Device Modeling Report

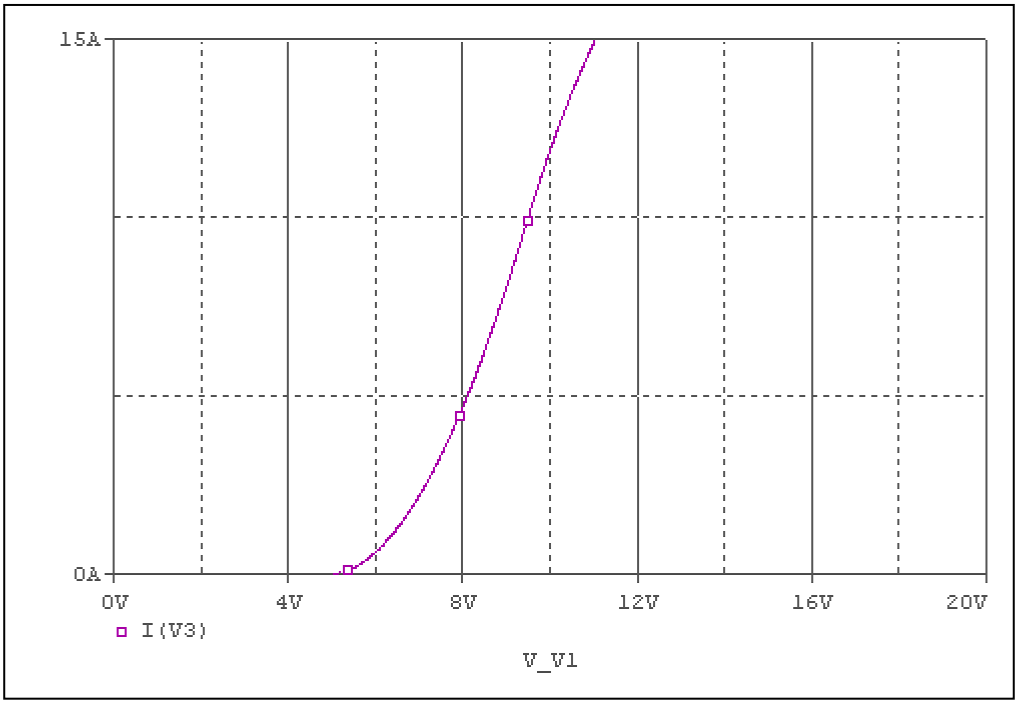
COMPONENTS: Insulated Gate Bipolar Transistor (IGBT)
PART NUMBER: GT8Q101
MANUFACTURER: TOSHIBA

Bee Technologies Inc.

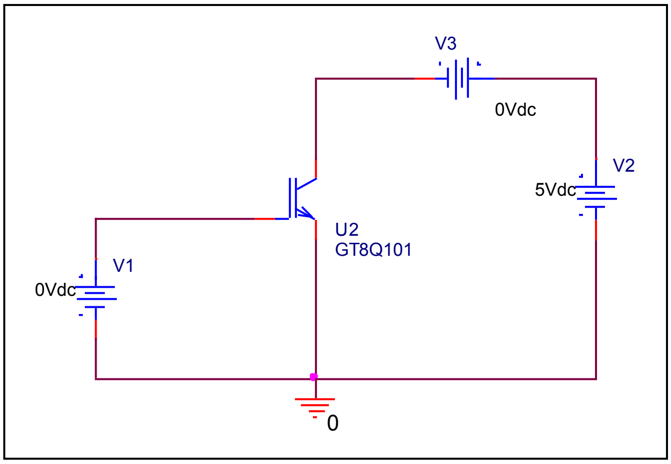
PSpice model parameter	Model description
TAU	Ambipolar Recombination Lifetime
KP	MOS Transconductance
AREA	Area of the Device
AGD	Gate-Drain Overlap Area
WB	Metallurgical Base Width
VT	Threshold Voltage
KF	Triode Region Factor
CGS	Gate-Source Capacitance per Unit Area
COXD	Gate-Drain Oxide Capacitance per Unit Area
VTD	Gate-Drain Overlap Depletion Threshold

Transfer Characteristics

Circuit Simulation result

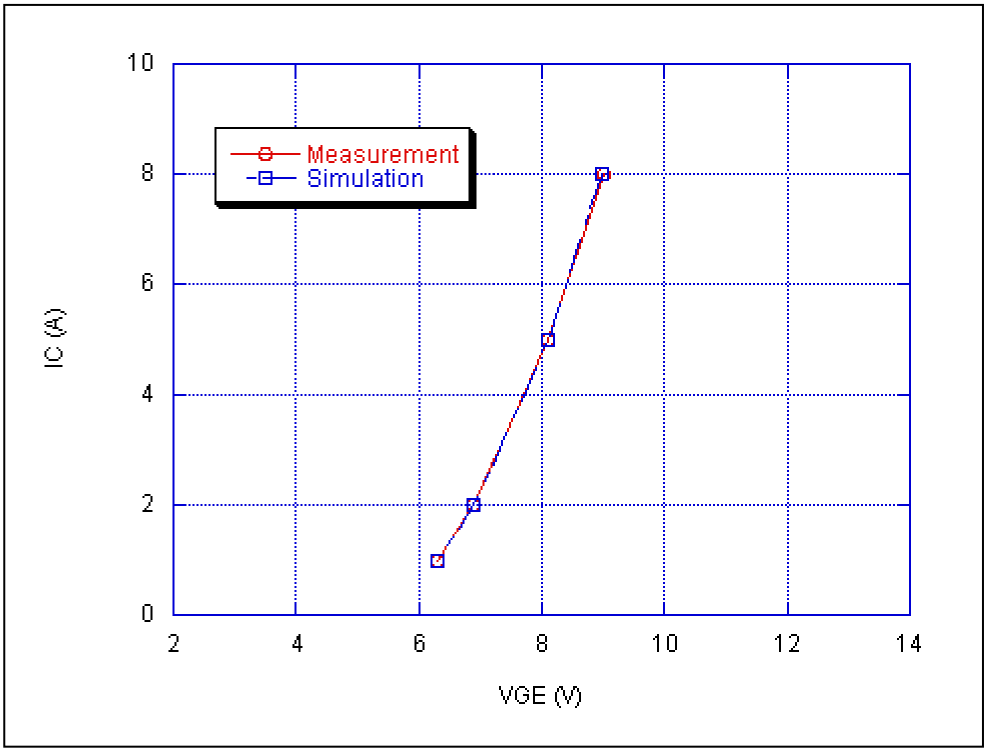


Evaluation circuit



Comparison Graph

Circuit Simulation Result



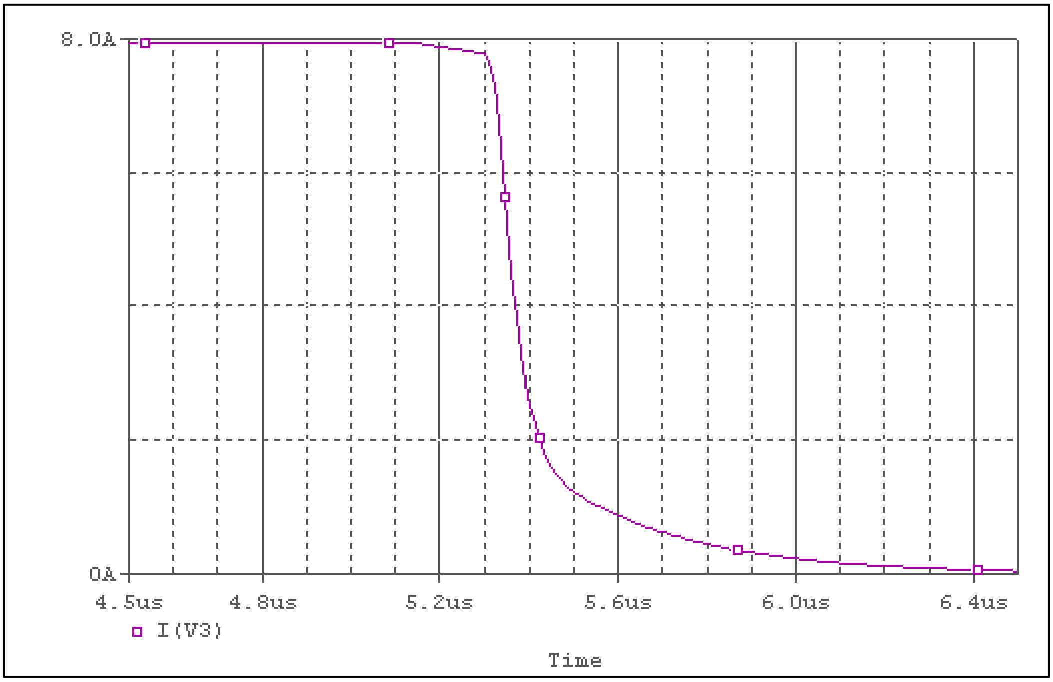
Simulation Result

Test condition : Vce = 5 V

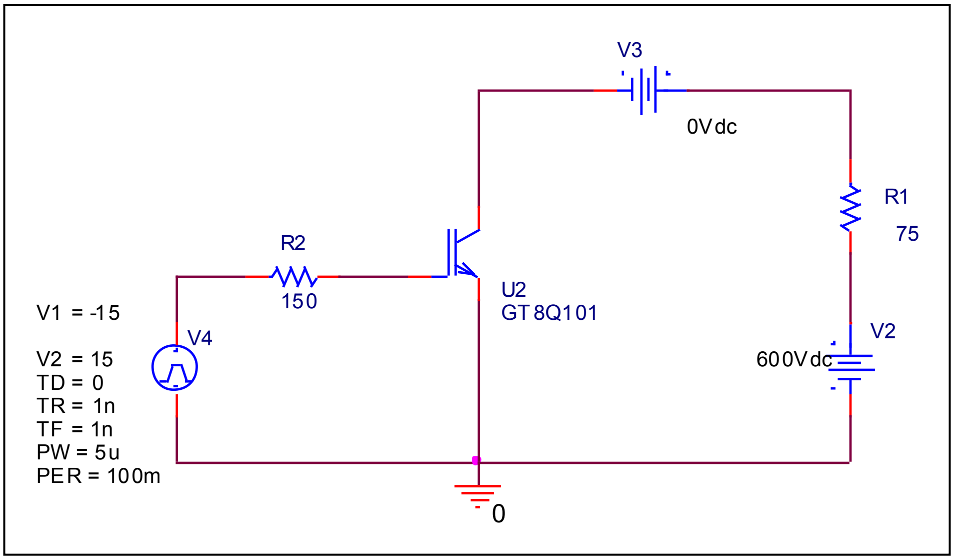
Ic(A)	Vge(V)		Error (%)
	Measurement	Simulation	
1	6.3	6.3093	0.14762
2	6.9	6.8908	-0.13333
5	8.1	8.1124	0.15309
8	9	8.9998	-0.00222

Fall Time Characteristics

Circuit Simulation result



Evaluation circuit

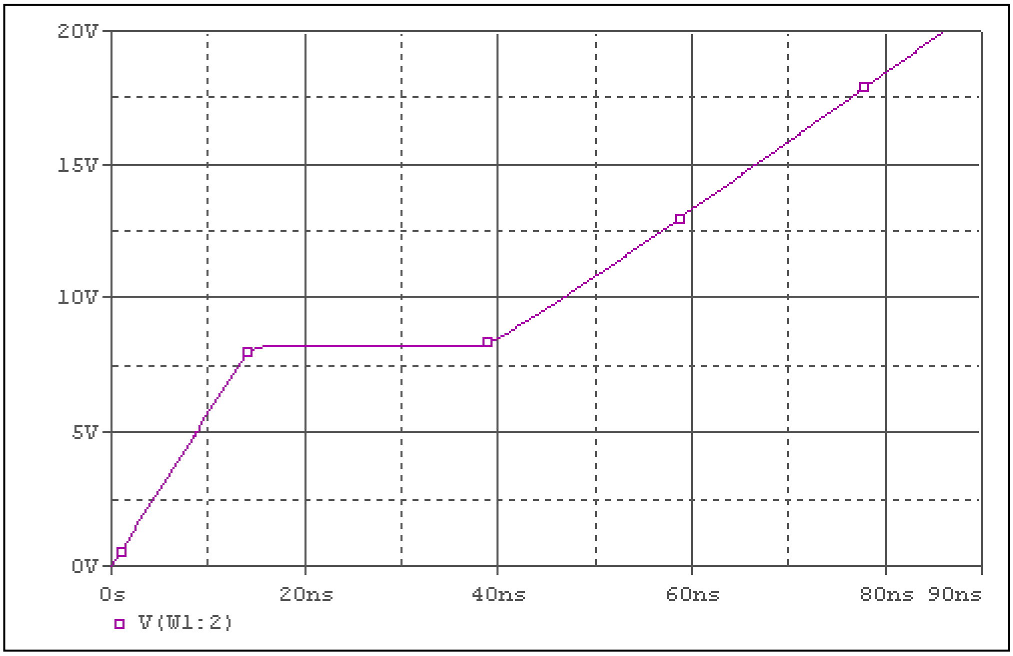


Test condition Ic=8(A) ,Vce=600(V)

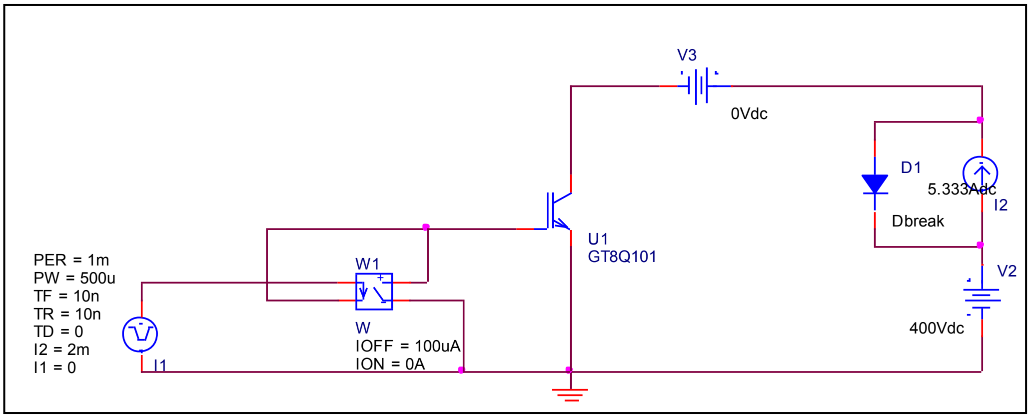
tf	Measurement		Simulation		Error
	300	ns	296.732	ns	-1.08933

Gate Charge Characteristics

Circuit Simulation result



Evaluation circuit

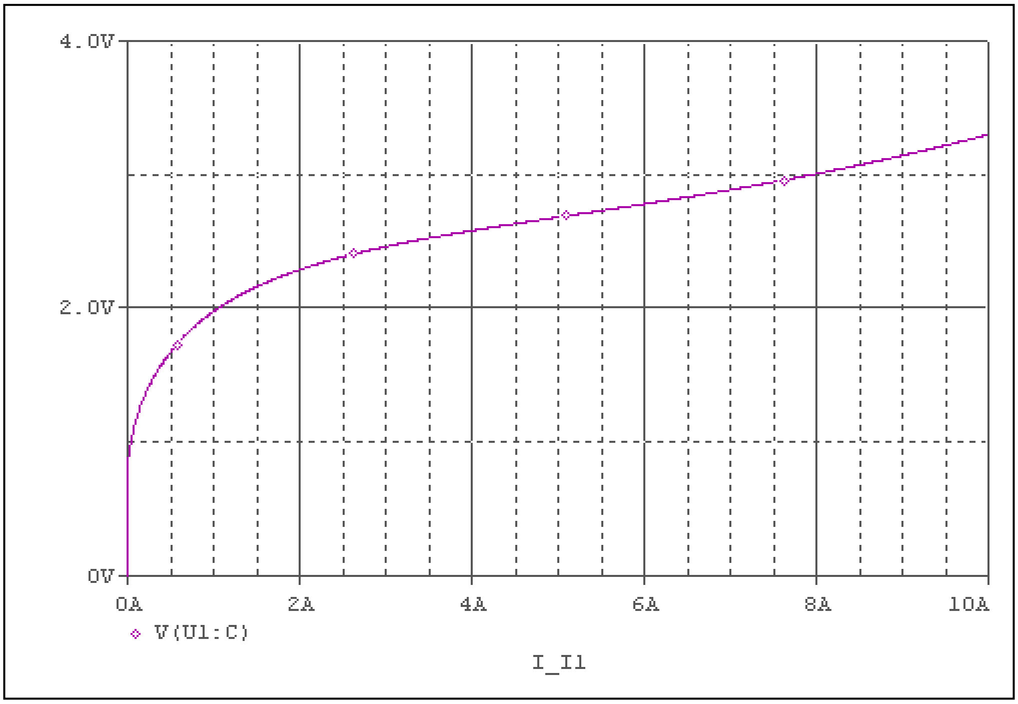


Test condition : Vcc=400(V) ,Ic=5.333(A) ,Vge=20(V)

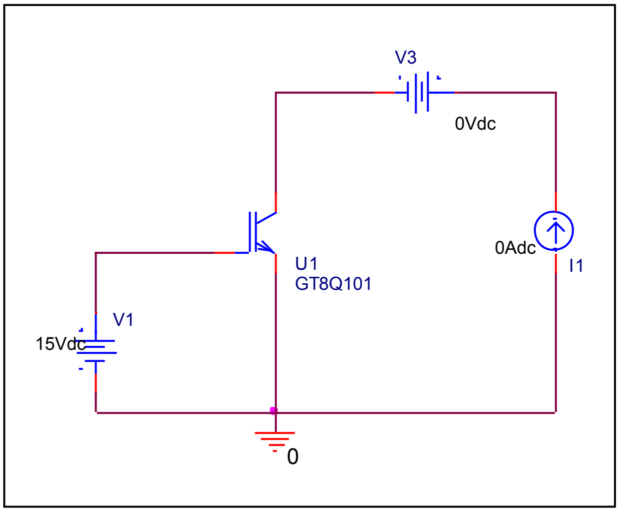
	Measurement		Simulation		Error(%)
Qge	15	nc	14.897	nc	-0.68667
Qgc	25.5	nc	25.035	nc	-1.82353
Qg	85	nc	86.069	nc	1.25765

Saturation Characteristics

Circuit Simulation result

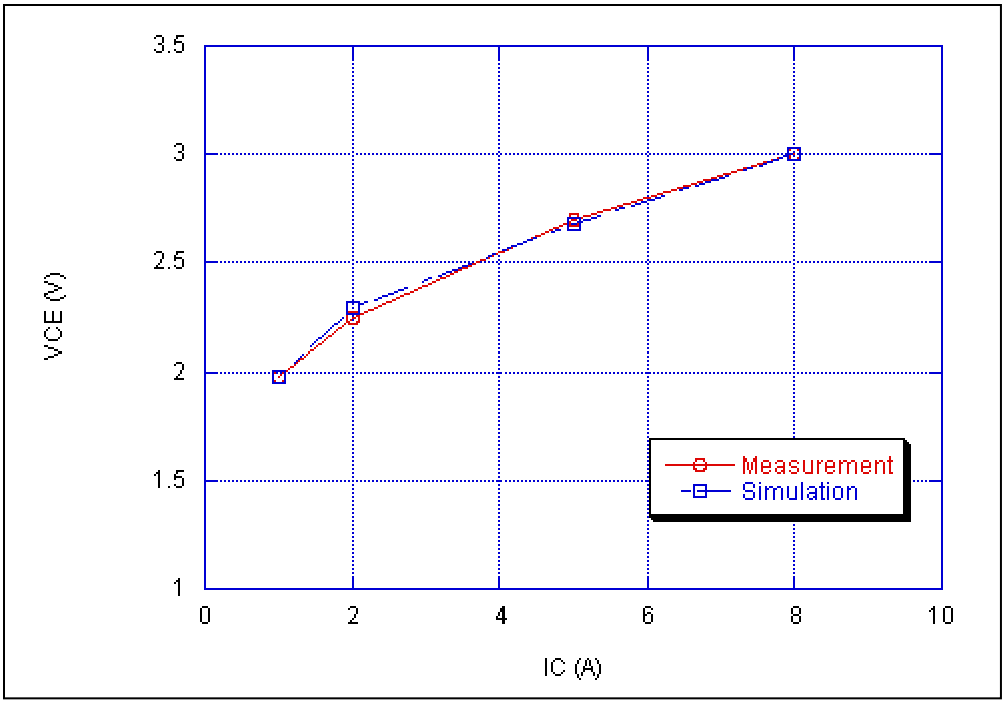


Evaluation circuit



Comparison Graph

Circuit Simulation Result



Simulation Result

Ic(A)	Vce(sat)(V)		Error (%)
	Measurement	Simulation	
1	1.975	1.9755	0.02532
2	2.25	2.2881	1.69333
5	2.7	2.6809	-0.70741
8	3	3.0054	0.18000