

Device Modeling Report

COMPONENTS : VOLTAGE REGULATOR
PART NUMBER : uPC78M24A
MANUFACTURER : NEC Electronics Corporation



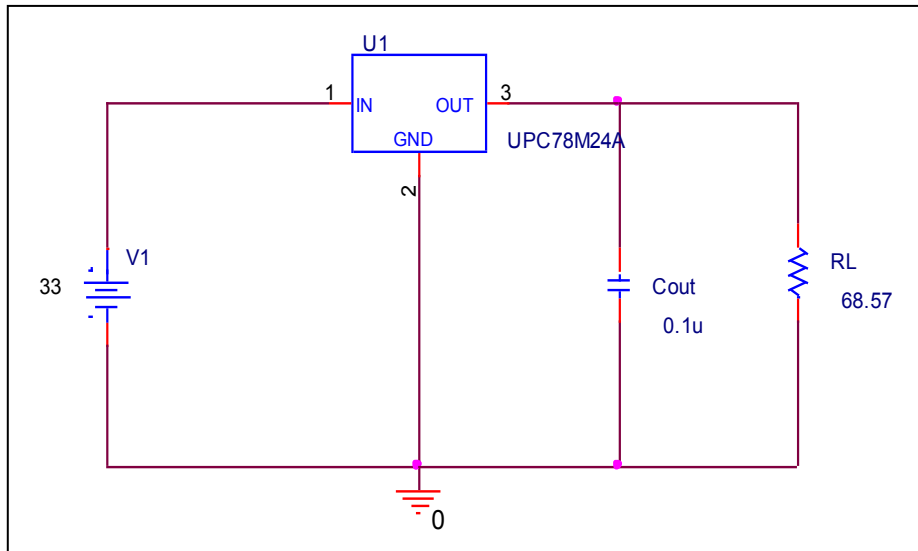
Bee Technologies Inc.

MODEL PARAMETER

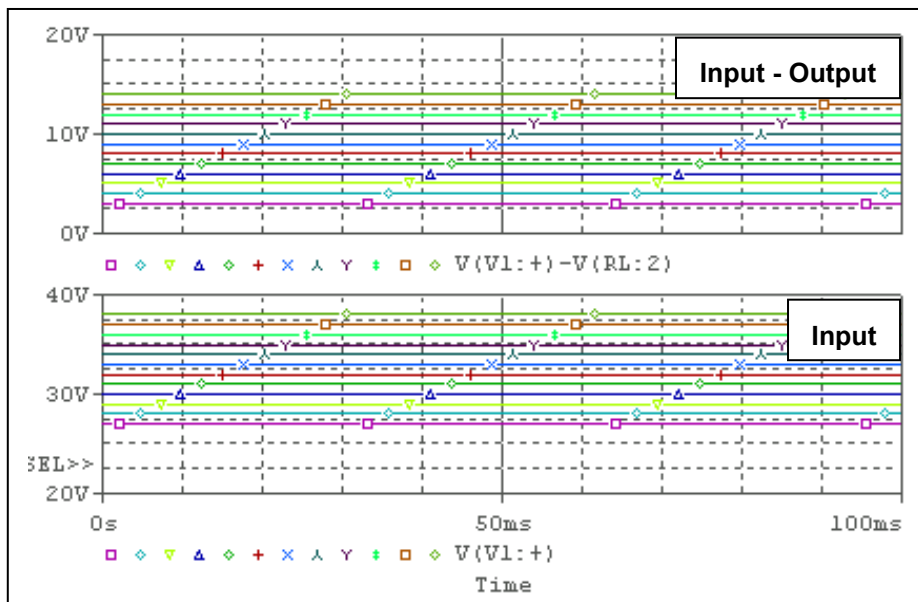
Pspice model parameter	Model description
VREF	Reference Voltage
N	Emission Coefficient
BETA	Tranconductance of JFET Transistor
VAF	Early Voltage of Output Pass Transistor
CPZ	Output Impedance Zero Capacitor
RB2	Base Resistance of Output Limit Voltage Source
ESC1	Coefficient of Current Limit Voltage Source
ESC2	Coefficient of Current Limit Voltage Source
EFB1	Coefficient of Foldback Current Voltage Source
EFB2	Coefficient of Foldback Current Voltage Source
EFB3	Coefficient of Foldback Current Voltage Source
EB	Non-ideal Base-Collector Diode Saturation Current

Input-Output Voltage Differential Characteristic

Evaluation Circuit



Simulation result

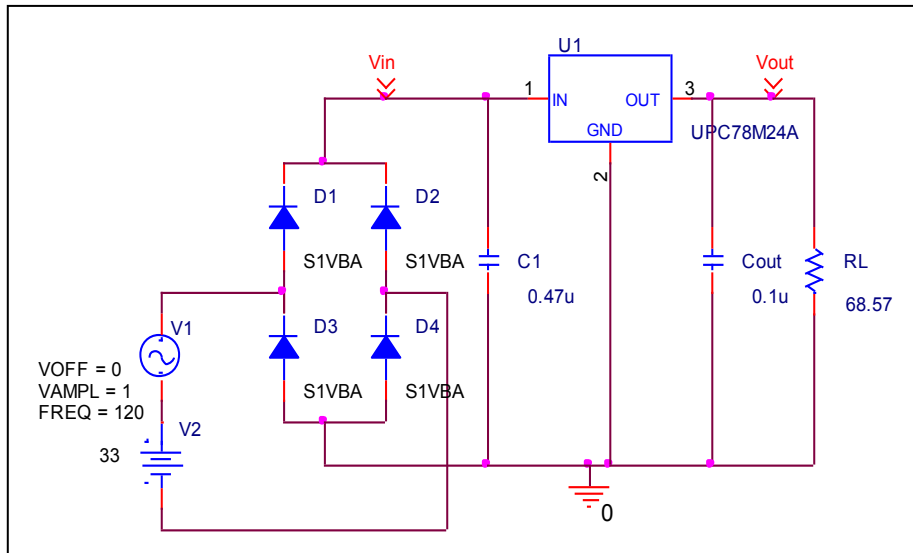


Example

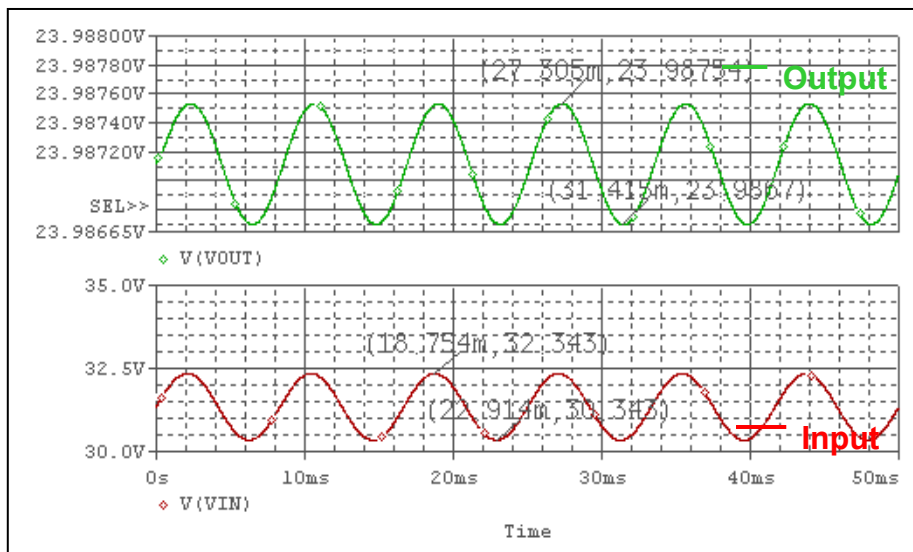
$V_{IN} - V_{OUT}$	Measurement	Simulation	% Error
33 (V) – 24 (V)	9 (V)	9.0122 (V)	0.136

Ripple Rejection (R•R) Characteristic

Evaluation Circuit



Simulation result

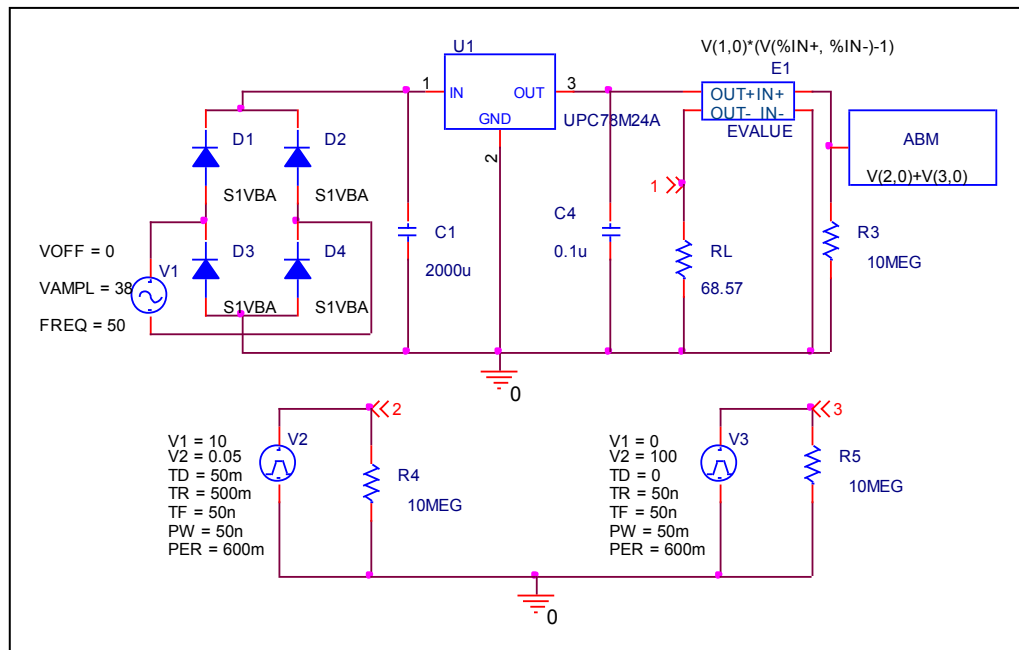


Comparison Table

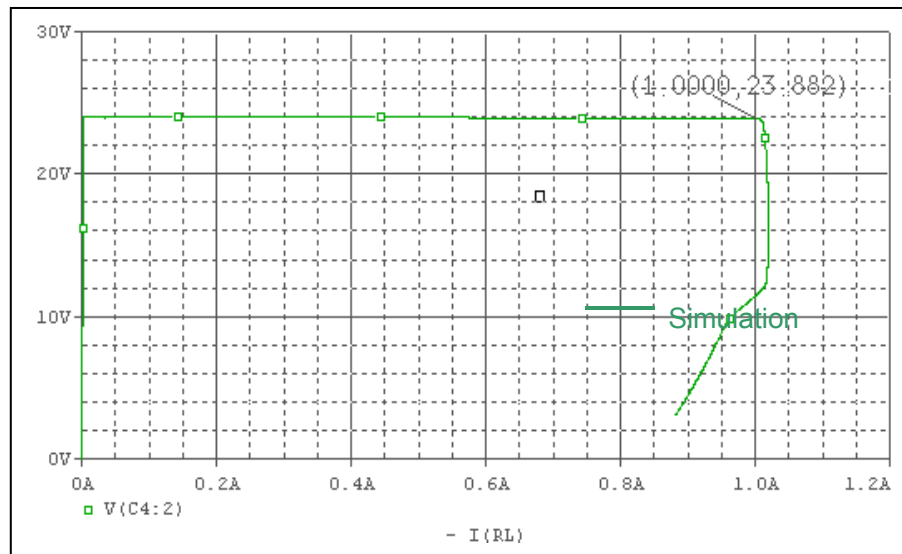
Ripple rejection ratio (dB)	Measurement	Simulation	% Error
	68	67.535	-0.684

Output Characteristic

Evaluation Circuit



Simulation result



Comparison Table

Output Voltage (V)	Measurement	Simulation	% Error
	24	23.882	-0.492