

Device Modeling Report

COMPONENTS:

DIODE/GENERAL PURPOSE RECTIFIER/ PROFESSIONAL

PART NUMBER: UF5402

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REMARK: TC=25C

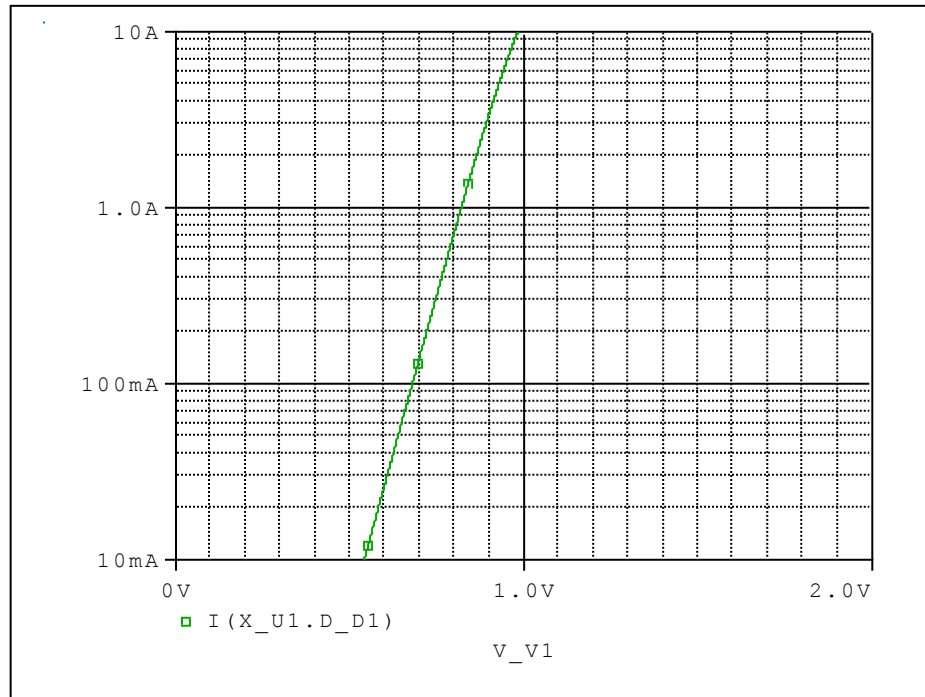


Bee Technologies Inc.

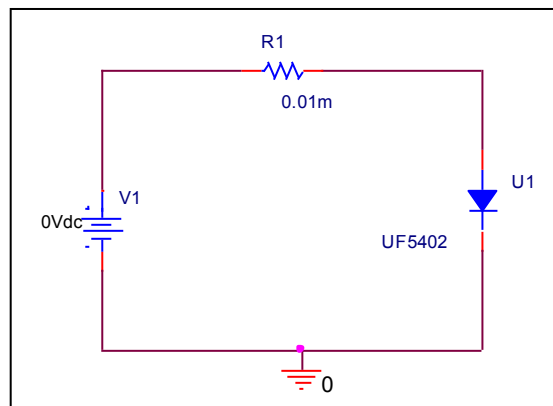
Pspice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

Forward Current Characteristic

Circuit simulation result

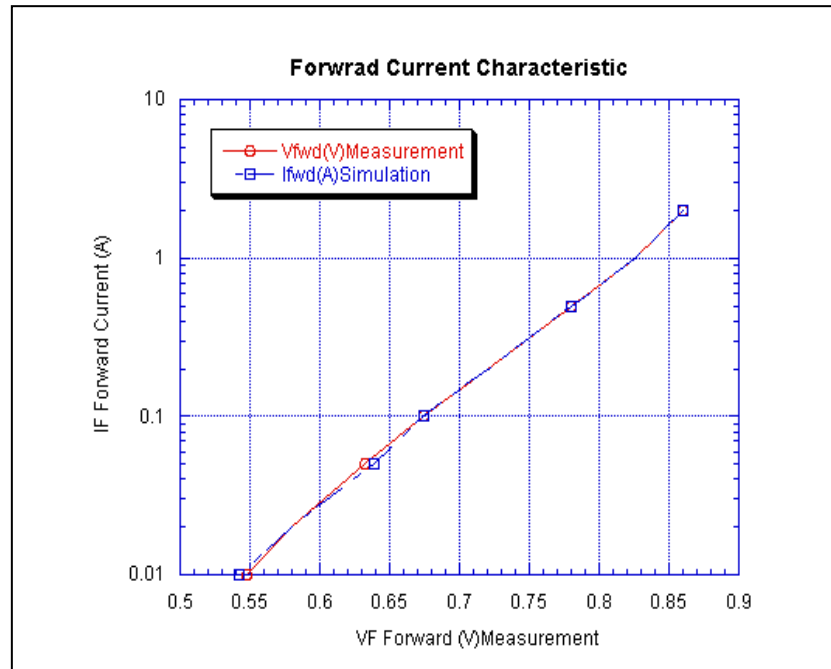


Evaluation circuit



Comparison graph

Circuit simulation result

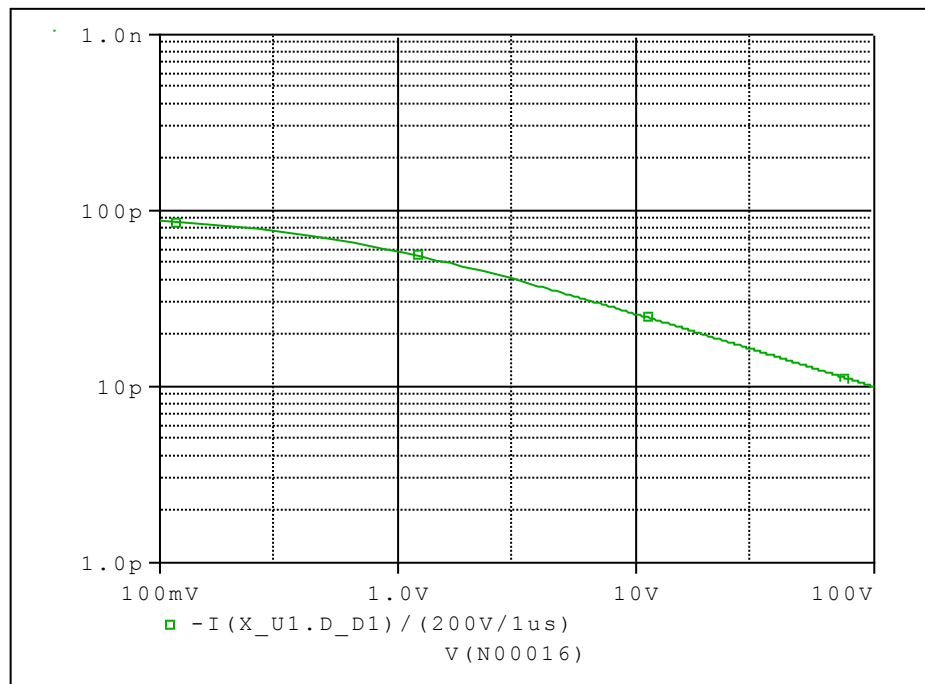


Simulation Result

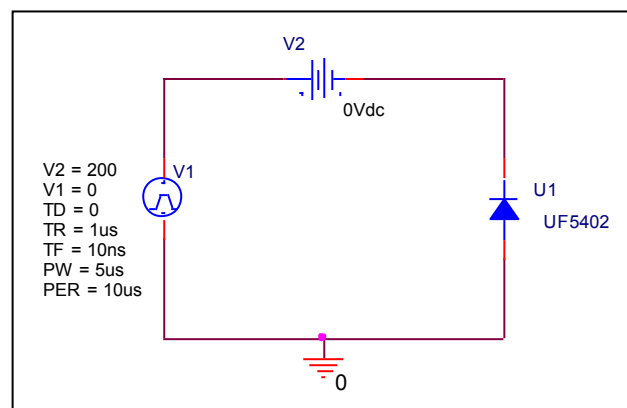
IFwd (A)	VFwd (V)		Error (%)
	Measurement	Simulation	
0.01	0.548	0.542	1.09
0.02	0.580	0.580	0.00
0.05	0.632	0.639	-1.11
0.1	0.674	0.673	0.07
0.2	0.720	0.721	-0.15
0.5	0.780	0.775	0.64
1	0.826	0.824	0.24
2	0.860	0.858	0.23

Junction Capacitance Characteristic

Circuit simulation result

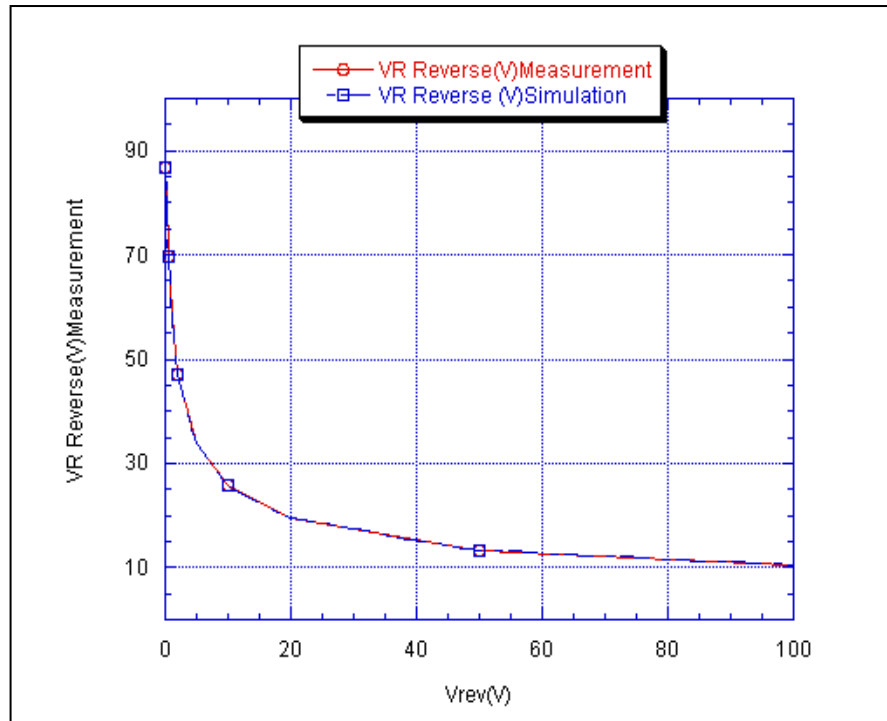


Evaluation circuit



Comparison graph

Circuit simulation result

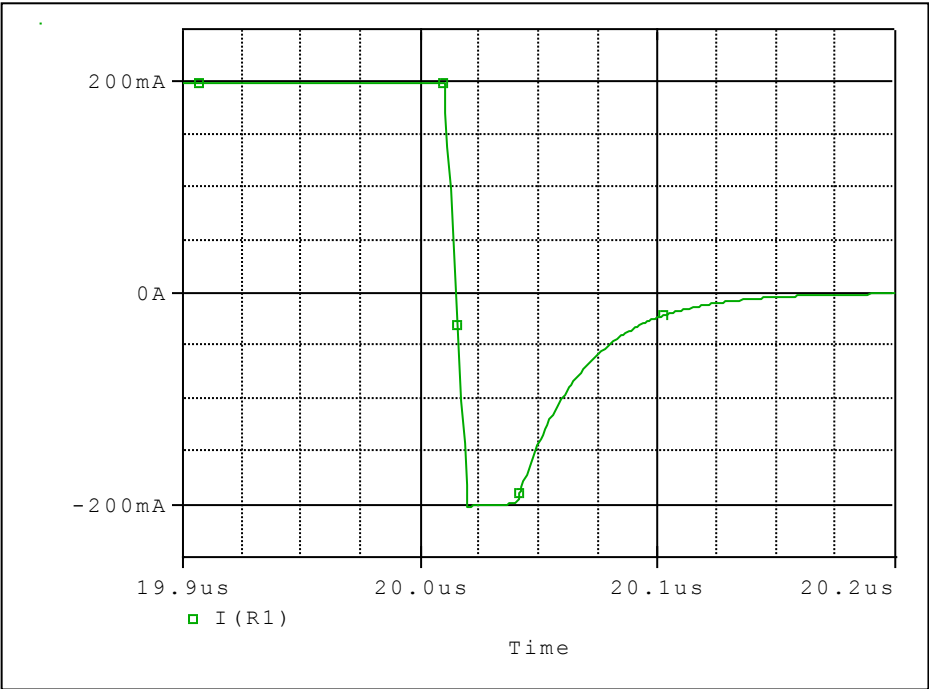


Circuit simulation result

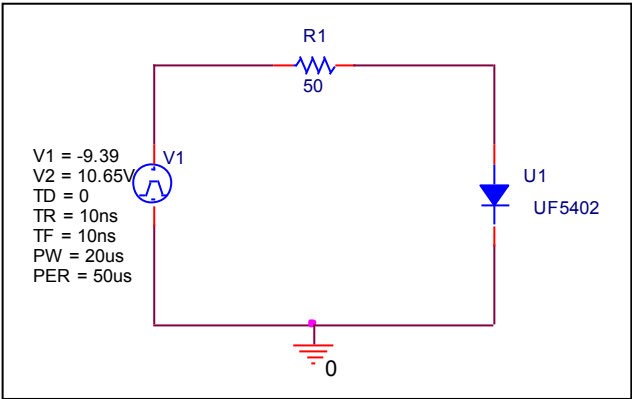
Vrev(V)	Cj(pF)		Error (%)
	Measurement	Simulation	
0.1	93.649	94.118	-0.50
0.2	87.910	87.843	0.08
0.5	74.830	74.902	-0.10
1	62.942	61.961	1.56
2	50.297	49.800	0.99
5	35.682	35.686	-0.01
10	26.867	26.863	0.01
20	20.104	20.200	-0.48
50	13.694	13.661	0.24
100	10.290	9.980	3.01

Reverse Recovery Characteristic

Circuit simulation result



Evaluation circuit

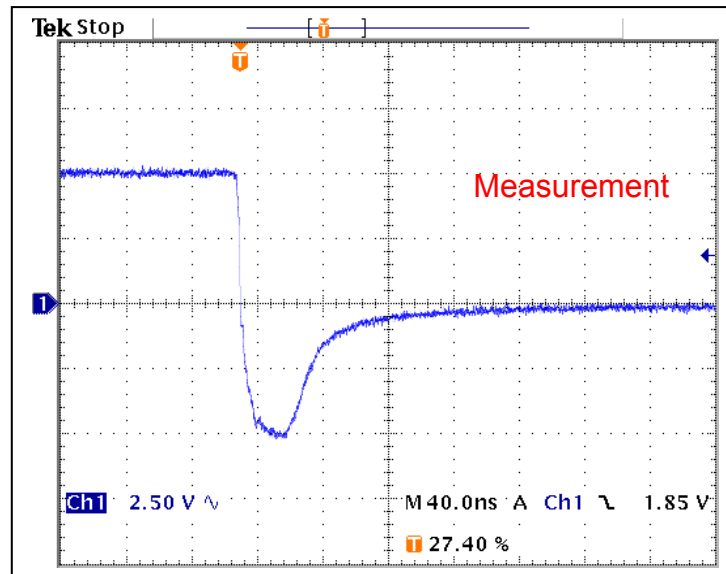


Measurement VS . Simulation

	Measurement		Simulation		%Error
trj	25.60	ns	25.59	ns	0.039
trb	63.20	ns	62.91	ns	0.458

Reverse Recovery Characteristic

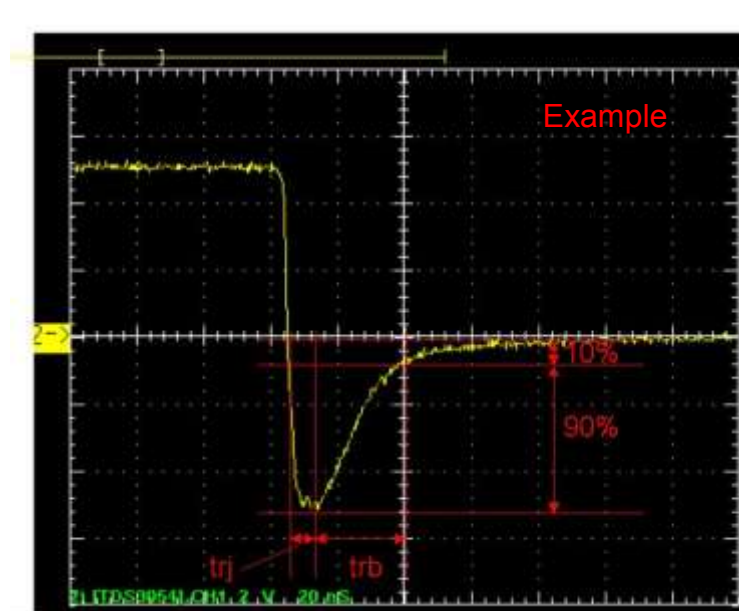
Reference



$tr_j = 25.6(\text{ns})$

$tr_b = 63.2(\text{ns})$

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



Relation between tr_j and tr_b