

Device Modeling Report

COMPONENTS:

DIODE/GENERAL PURPOSE RECTIFIER/ PORFESSIONAL

PART NUMBER: UF5408

MANUFACTURER: VISHAY

REMARK: TC=25C

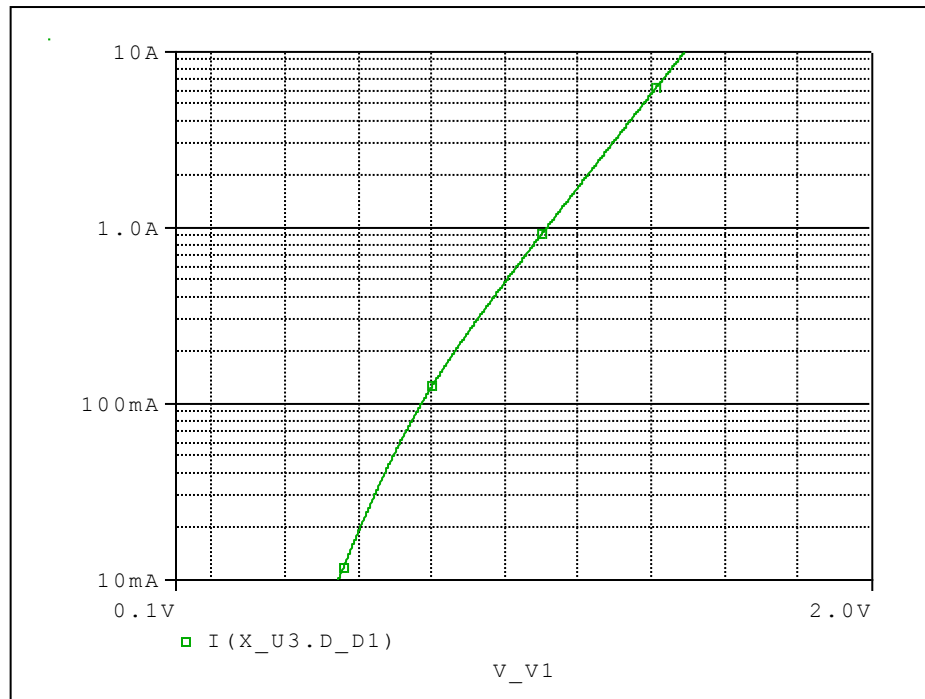


Bee Technologies Inc.

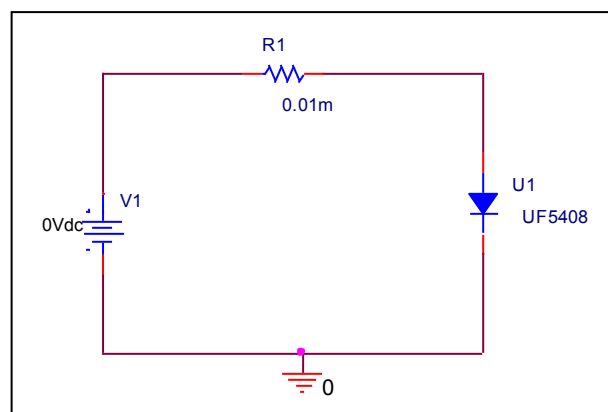
Pspice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit simulation result

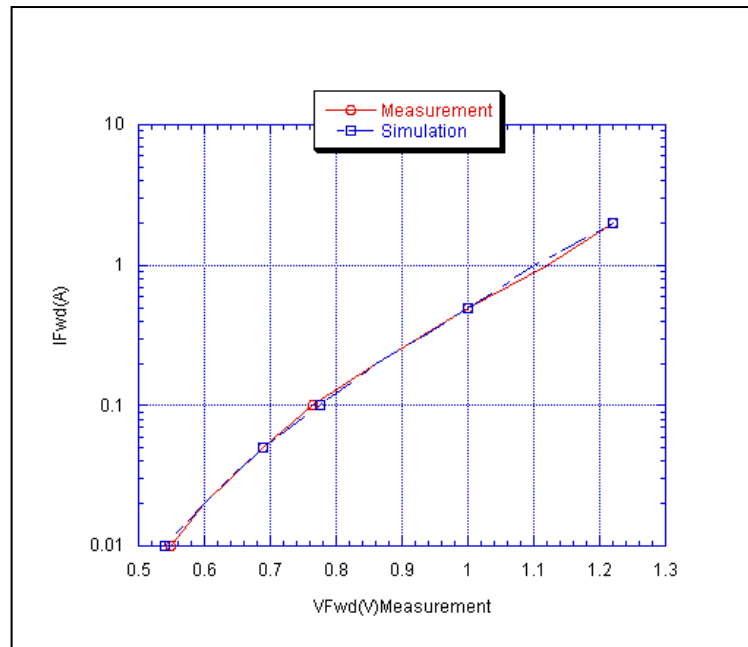


Evaluation circuit



Comparison graph

Circuit simulation result

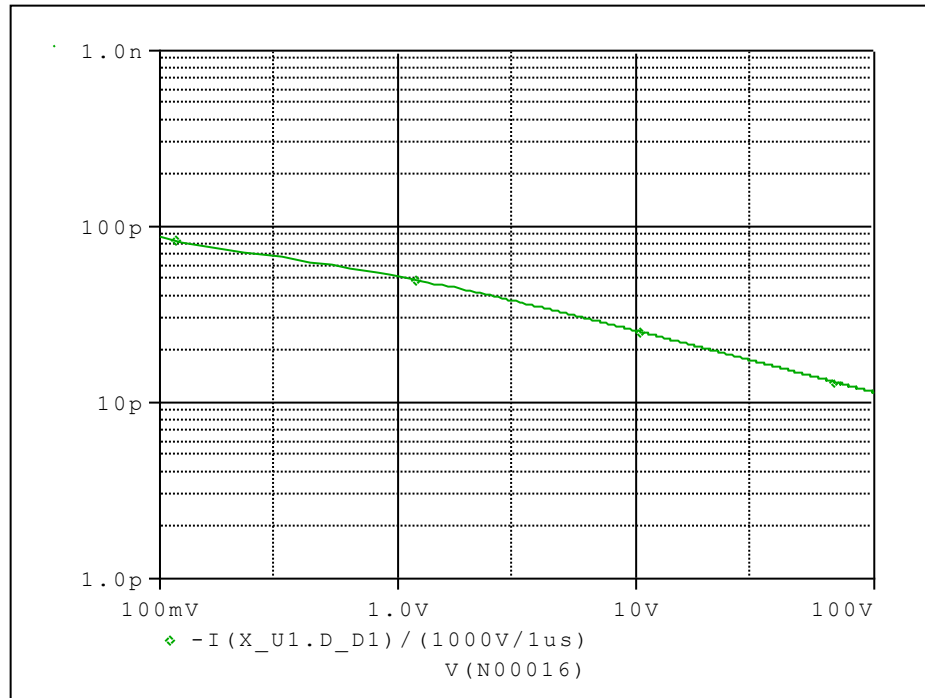


Simulation result

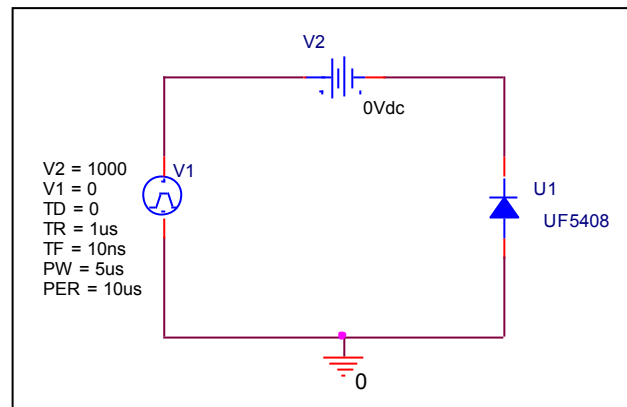
IF (A)	VF (V)		Error (%)
	Measurement	Simulation	
0.01	0.550	0.540	1.82
0.02	0.600	0.590	1.67
0.05	0.690	0.689	0.14
0.1	0.765	0.775	-1.31
0.2	0.860	0.850	1.16
0.5	1.000	0.990	1.00
1	1.120	1.100	1.79
2	1.220	1.210	0.82

Junction Capacitance Characteristic

Circuit simulation result

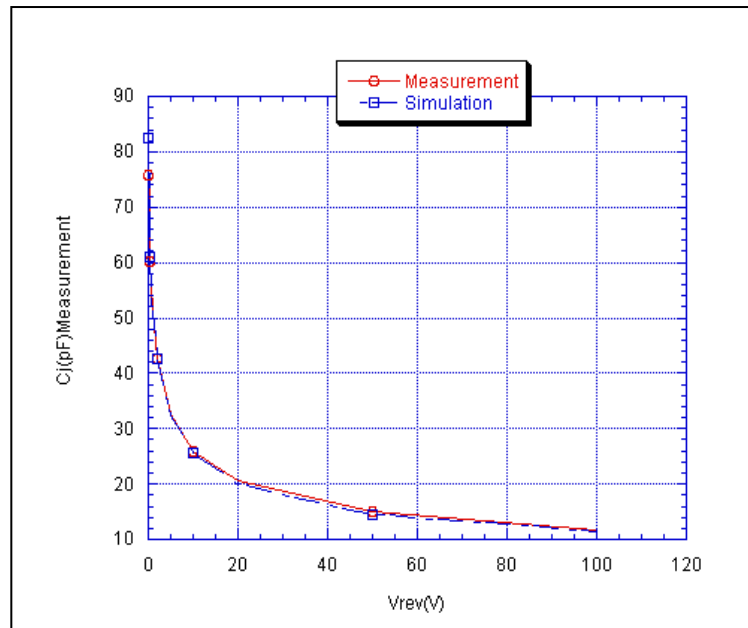


Evaluation circuit



Comparison graph

Circuit simulation result

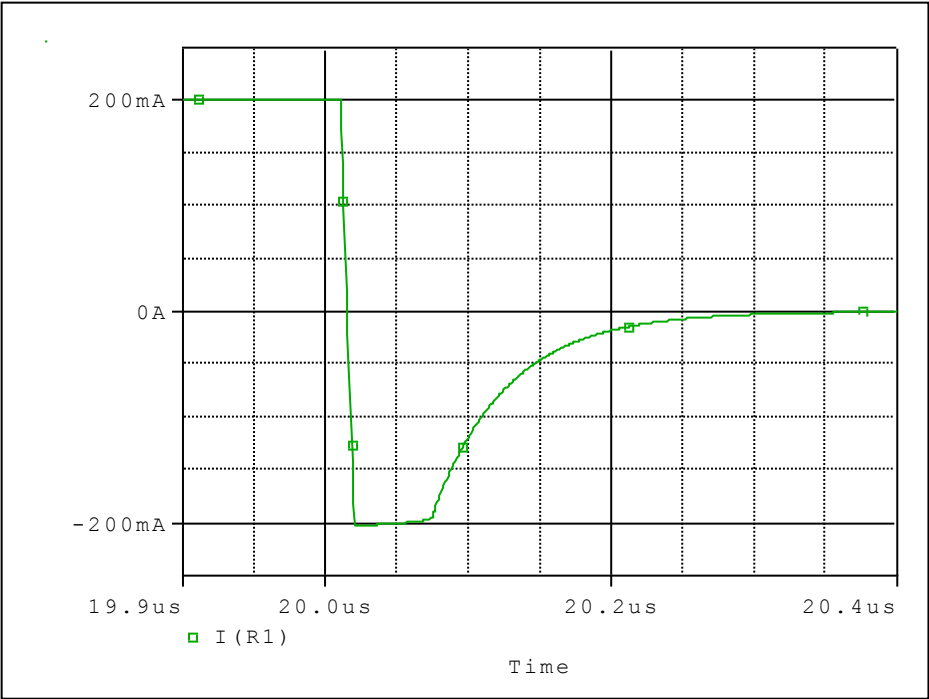


Simulation result

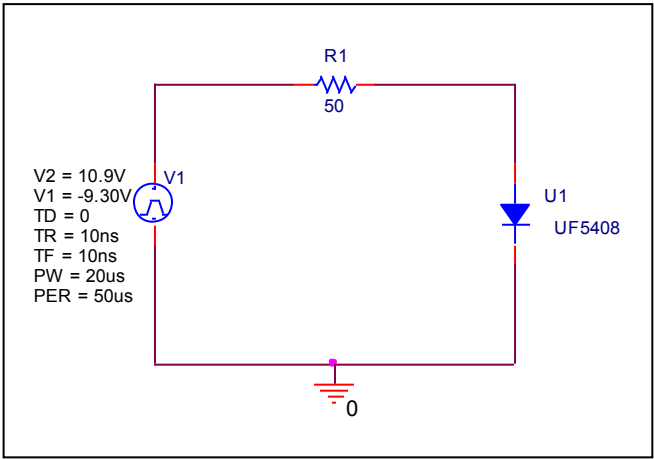
Vrev(V)	Cj(pF)		Error (%)
	Measurement	Simulation	
0.1	75.800	82.400	-8.71
0.2	70.700	74.300	-5.09
0.5	60.300	61.100	-1.33
1	51.600	51.100	0.97
2	42.700	42.600	0.23
5	32.500	32.300	0.62
10	26.000	25.600	1.54
20	20.600	20.100	2.43
50	15.000	14.500	3.33
100	11.660	11.400	2.23

Reverse Recovery Characteristic

Circuit simulation result



Evaluation circuit

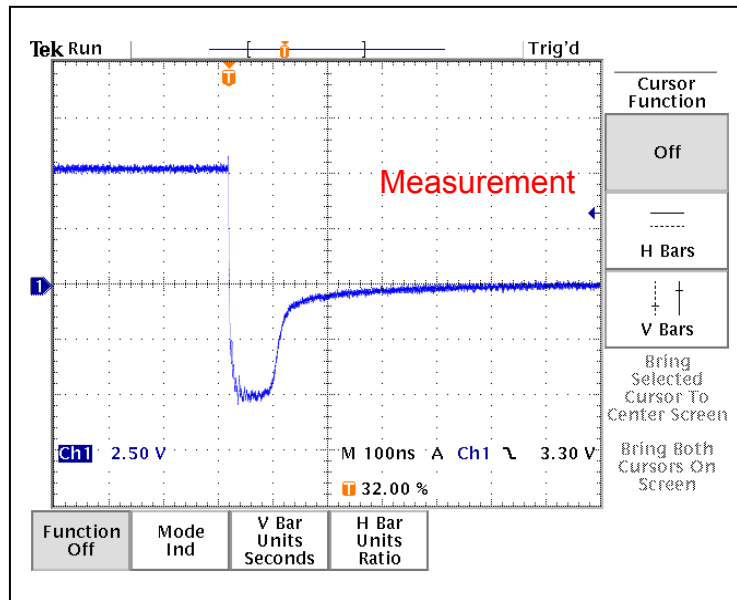


Compare Measurement VS. Simulation

	Measurement		Simulation		%Error
trj	58.00	ns	57.98	ns	0.03
trb	120.00	ns	120.20	ns	0.16

Reverse Recovery Characteristic

Reference



$tr_j = 58(\text{ns})$

$tr_b = 120(\text{ns})$

Conditions: $I_{fwd} = I_{rev} = 0.2(\text{A})$, $R_I = 50$

