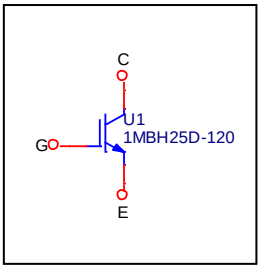
Device Modeling Report

COMPONENTS: Insulated Gate Bipolar Transistor (IGBT)
PART NUMBER: 1MBH25D-120
MANUFACTURER: Fuji Electric
*REMARK: Free-Wheeling Diode Professional Model

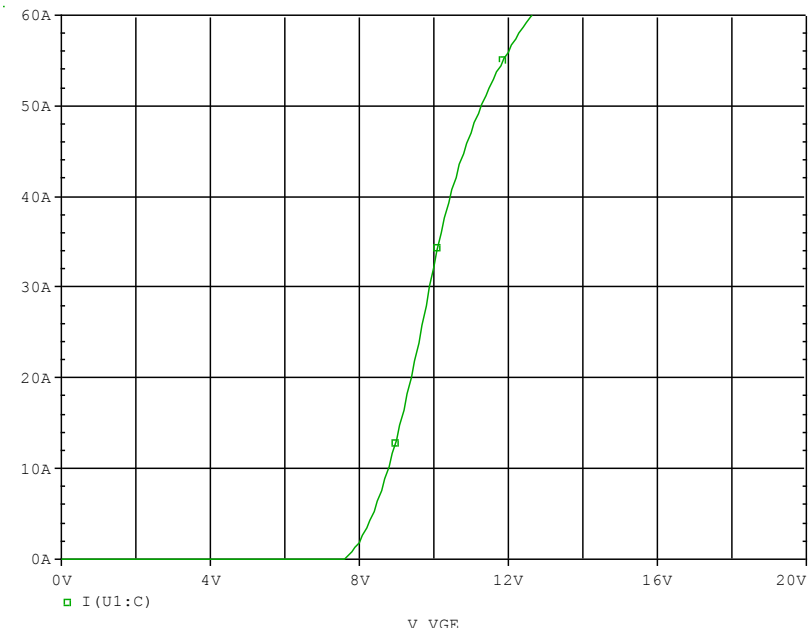
Bee Technologies Inc.

Circuit Configuration

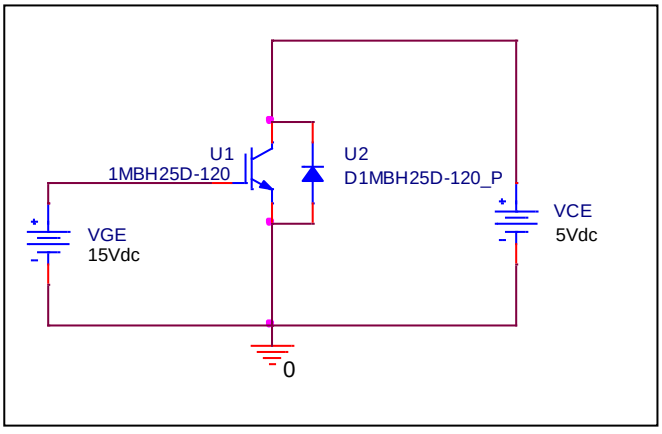


Transfer Characteristics

Circuit Simulation result

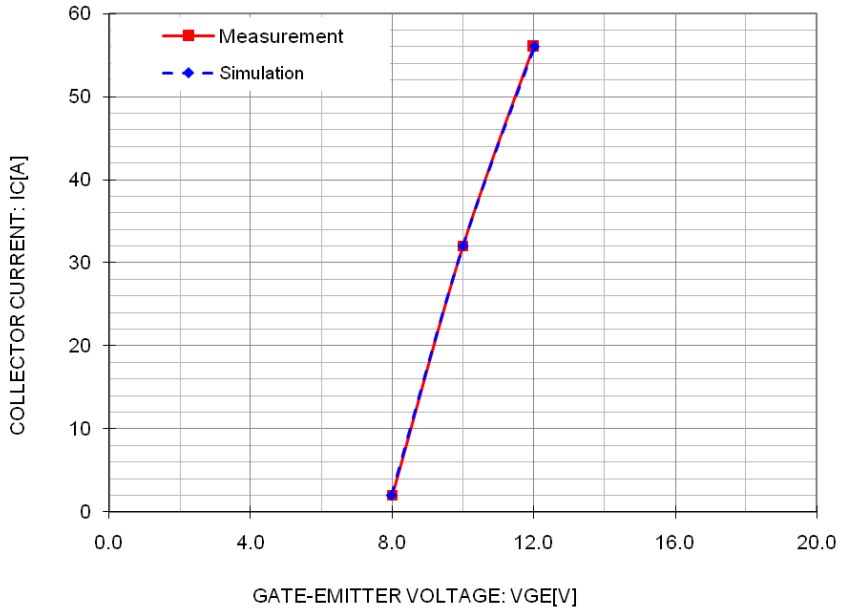


Evaluation circuit



Comparison Graph

Simulation result



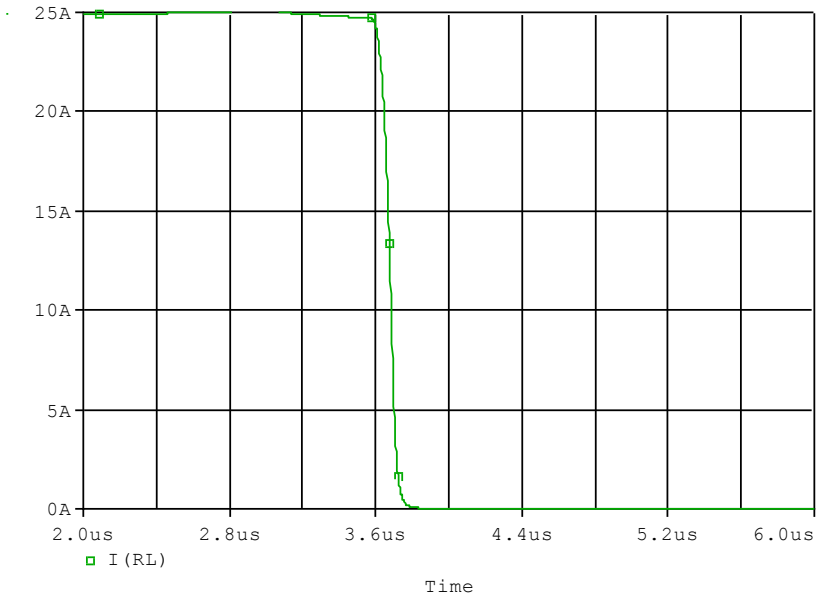
Comparison table

Test condition: V_{CE} =5 (V)

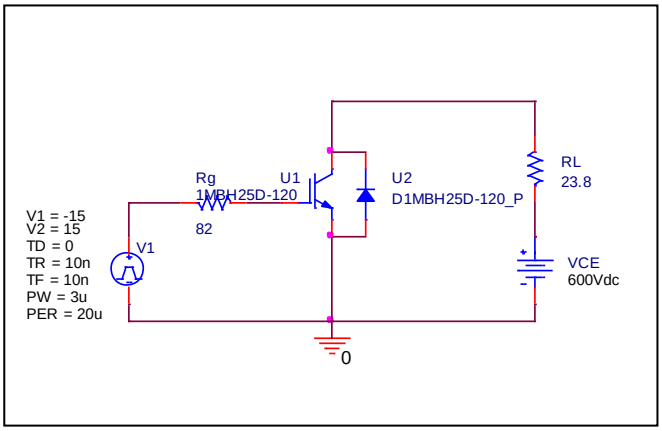
IC (A)	VGE (V)		%Error
	Measurement	Simulation	
2.000	8.000	8.018	0.23
32.000	10.000	9.994	-0.06
56.000	12.000	12.004	0.03

Fall Time Characteristics

Circuit Simulation result



Evaluation circuit

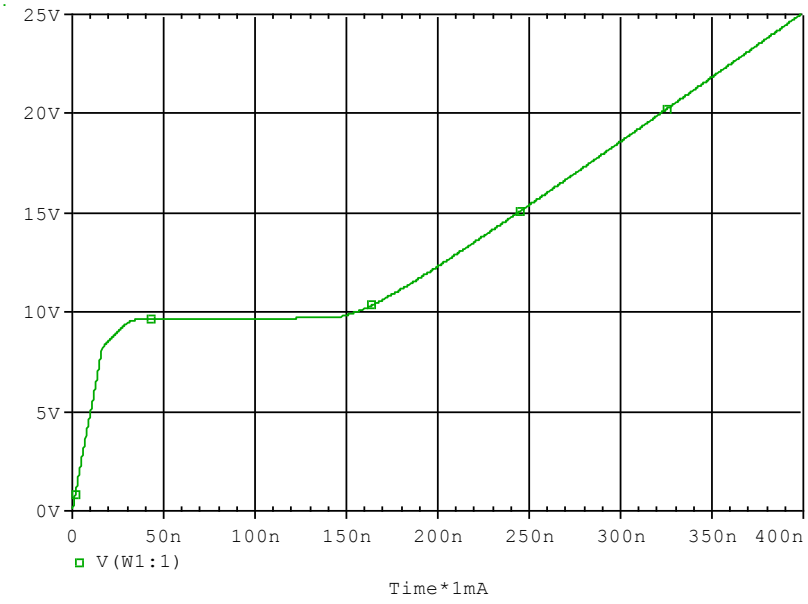


Test condition: IC=25 (A), VCC=600 (V)

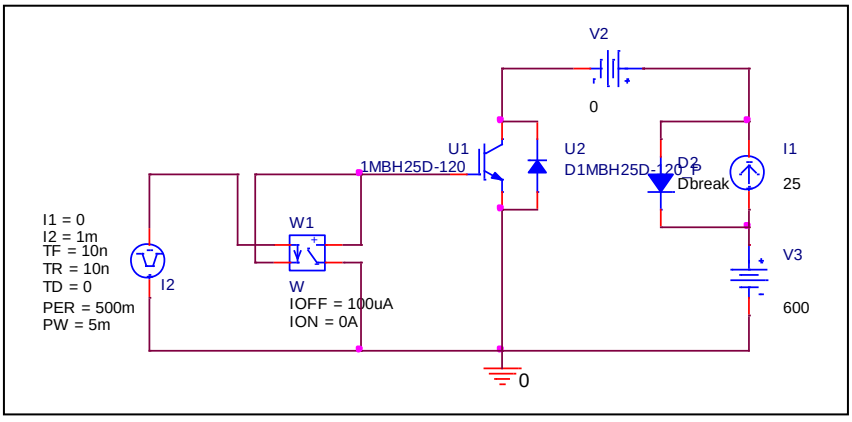
Parameter	Unit	Measurement	Simulation	%Error
tf	us	0.086	0.087	1.490

Gate Charge Characteristics

Circuit Simulation result



Evaluation circuit

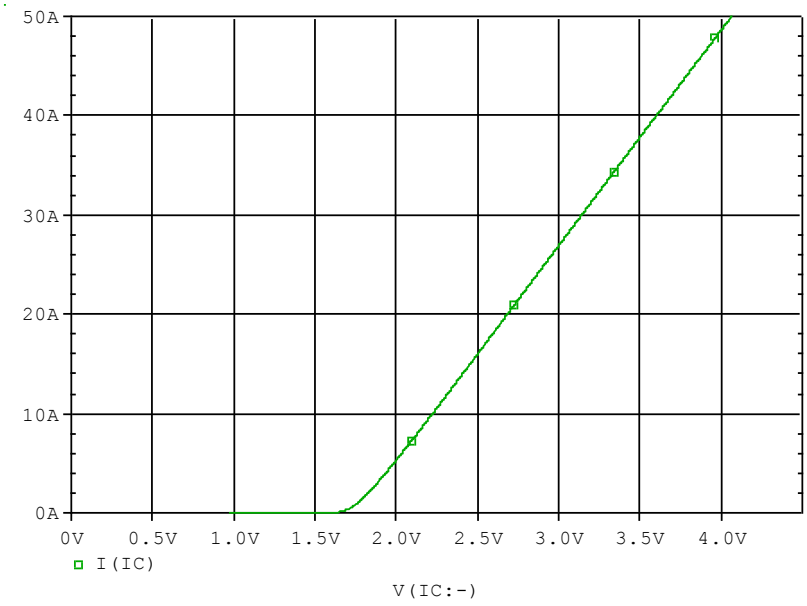


Test condition: V_{CC}=600 (V), I_C=25 (A), V_{GE}=15 (V)

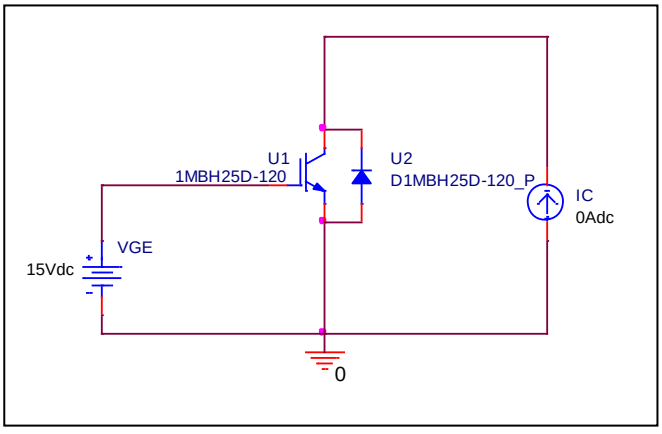
Parameter	Unit	Measurement	Simulation	%Error
Qge	nc	25.000	25.044	0.176
Qgc	nc	135.000	132.870	-1.578
Qg	nc	240.000	243.701	1.542

Saturation Characteristics

Circuit Simulation result

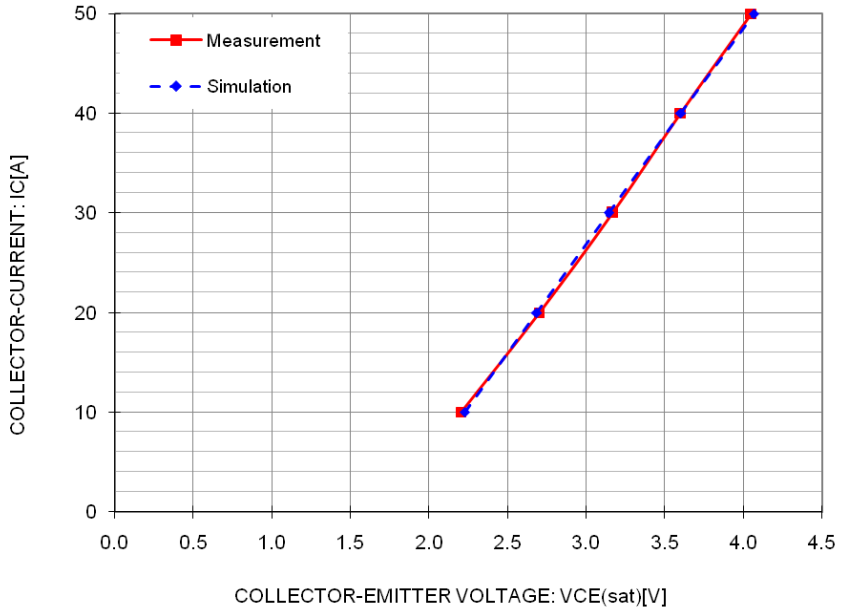


Evaluation circuit



Comparison Graph

Simulation result



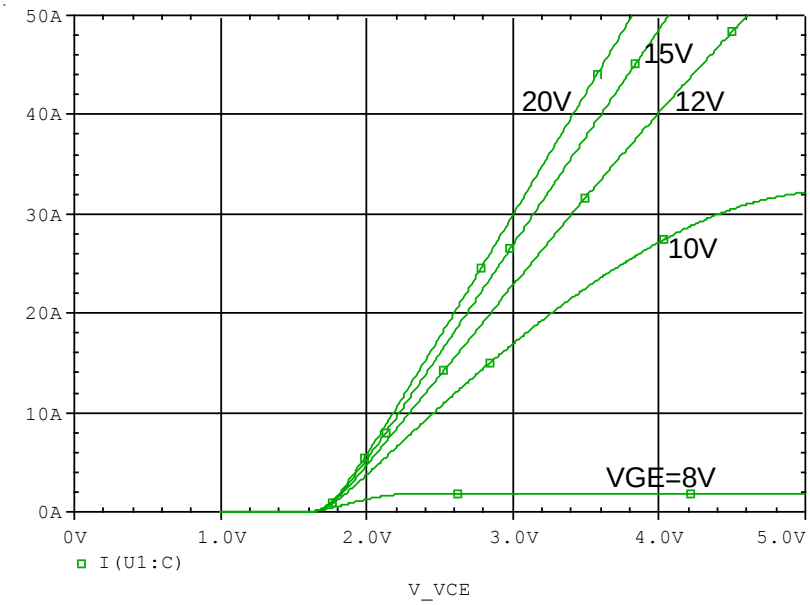
Comparison table

Test condition: V_{GE} =15 (V)

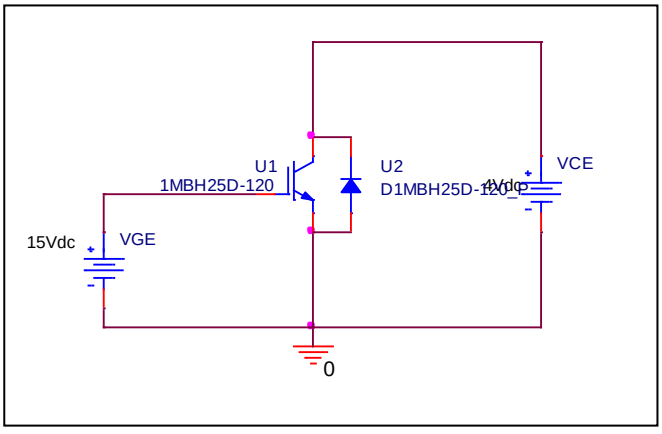
Ic(A)	VCE (V)		%Error
	Measurement	Simulation	
10.0	2.200	2.225	1.12
20.0	2.700	2.685	-0.55
30.0	3.170	3.142	-0.87
40.0	3.600	3.602	0.05
50.0	4.050	4.066	0.40

Output Characteristics

Circuit Simulation result

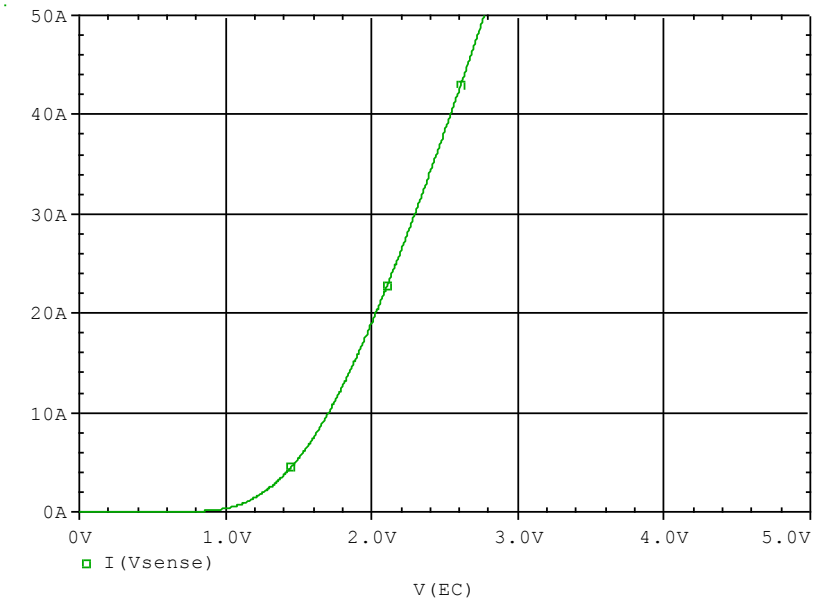


Evaluation circuit

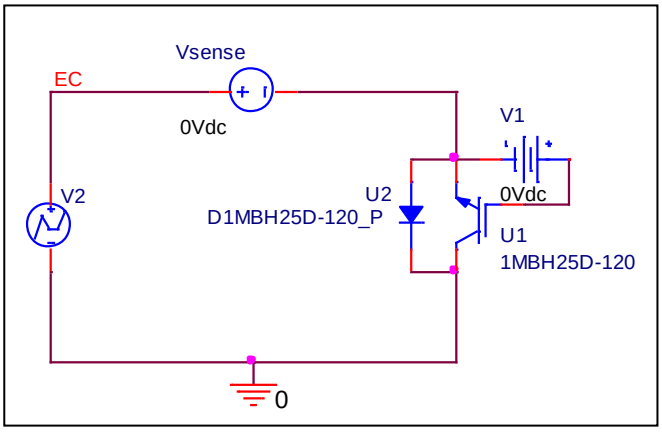


FWD Forward Current Characteristics

Circuit Simulation result

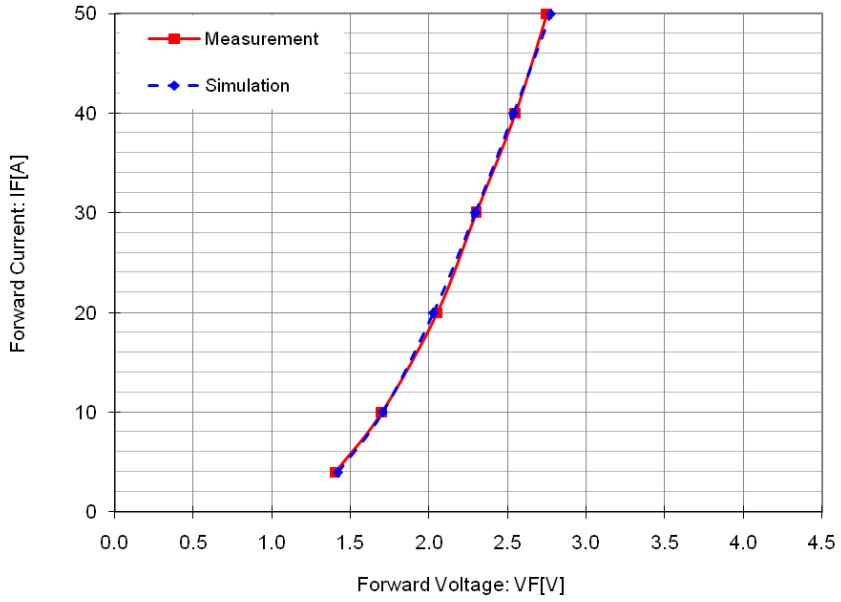


Evaluation circuit



Comparison Graph

Simulation result

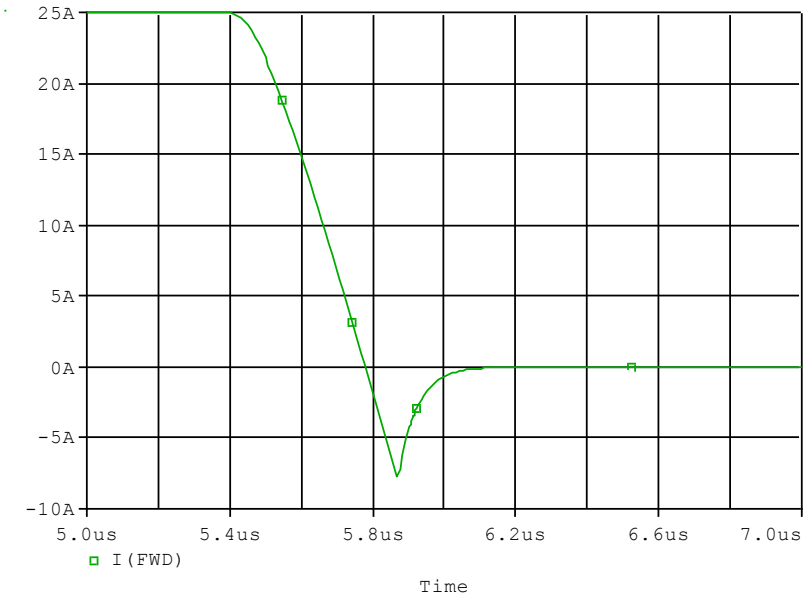


Comparison table

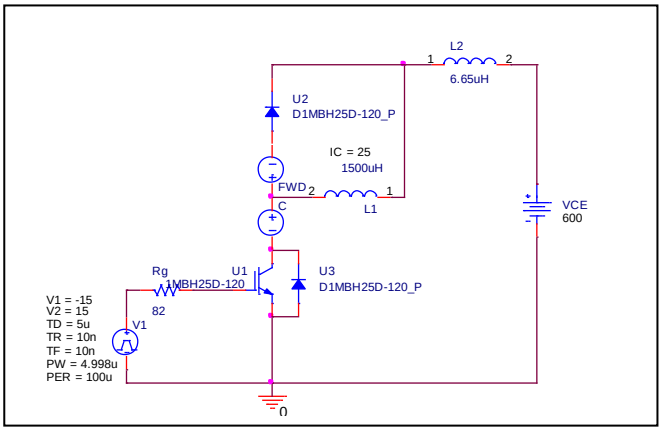
IF(A)	VF (V)		%Error
	Measurement	Simulation	
4	1.400	1.420	1.41
10	1.700	1.705	0.29
20	2.050	2.028	-1.09
30	2.300	2.295	-0.22
40	2.550	2.539	-0.42
50	2.750	2.771	0.76

Reverse Recovery Characteristics

Circuit Simulation result



Evaluation circuit



Test condition: VCC=600 (V), IC=25 (A) –di/dt=75 A/usec

Parameter	Unit	Measurement	Simulation	%Error
trr	nsec	210.000	209.551	-0.21
Irr	A	7.700	7.727	0.35