

# Device Modeling Report

COMPONENTS: Silicon Carbide Schottky Diode  
PART NUMBER: STPSC1206  
MANUFACTURER: STMicroelectronics  
REMARK: Professional Model

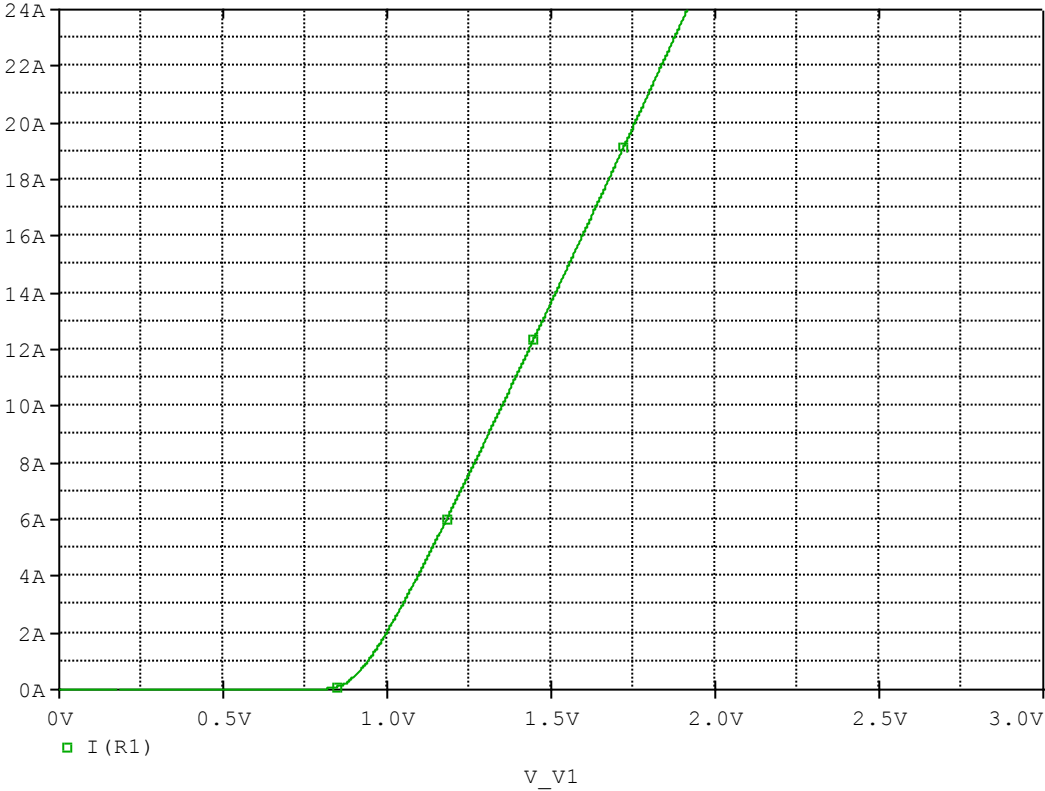


**Bee Technologies Inc.**

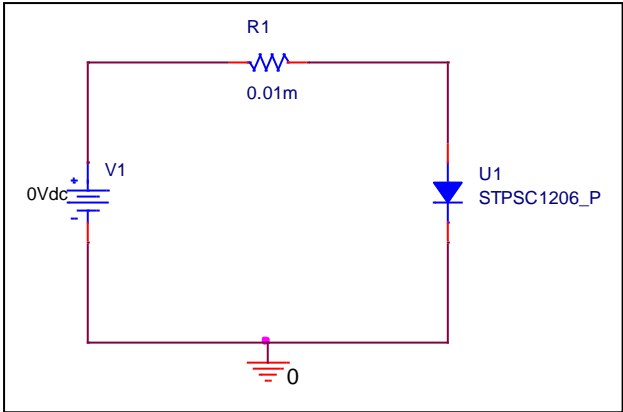
PSpice model parameter	Model description
IS	Saturation Current
N	Emission Coefficient
RS	Series Resistance
IKF	High-injection Knee Current
CJO	Zero-bias Junction Capacitance
M	Junction Grading Coefficient
VJ	Junction Potential
ISR	Recombination Current Saturation Value
BV	Reverse Breakdown Voltage(a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

# Forward Current Characteristic

## Circuit Simulation Result

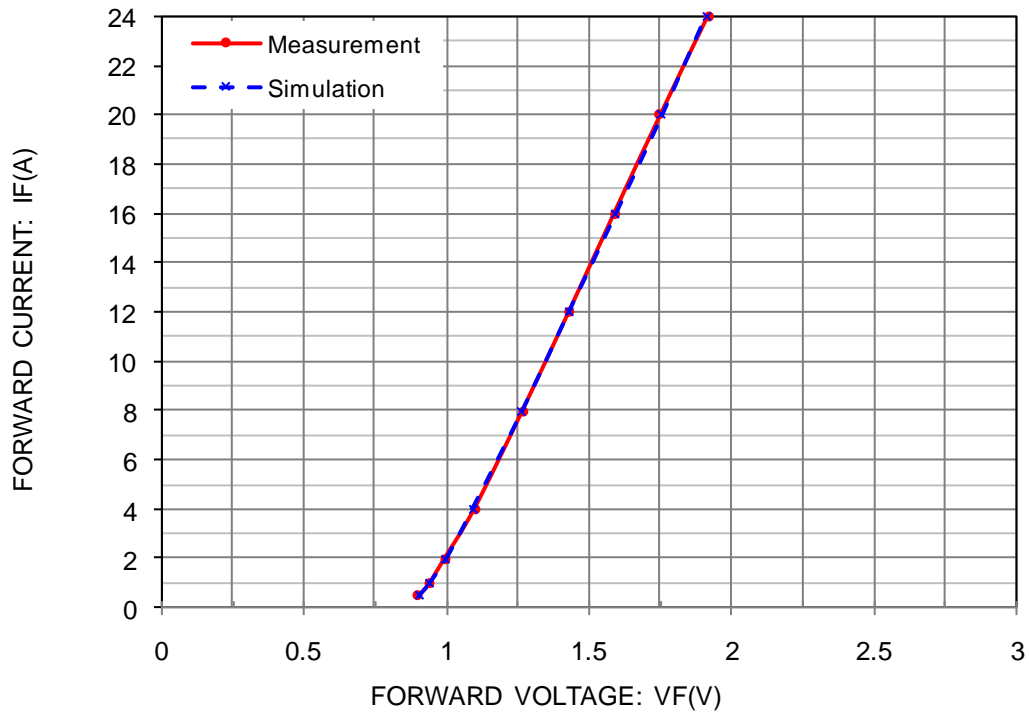


## Evaluation Circuit



# Comparison Graph

## Circuit Simulation Result

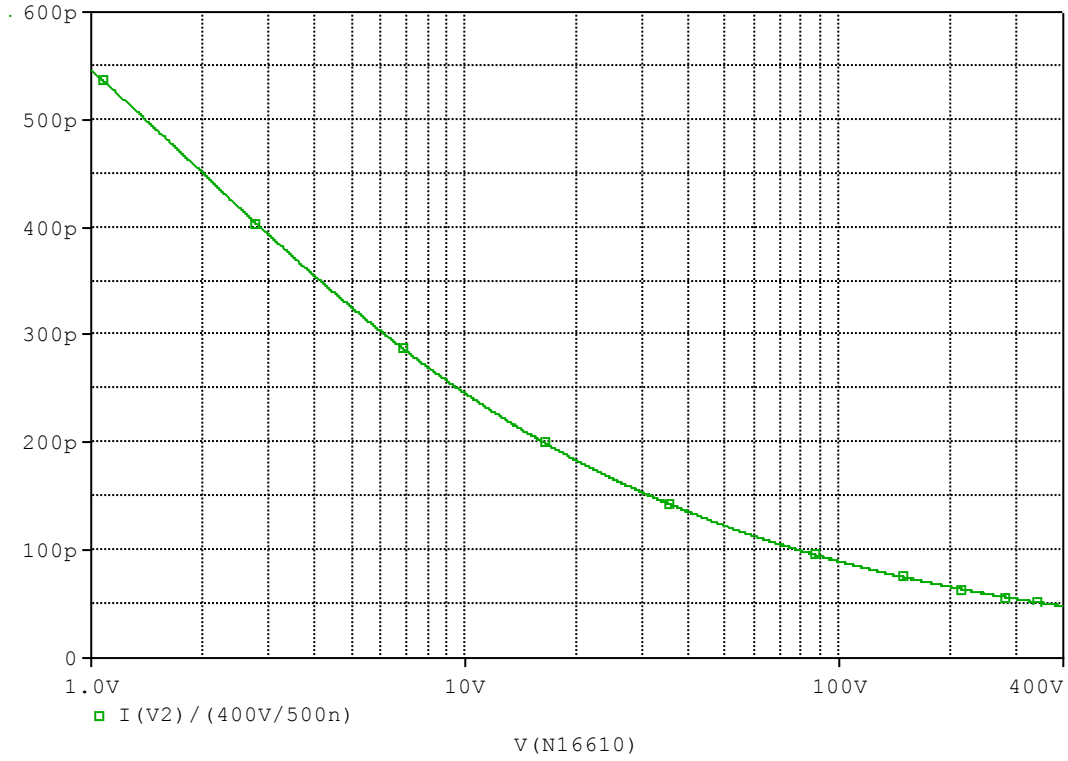


## Simulation Result

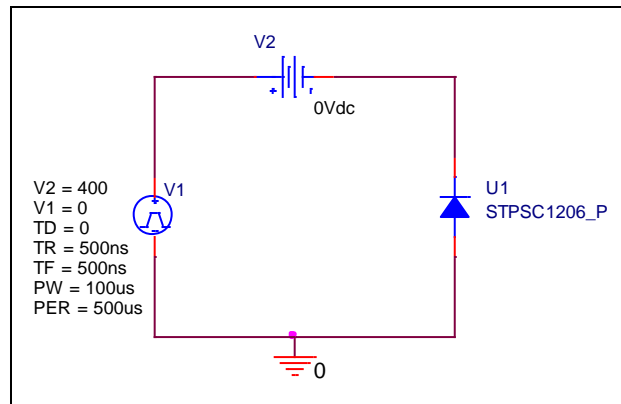
IF(A)	VF(V)		Error (%)
	Measurement	Simulation	
0.5	0.9000	0.9033	0.36
1	0.9400	0.9406	0.06
2	0.9950	0.9973	0.23
4	1.1000	1.0928	-0.65
8	1.2700	1.2659	-0.32
12	1.4300	1.4316	0.11
16	1.5900	1.5942	0.26
20	1.7500	1.7551	0.29
24	1.9200	1.9150	-0.26

# Junction Capacitance Characteristic

## Circuit Simulation Result

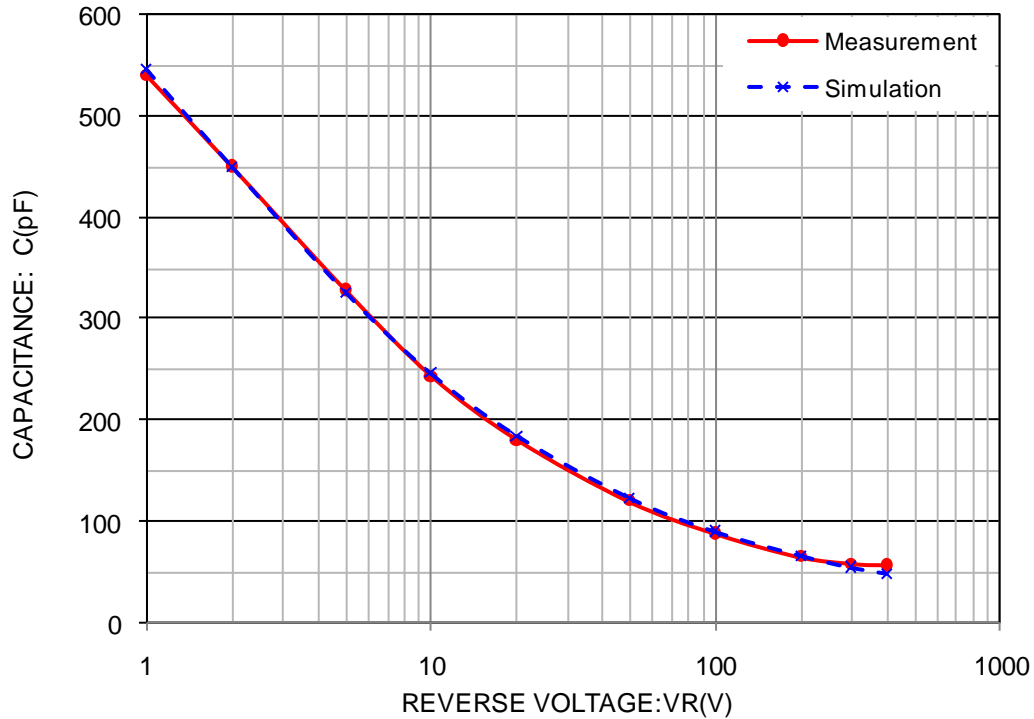


## Evaluation Circuit



## Comparison Graph

### Circuit Simulation Result

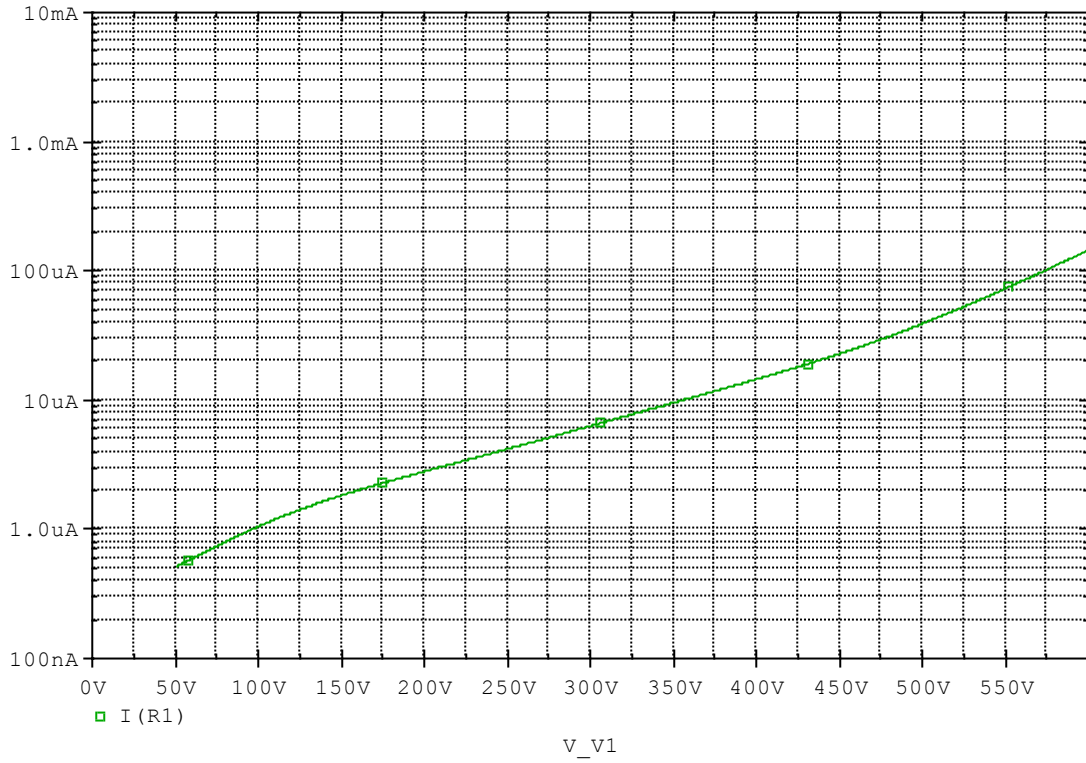


### Simulation Result

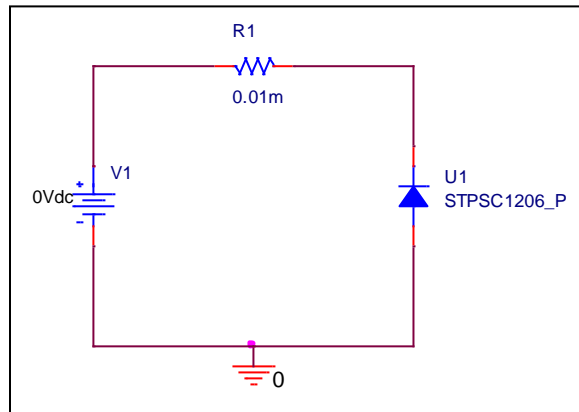
$V_R(V)$	C (pF)		Error (%)
	Measurement	Simulation	
1	540.000	545.845	1.08
2	450.000	449.696	-0.07
5	328.000	325.155	-0.87
10	243.000	246.083	1.27
20	180.000	183.292	1.83
50	120.000	122.474	2.06
100	88.000	89.934	2.20
200	65.000	65.938	1.44
300	57.500	54.913	-4.50

# Reverse Characteristic

## Circuit Simulation Result

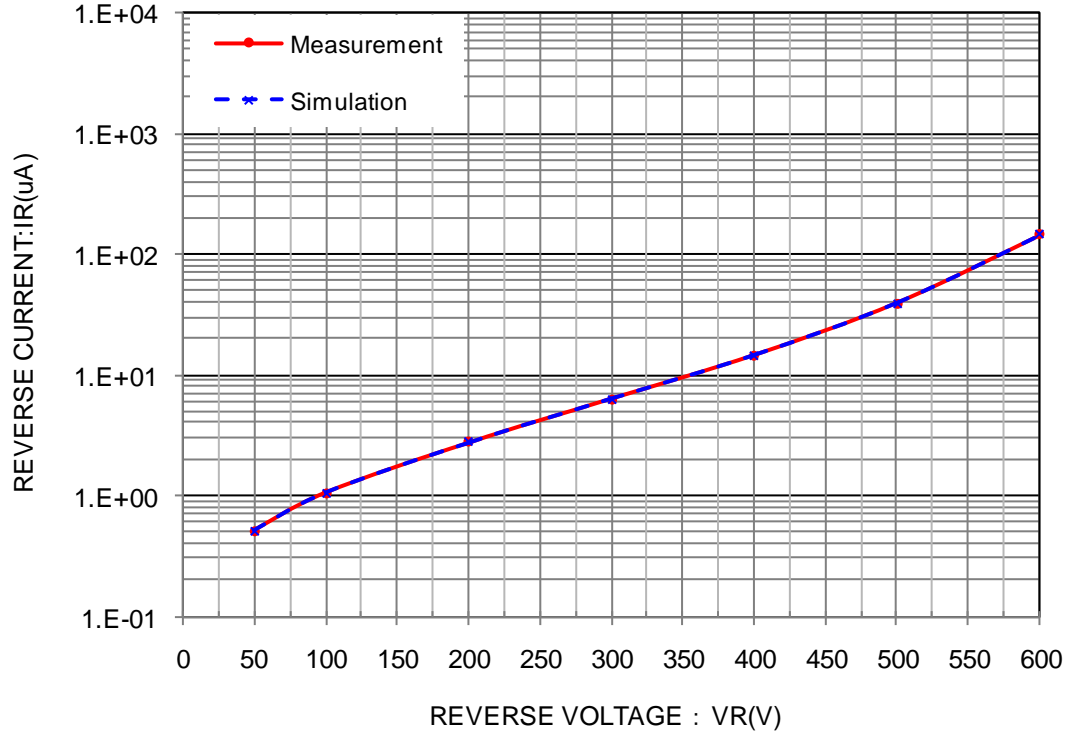


## Evaluation Circuit



# Comparison Graph

## Circuit Simulation Result



## Simulation Result

$V_R(V)$	$I_R(\mu A)$		Error (%)
	Measurement	Simulation	
50	0.510	0.511	0.17
100	1.050	1.049	-0.11
200	2.800	2.800	-0.02
300	6.300	6.304	0.06
400	14.500	14.495	-0.03
500	39.000	38.978	-0.06
600	145.000	144.894	-0.07