Device Modeling Report

COMPONENTS: Light-Emitting Diode (LED) Professional
PART NUMBER: EFR5365S
MANUFACTURER: STANLEY
REMARK: 25 degree C

Bee Technologies Inc.

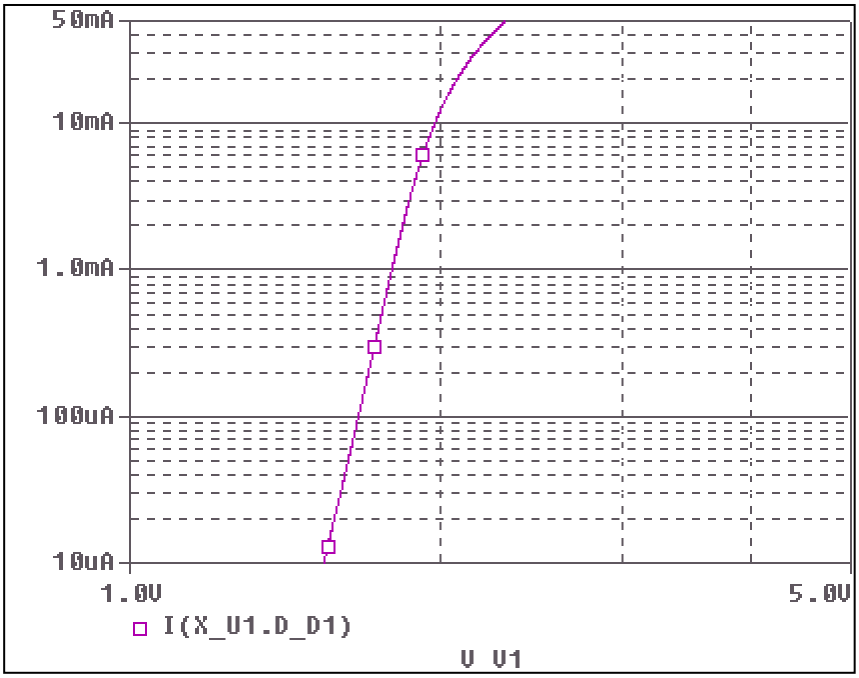
All Rights Reserved Copyright (C) Bee Technologies Inc. 2005

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

All Rights Reserved Copyright (C) Bee Technologies Inc. 2005

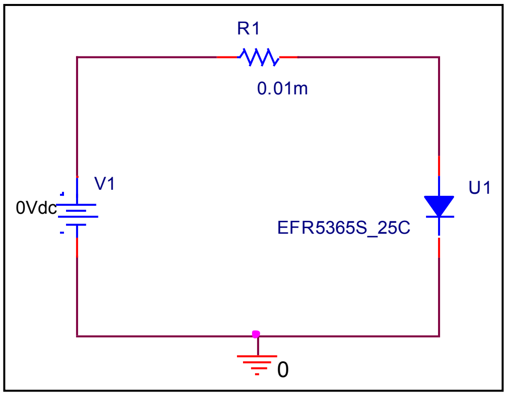
Forward Current Characteristic

Circuit simulation result



‘

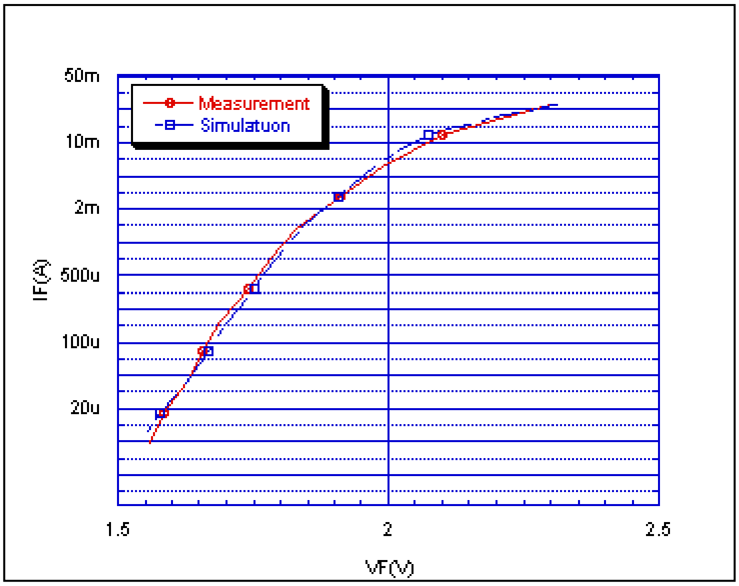
Evaluation circuit



All Rights Reserved Copyright (C) Bee Technologies Inc. 2005

Comparison graph

Circuit simulation result



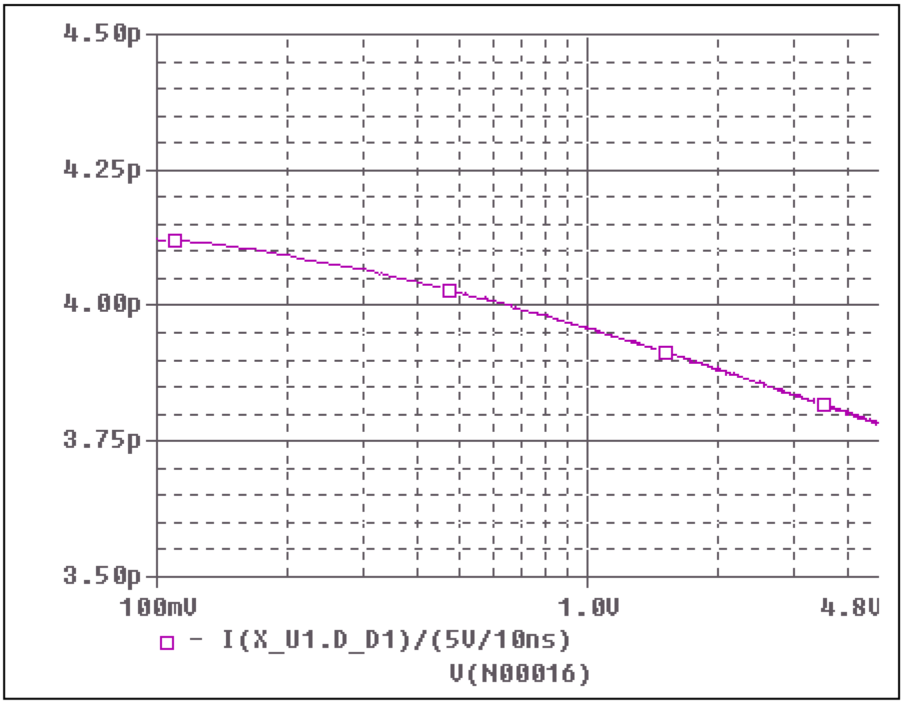
Simulation Result

IF(A)	VF(V)		
	Measurement	Simulation	Error (%)
10u	1.56	1.5402	1.269231
20u	1.585	1.5782	0.429022
50u	1.625	1.6264	0.086154
100u	1.655	1.6655	0.634441
200u	1.69	1.7023	0.727811
500u	1.74	1.7529	0.741379
1m	1.78	1.7943	0.803371
2m	1.83	1.8379	0.431694
5m	1.91	1.9058	0.219895
10m	1.99	1.9747	0.768844
20m	2.1	2.0759	1.147619
50m	2.3	2.3126	0.547826

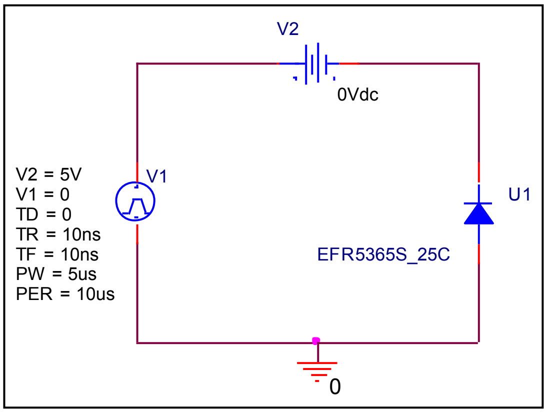
All Rights Reserved Copyright (C) Bee Technologies Inc. 2005

Junction Capacitance Characteristic

Circuit simulation result



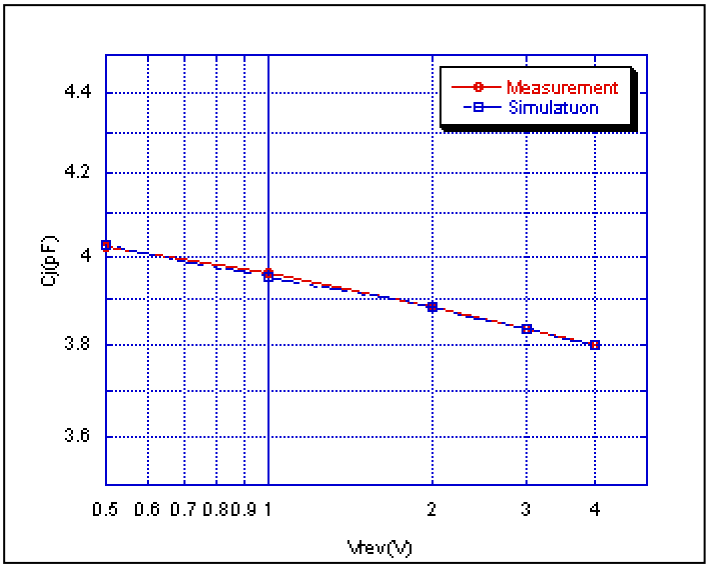
Evaluation circuit



All Rights Reserved Copyright (C) Bee Technologies Inc. 2005

Comparison graph

Circuit simulation result



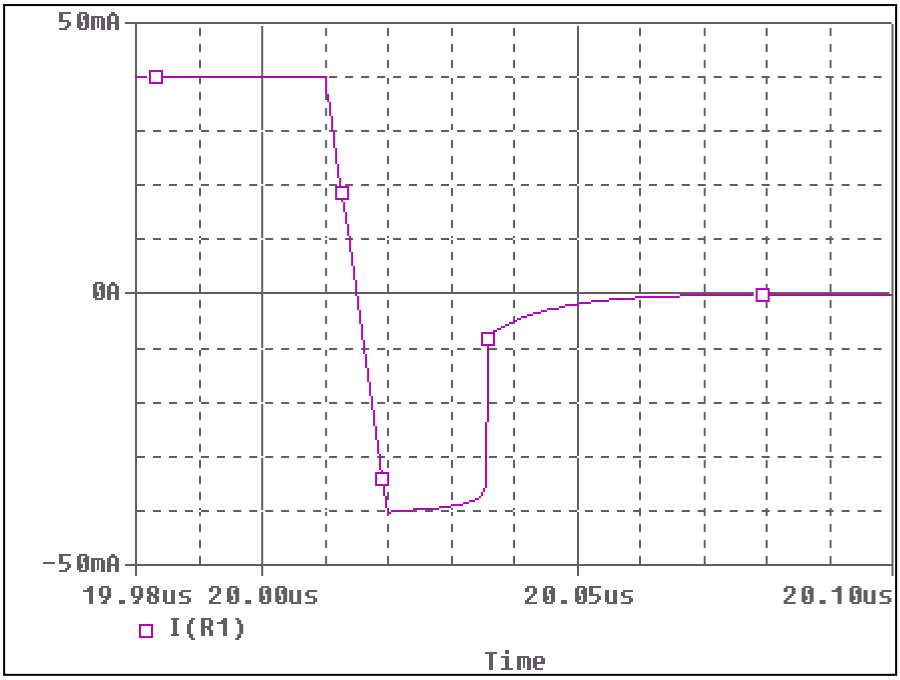
Simulation Result

	Cj(pF)		
Vrev(V)	Measurement	Simulation	Error (%)
0.5	4.023	4.0274	0.109371
1	3.962	3.9538	0.206966
2	3.884	3.8823	0.043769
3	3.834	3.8344	0.010433
4	3.798	3.799	0.02633

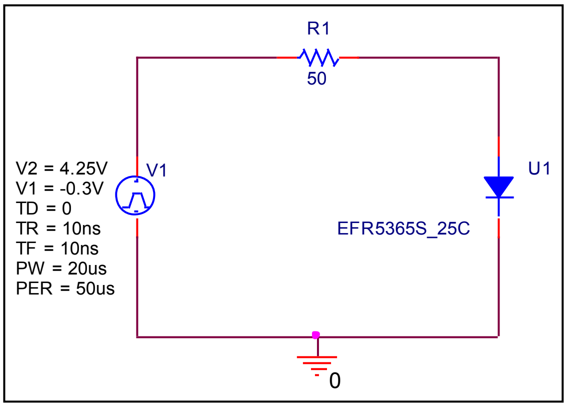
All Rights Reserved Copyright (C) Bee Technologies Inc. 2005

Reverse Recovery Characteristic

Circuit simulation result



Simulation Result

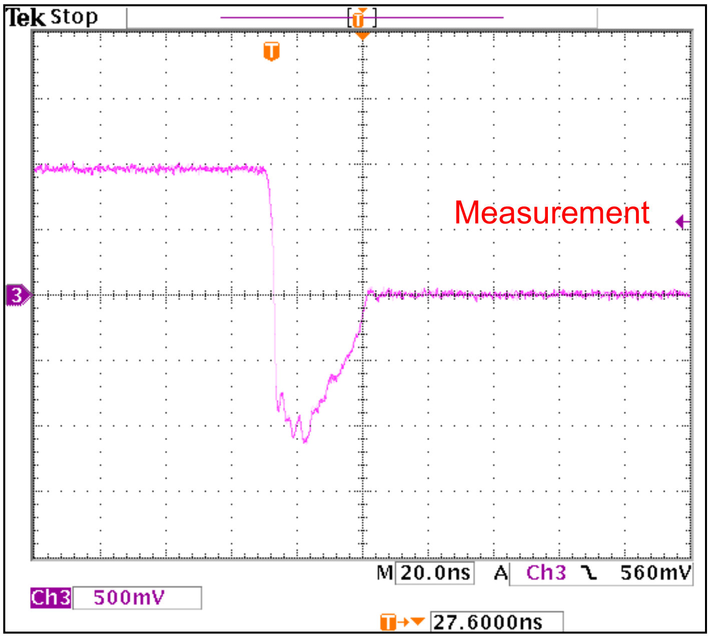


Compare Measurement VS. Simulation

Symbol	Measurement	Unit	Simulation	Unit	%Error
trj	8.4	ns	8.33	ns	- 0.83333
trb	19.2	ns	18.68	ns	- 2.70833

All Rights Reserved Copyright (C) Bee Technologies Inc. 2005

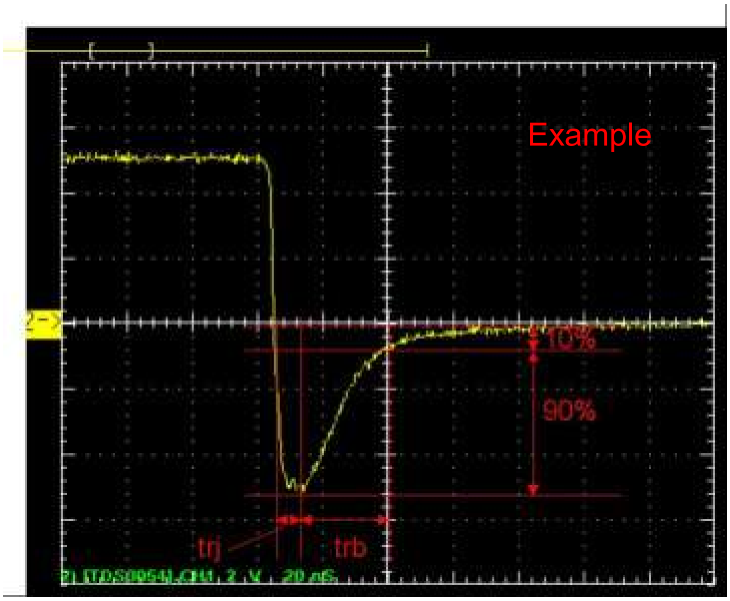
Reverse Recovery Characteristic Reference



trj=8.4(ns)

trb=19.2(ns)

Conditions:Ifwd=Irev=0.04(A),Rl=50



Relation between trj and trb

All Rights Reserved Copyright (C) Bee Technologies Inc. 2005