

# Device Modeling Report

COMPONENTS: SHUNT REGULATOR  
PART NUMBER: uPC1093  
MANUFACTURER: NEC



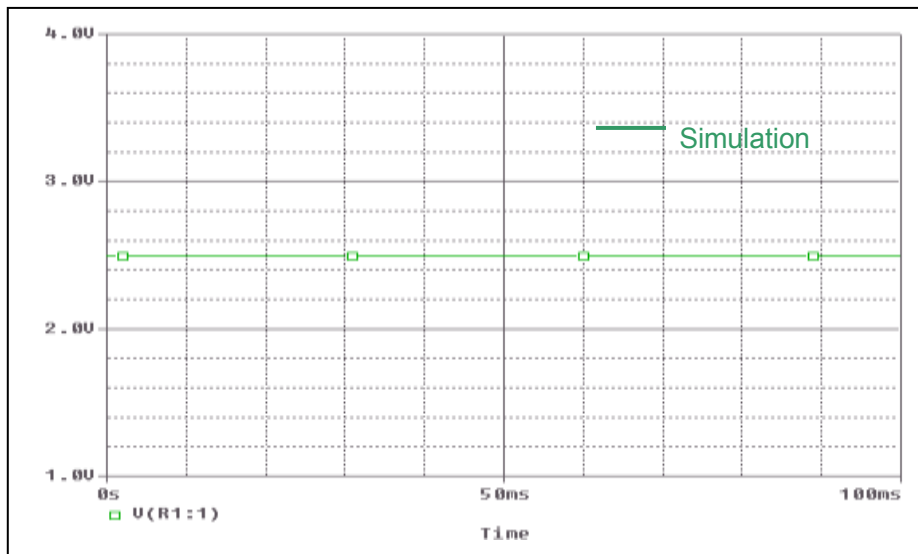
**Bee Technologies Inc.**

## DIODE

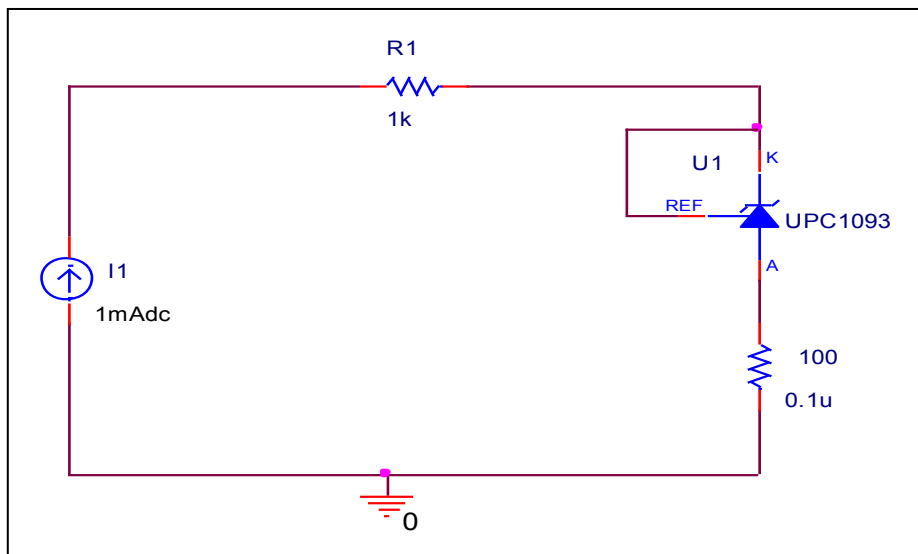
Pspice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

## VREF(Reference Voltage) Characteristic

### Simulation result



### Evaluation circuit

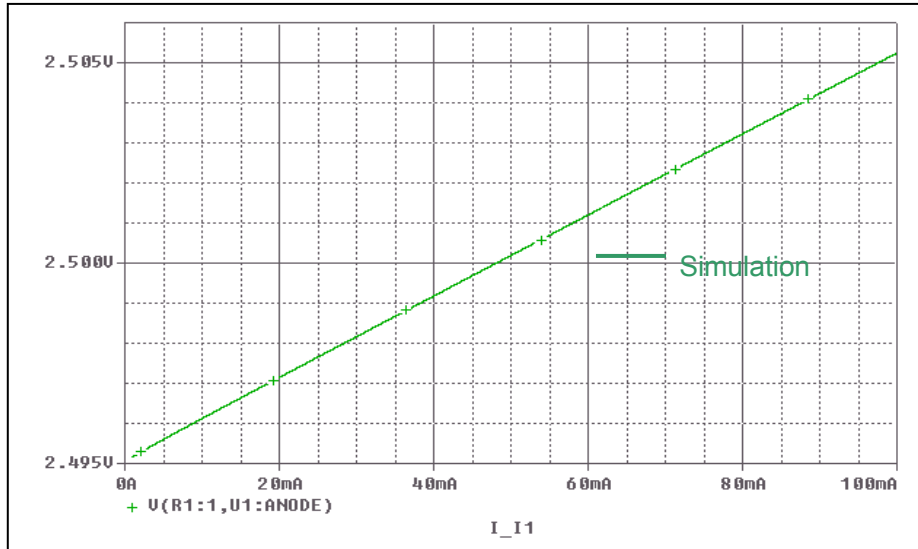


### Comparison Table

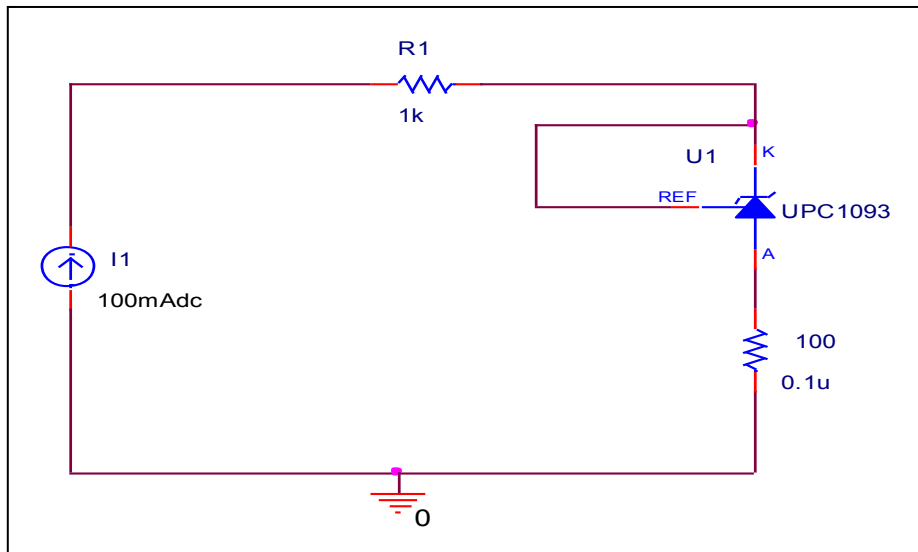
$V_{KA}=V_{REF}$	Data Sheet	Simulation	%Error
Vref (V)	2.495	2.4954	0.016

## ZKA(Dynamic Impedance) Characteristic

### Simulation result



### Evaluation circuit

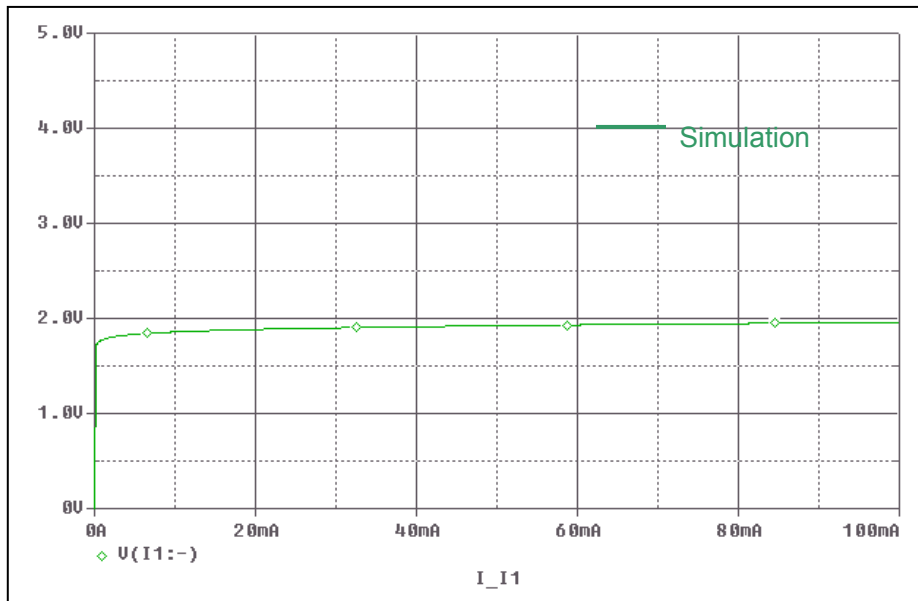


### Comparison Table

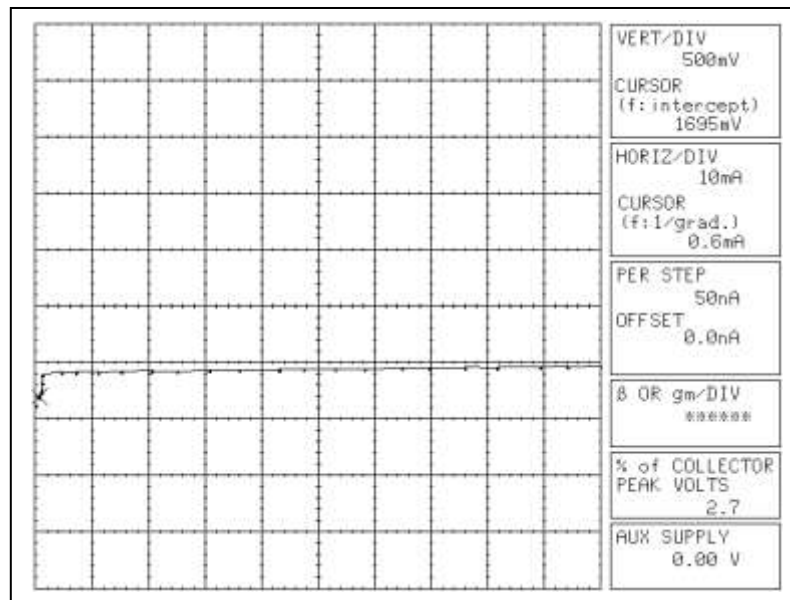
$V_{KA}=V_{REF}, I_k=1mA\sim 100mA$	Data Sheet	Simulation	%Error
$ ZKA  (\Omega)$	0.1	0.101647	1.647

## Output Characteristic

### Simulation result

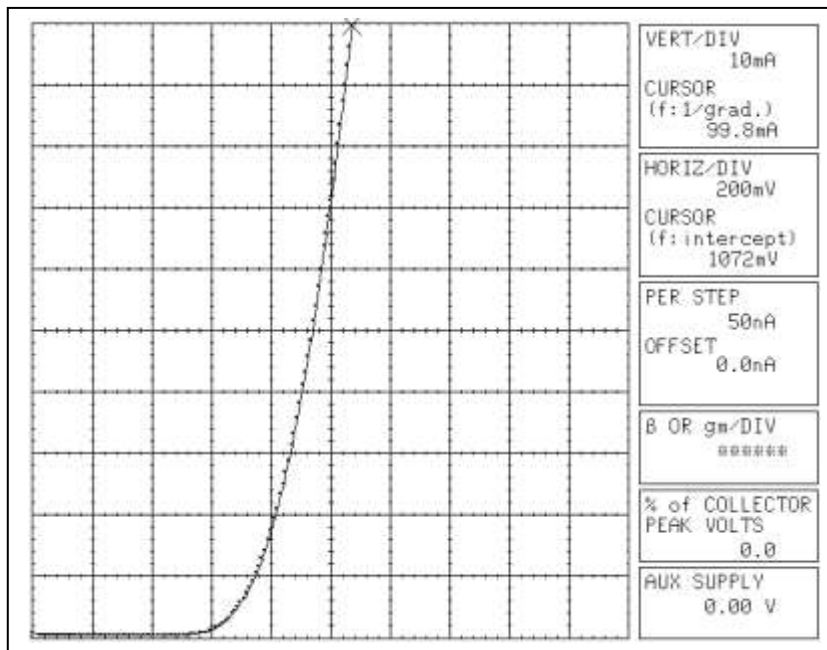


### Measurement



## Reference

### I-V Characteristic (D2)



### Reverse Characteristic (Breakdown Characteristic) (D2)

