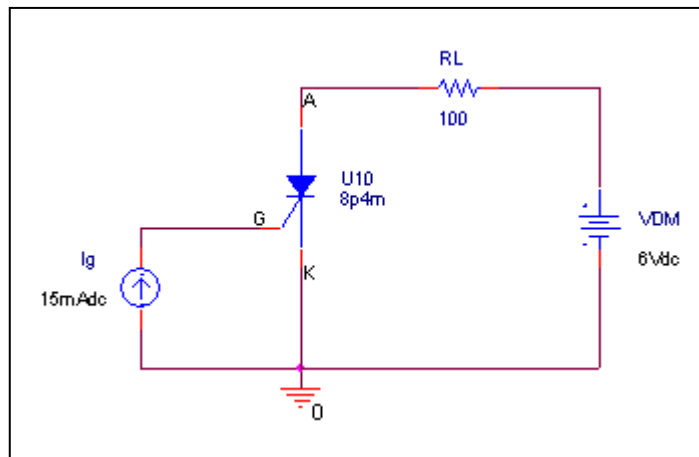
Reference



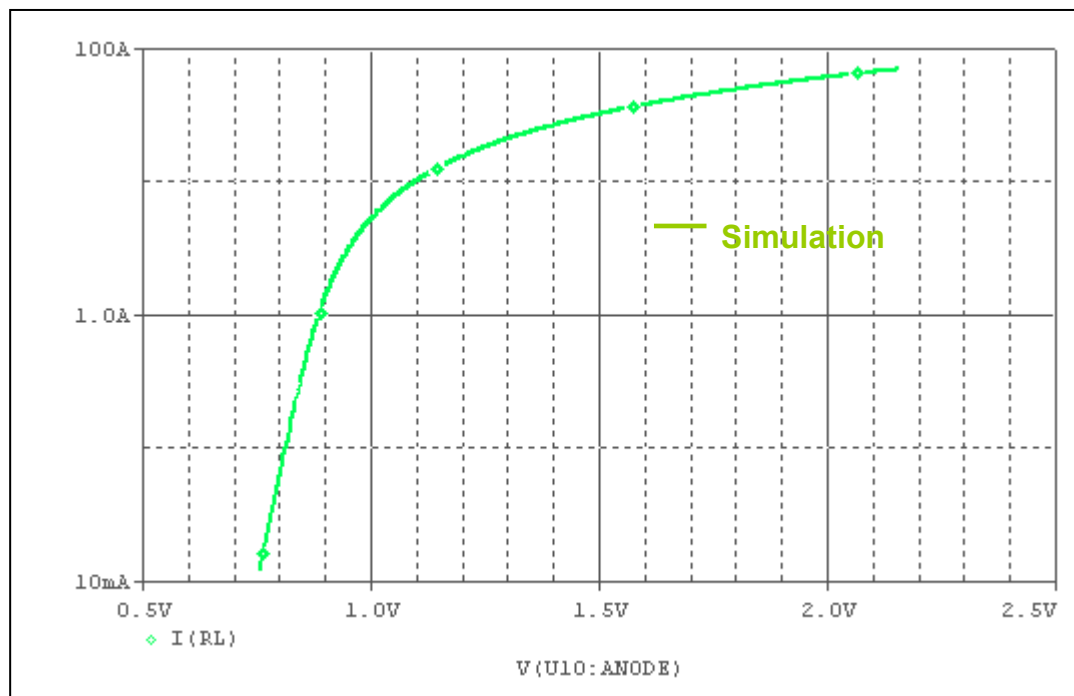
$$I_{GT} = 5 \text{ mA} \quad , \quad V_{GT} = 0.8 \text{ V}$$

ITM-VTM Characteristic

Evaluation Circuit



Simulation result

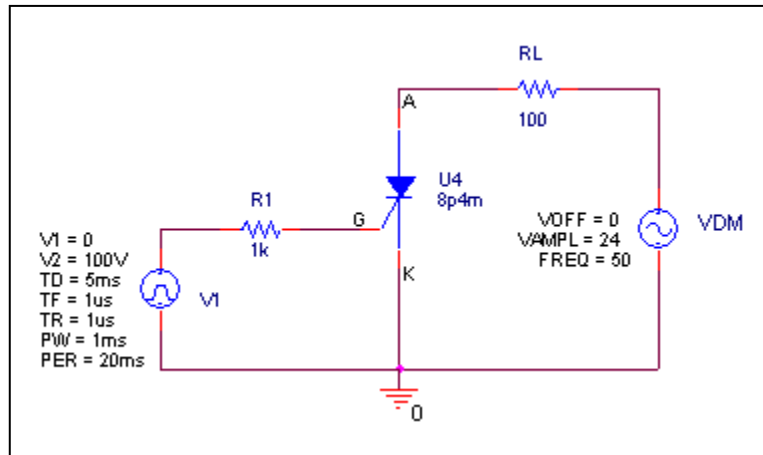


Comparison Table

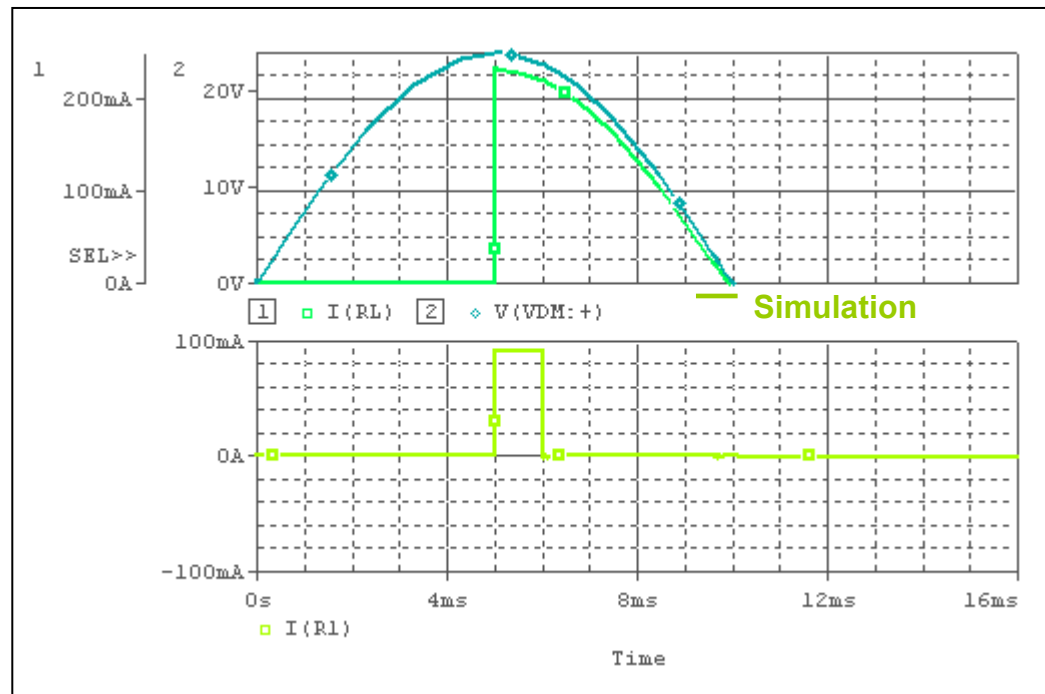
At ITM=25A	Measurement	Simulation	% Error
VTM(V)	1.4(max)	1.3732	1.9143

Holding Characteristic (IH)

Evaluation Circuit



Simulation result

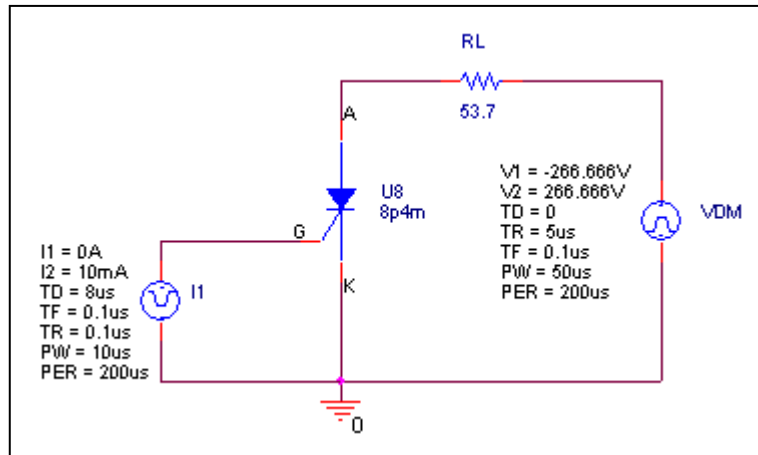


Comparison Table

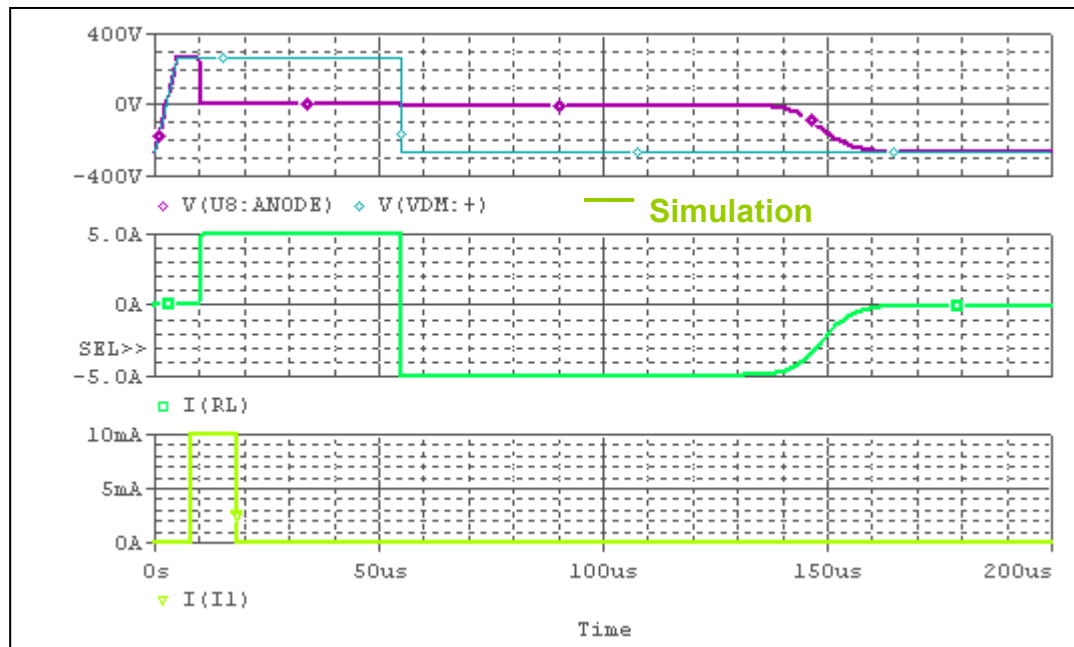
$V_D=24V$	Measurement	Simulation	% Error
$I_H(mA)$	6	5.9826	0.2900

Switching Time Characteristic

Evaluation Circuit



Simulation result



Comparison Table

	Measurement	Simulation	%Error
Toff(us)	100	101.979	-1.9790