

B-002. 1-Phase 2-level Full Bridge Inverter $P_{OUT}=20kW$

ROHM Solution Simulator Schematic Information



2022. Jan
64UG098E Rev.004

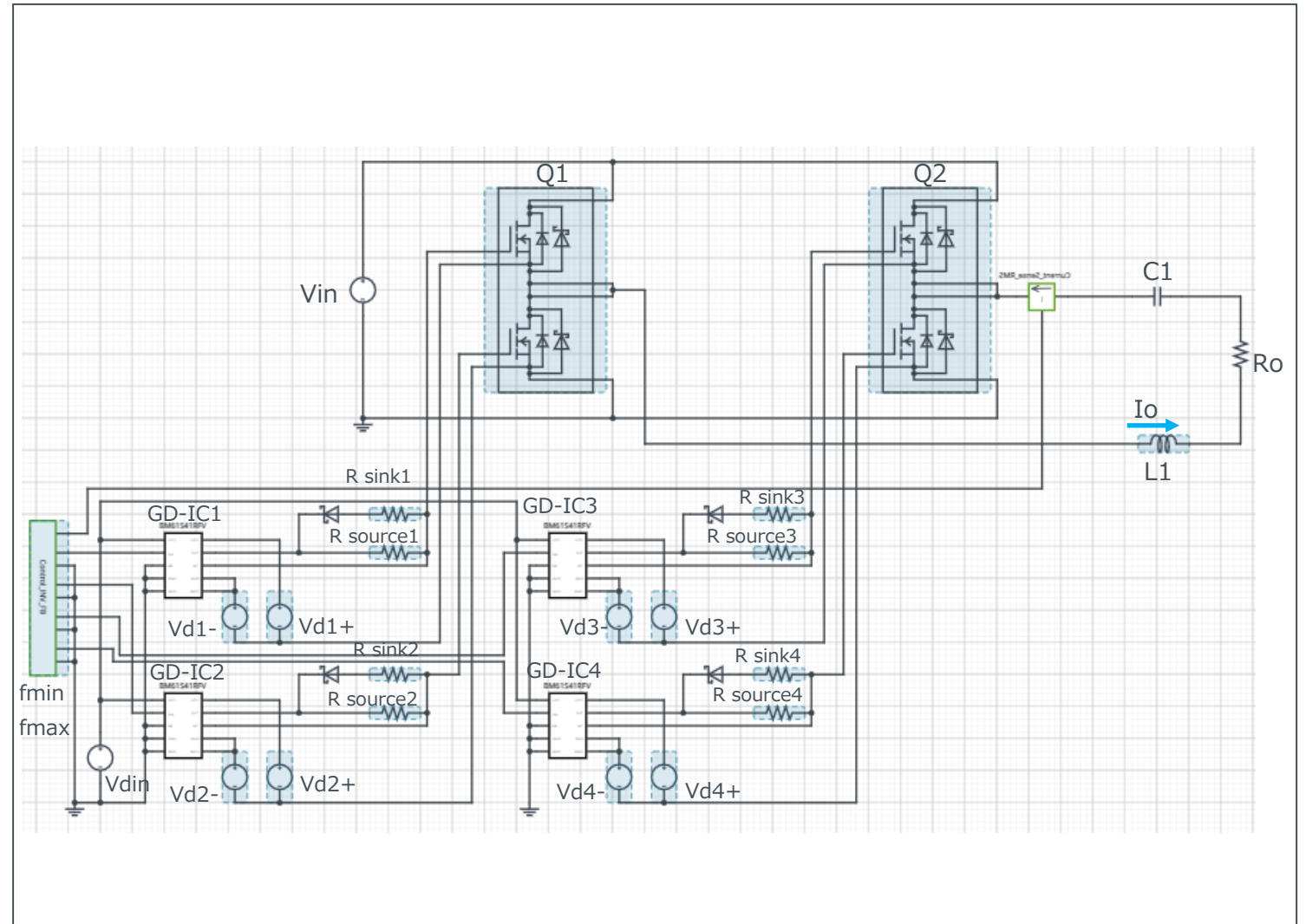
Simulation Parameters

Component name	Component	Default	Simulation Setting Range
Vin	Input voltage	800Vdc	
Io	Input current	70Aac	
fmin	Switching frequency	50kHz	10k – 300kHz
fmax	Switching frequency	100kHz	10k – 300kHz
Tj	Temperature	100°C	
Vd1-4+	Gate Drive voltage H	18V	10 – 20V
Vd1-4-	Gate Drive voltage L	0V	-4 – 0V
Vdin	Signal voltage level	5V	

Devices

Component Name	Component	Default	Simulation Setting Range
Q1, Q2	MOSSBDx2	Selectable	
GD-IC1-4	Gate Driver	BM61S41RFV-C	
R sink1-4	Resistor for sink	1Ω	0.1 -
R source1-4	Resistor for source	2Ω	0.1 -
L1	Inductor	60μH	10μH - 2mH
Ro	Output Resistor	{Po/Io/Io}	

Simulation Circuit



Note: The Loss_calc component is a utility module to support power loss calculation, and does not affect the simulation results of circuit operation or performance.

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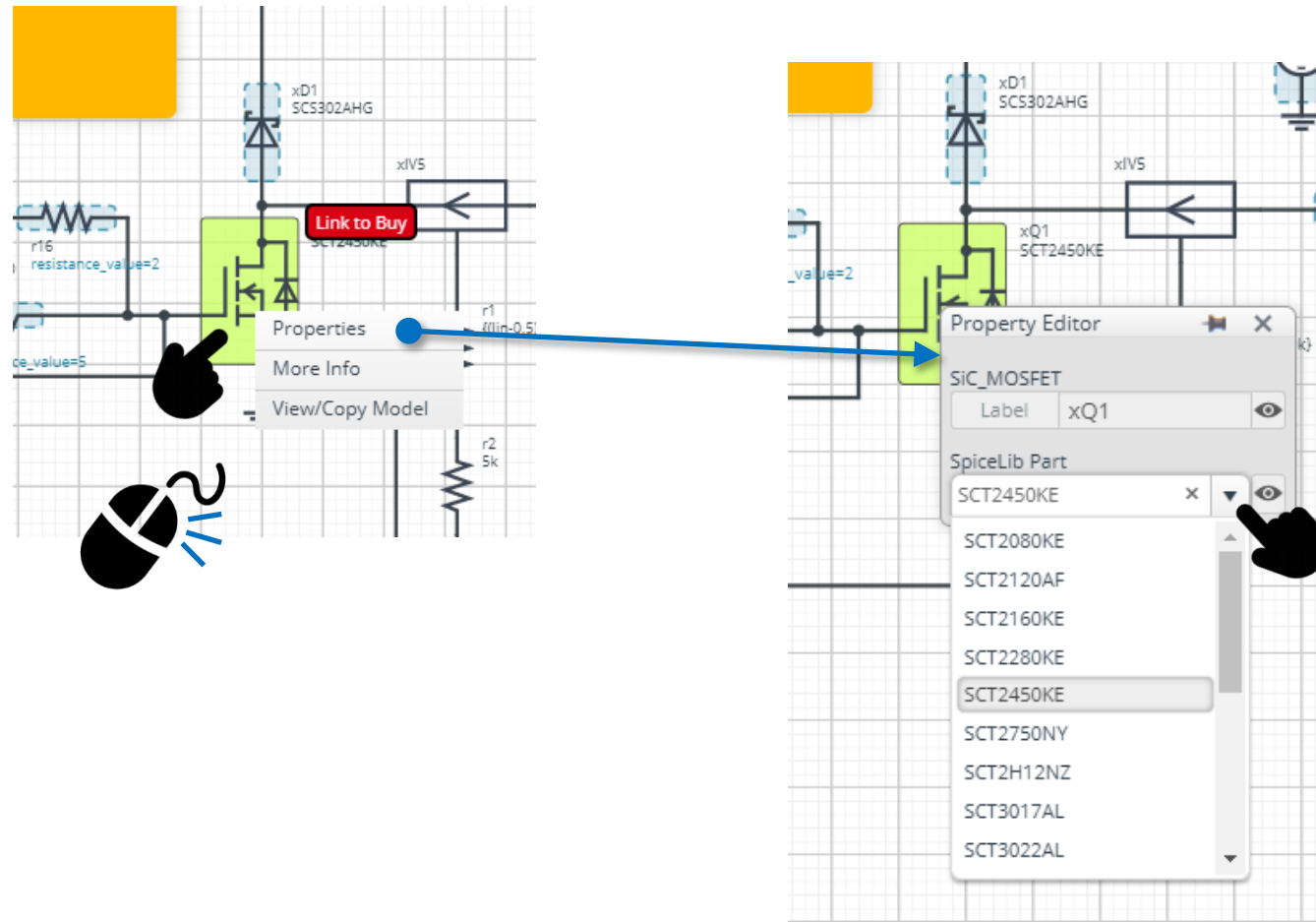
Selectable Devices

Component name	Component	Product No.	feature
Q1, Q2	MOSSBDx2	BSM080D12P2C008 (*)	800V, 120A
		BSM120D12P2C005	1200V, 120A

* Default device

How to change the devices

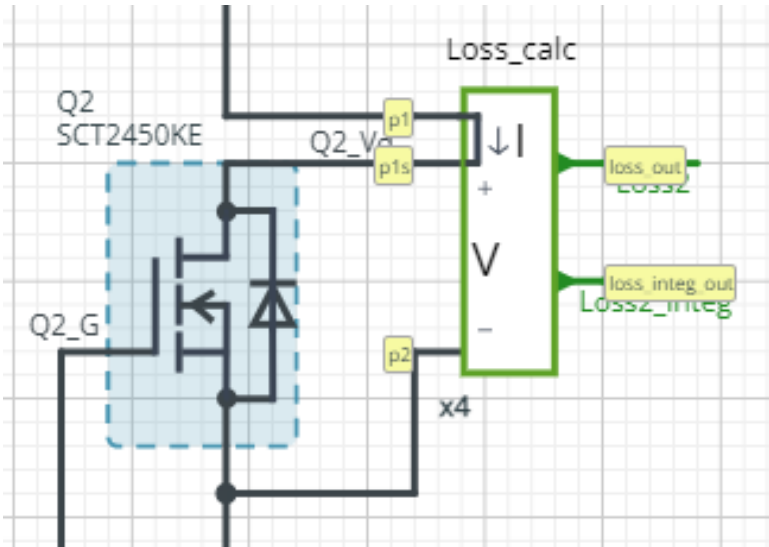
Right-click on the device → Select Properties → Pull down “SpiceLib Part” → Select the product



Loss Calculation Model outputs the instantaneous value of power loss and its integration.

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Loss calculation model 'Loss_calc'



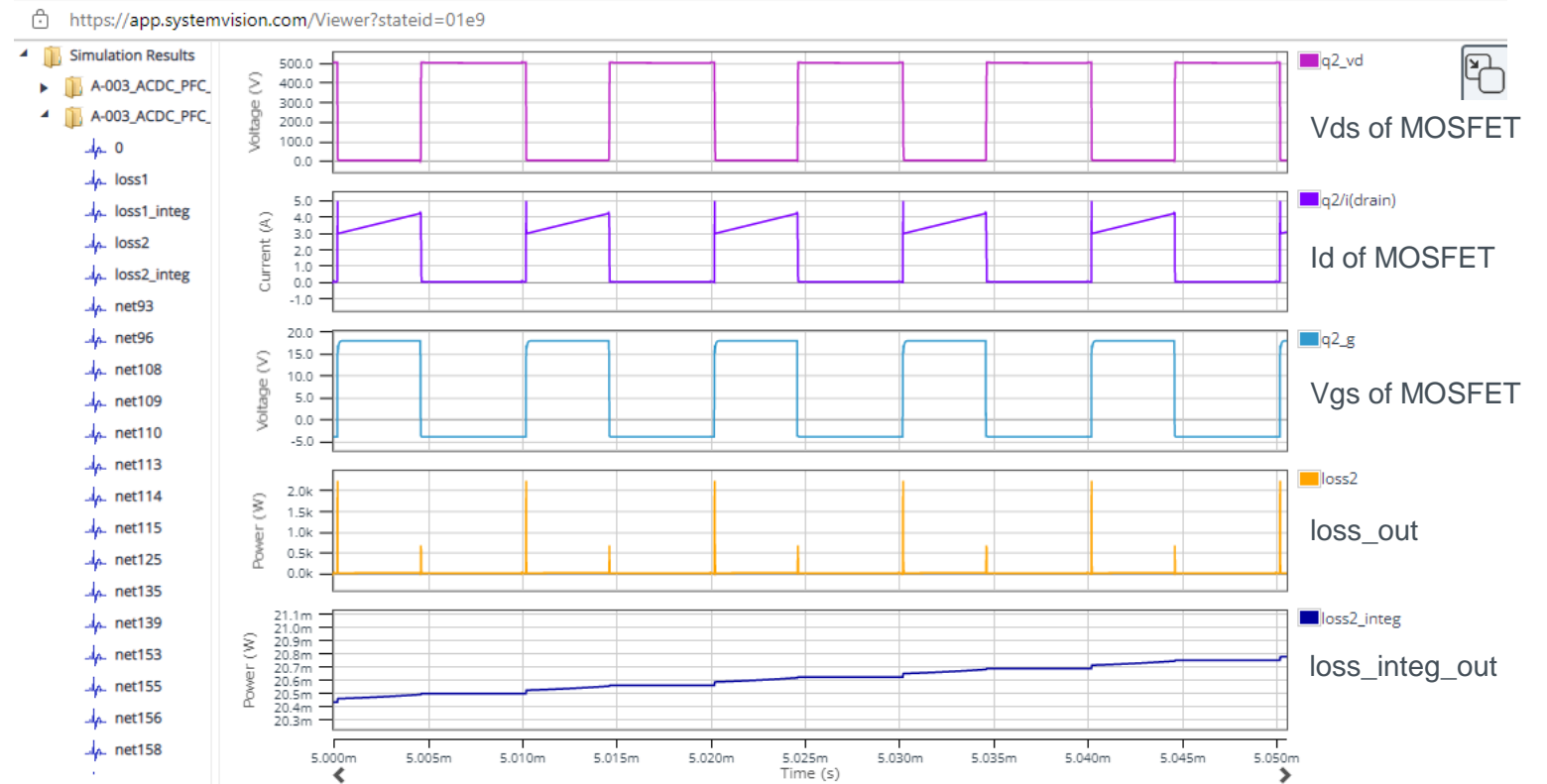
$$loss_out(t) = I(t) \times V(t)$$

$$loss_integ_out = \int_0^t loss_out(t)dt$$

I : Current through p1 to p1s

V : Voltage between p1s and p2

Waveform example



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