B-005. 1-Phase 3-Wire Inverter Pout=20kW

ROHM Solution Simulator Schematic Information

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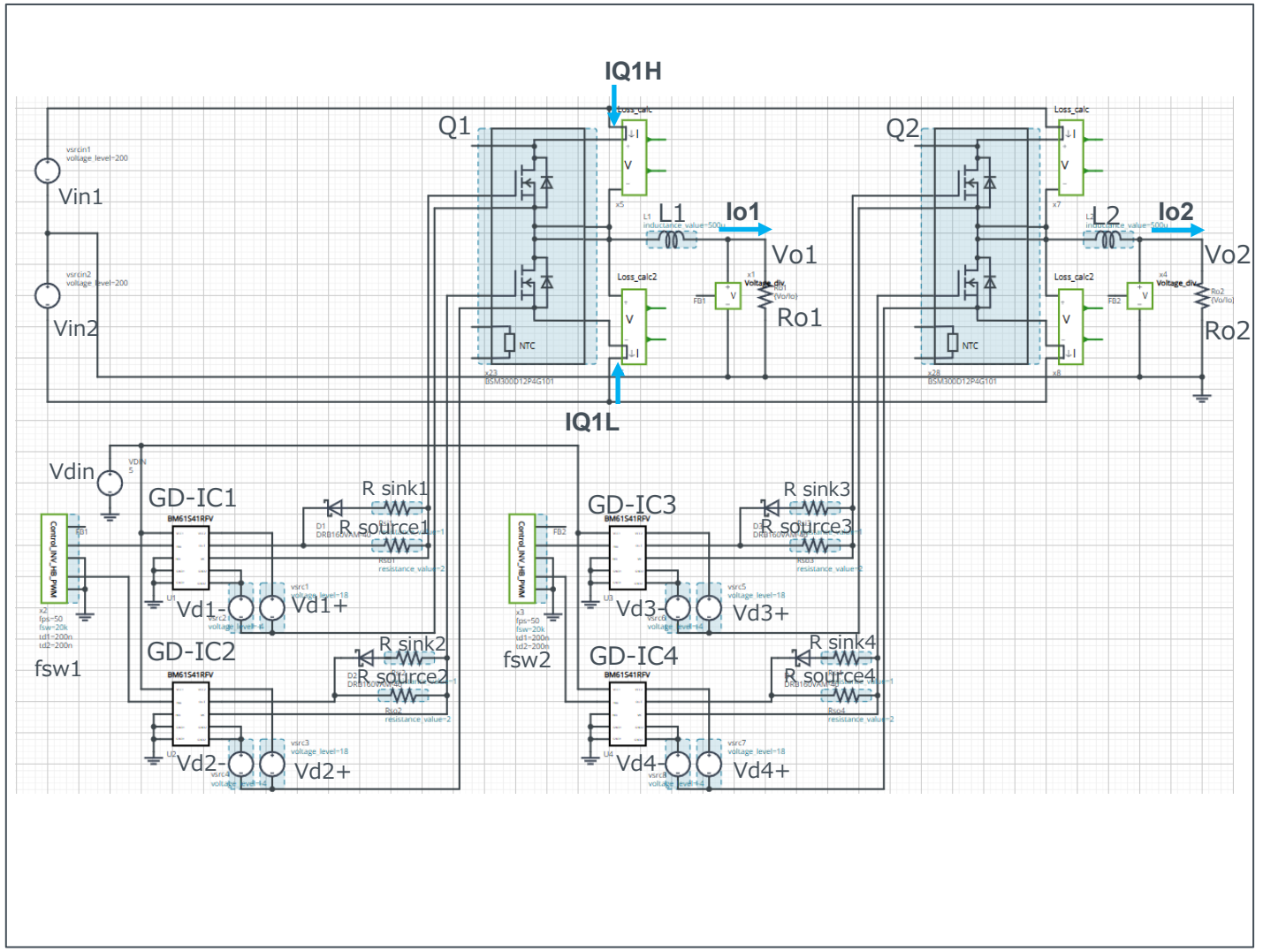
Simulation Parameters

Component name	Component	Default	Simulation Setting Range
Vin1,2	Input voltage	200Vdc	
Vo1,2	Output voltage	100Vac	
Io1,2	Output current	100Aac	
fsw1,2	Switching frequency	20kHz	10k – 300kHz
Tj	Temperature	100°C	
Vd1-4+	Gate Drive voltage H	18V	10 – 20V
Vd1-4-	Gate Drive voltage L	-4V	-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	ESR18 1Ω	0.1 -
R source1-4	Resistor for source	ESR18 2Ω	0.1 -
L1, L2	Inductor	500μH	10μH - 2mH
Ro1, Ro2	Output Resistor	{Vo/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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B-005. 1-Phase 3-Wire Inverter Pout=20kW

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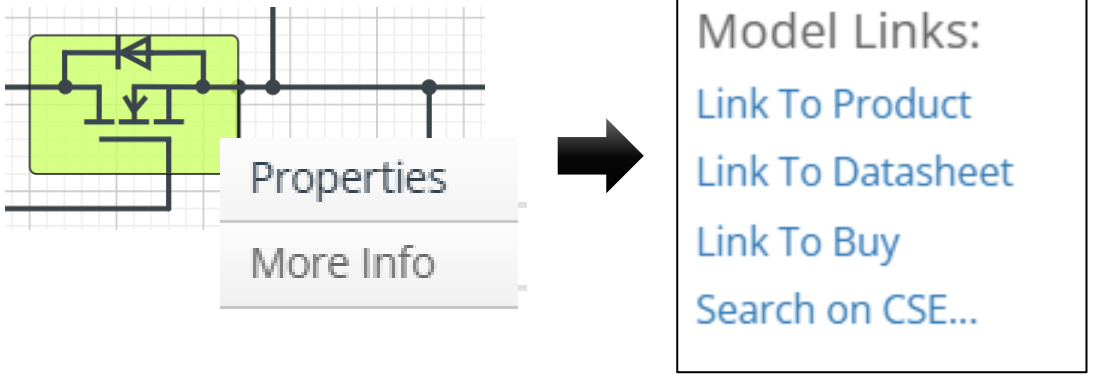
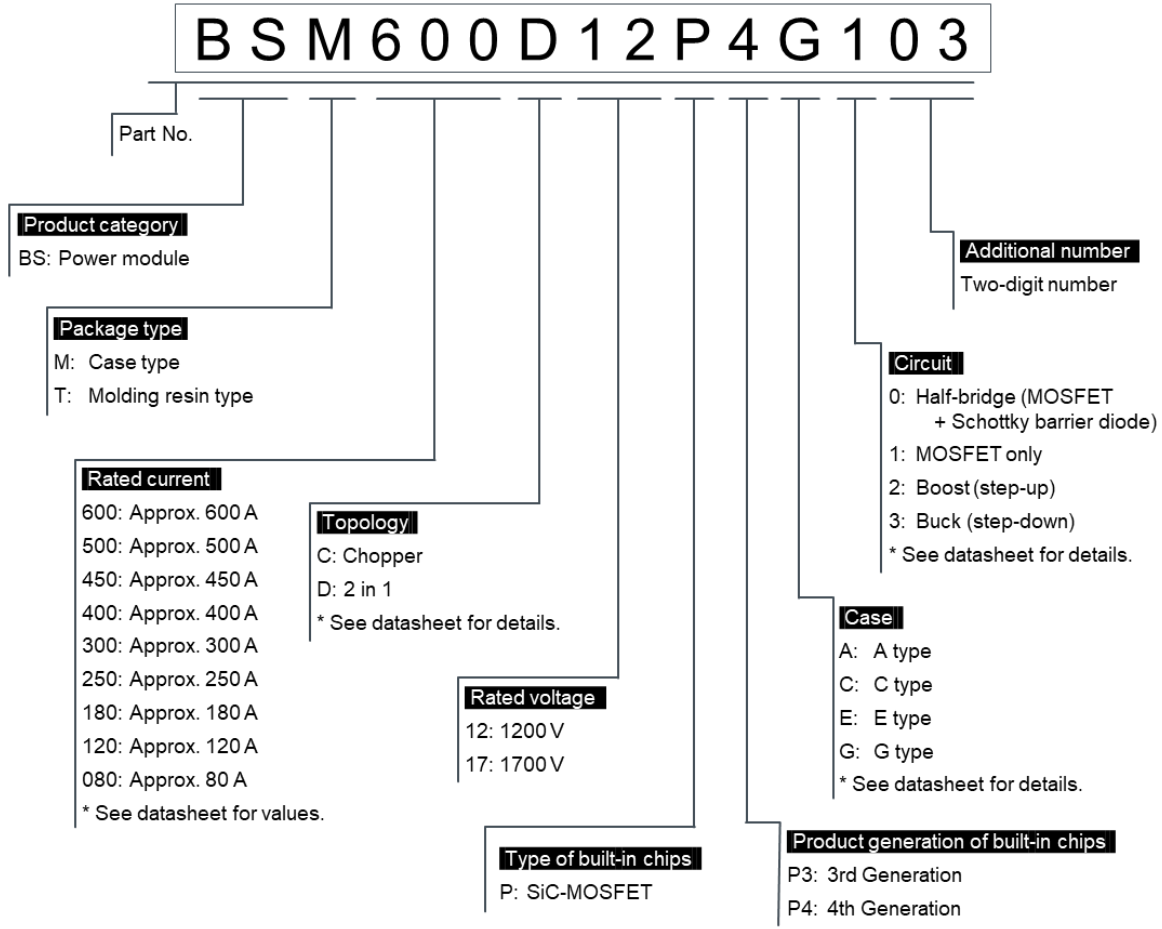
Selectable Devices

Component name	Component
Q1, 2	SiC Power Module (Case type)

For more information, go to **“More Info”** and click on **“Link to Datasheet”**.



SiC Power Module part number information



➧ Product Lineup: SiC Power Module

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Simulation Waveform1

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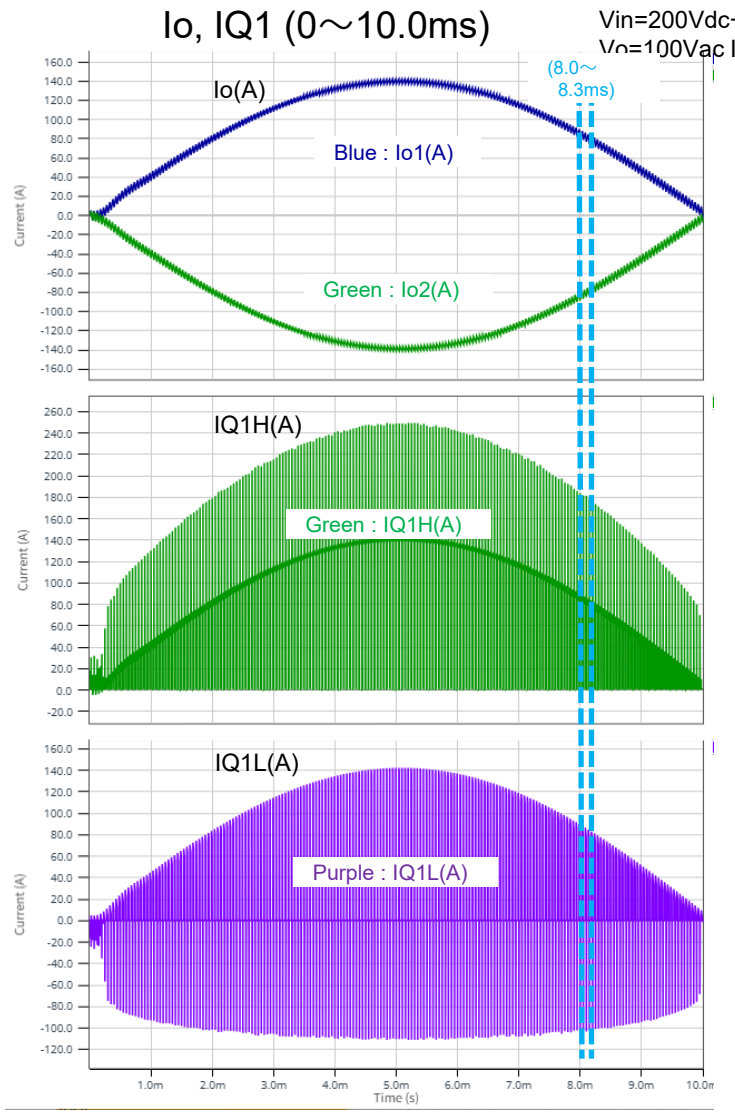

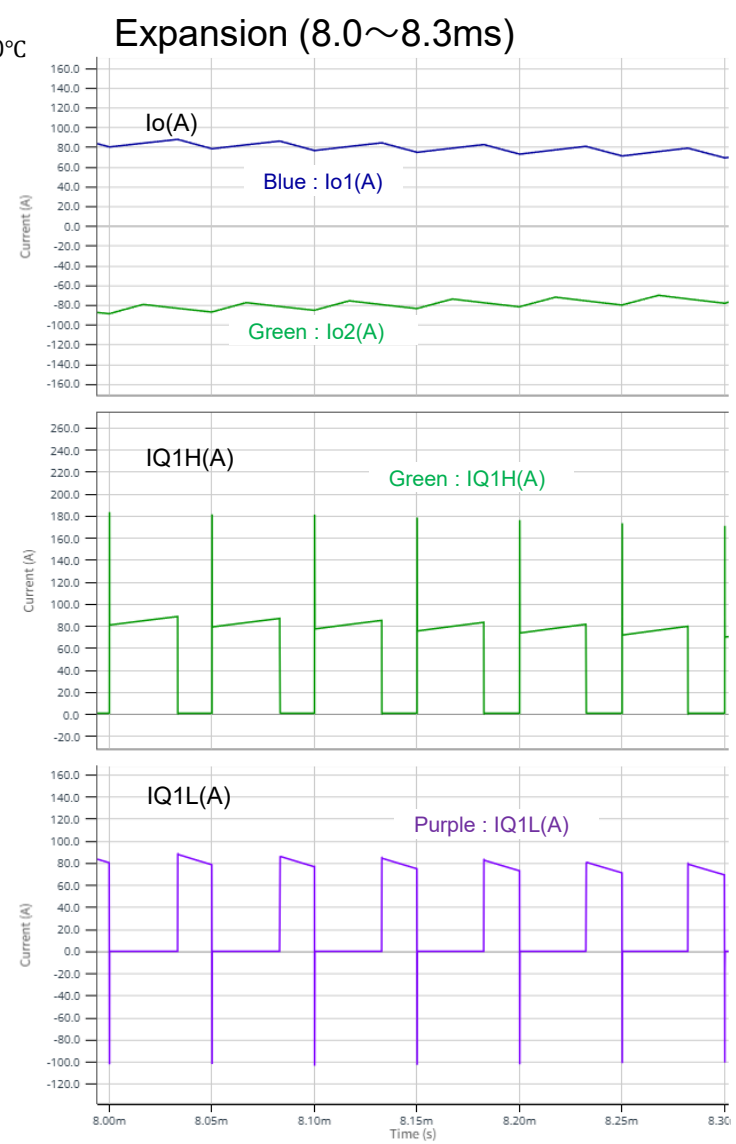

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How to change the devices

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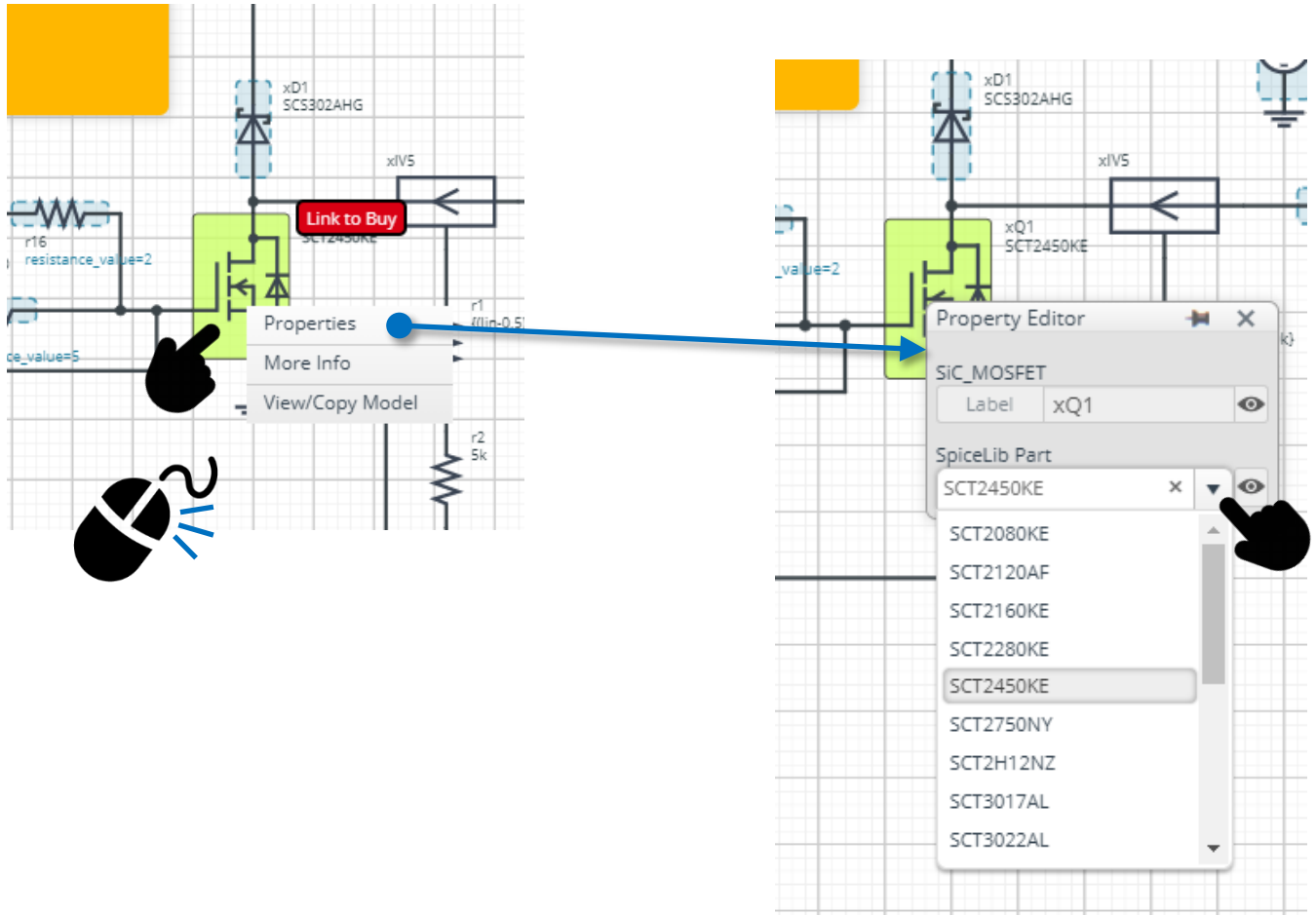
Right-click on the device ⇨ Select Properties ⇨ Pull down “SpiceLib Part” ⇨ Select the product



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Loss Calculation Model

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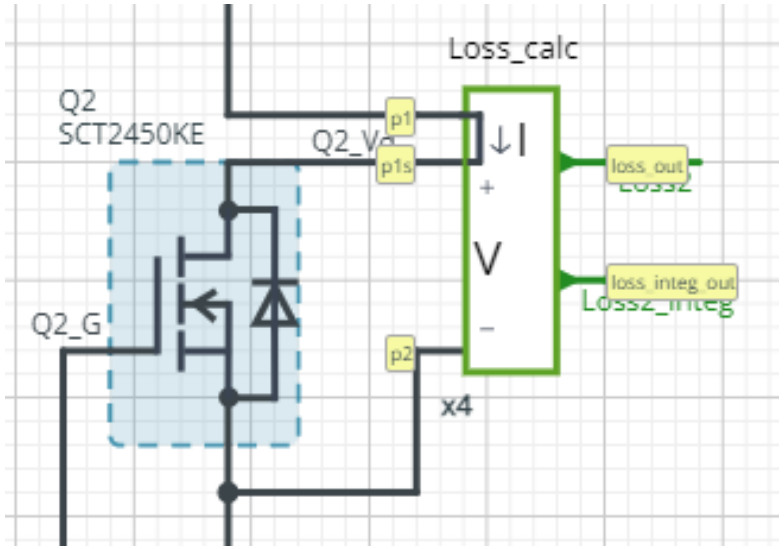
Loss Calculation Model outputs the instantaneous value of power loss and its integration.

Loss calculation model ‘Loss_calc’



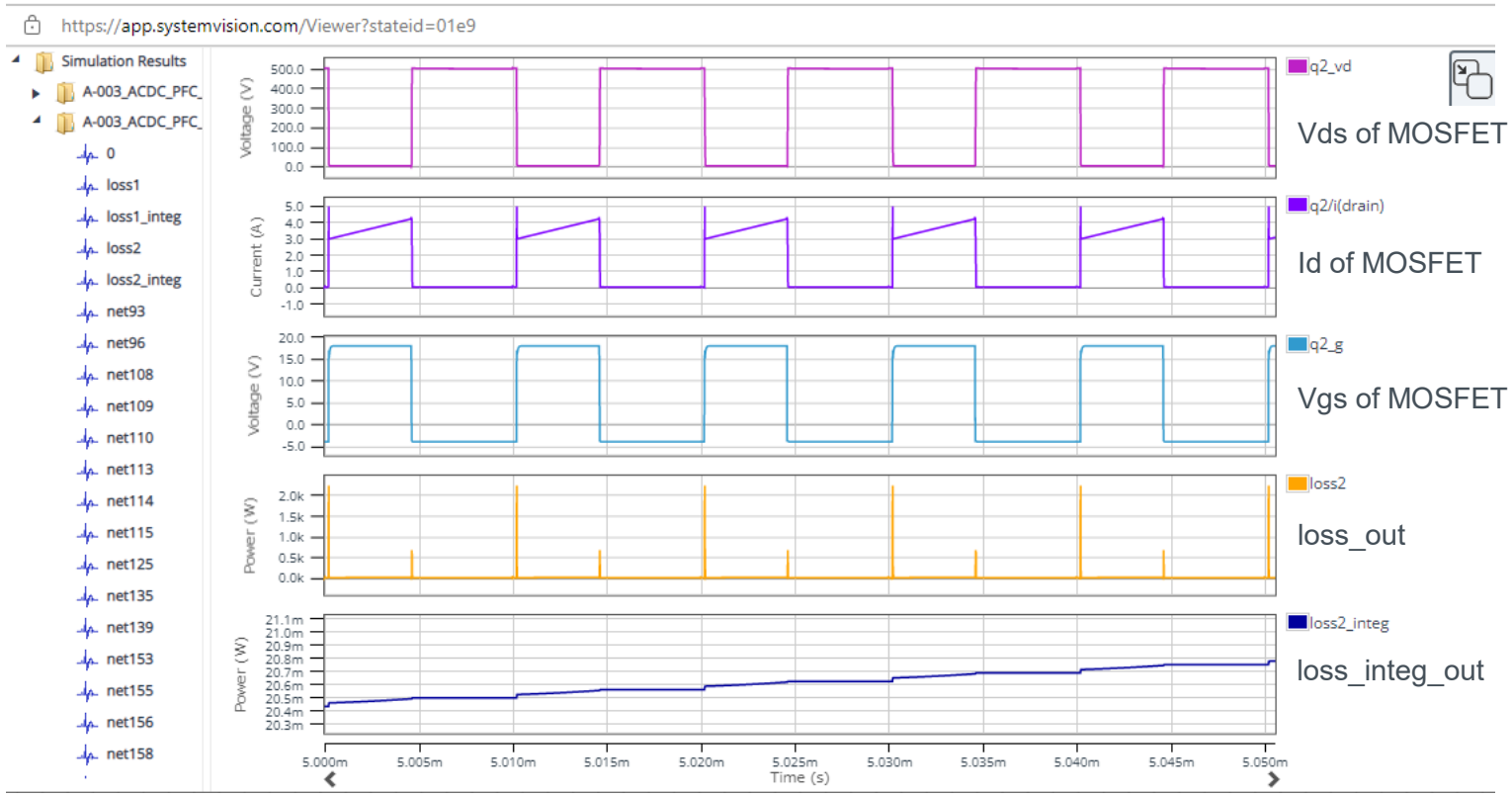
$$loss_out(t) = I(t) \times V(t)$$

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

I : Current through p1 to p1s

V : Voltage between p1s and p2

Waveform example



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