

B-004-HSD. 1-Phase 2-level Full Bridge Inverter $P_{OUT}=20kW$ (Equipped with HSDIP20 Package)



ROHM Solution Simulator Schematic Information

2026. Mar
68UG096E Rev.001

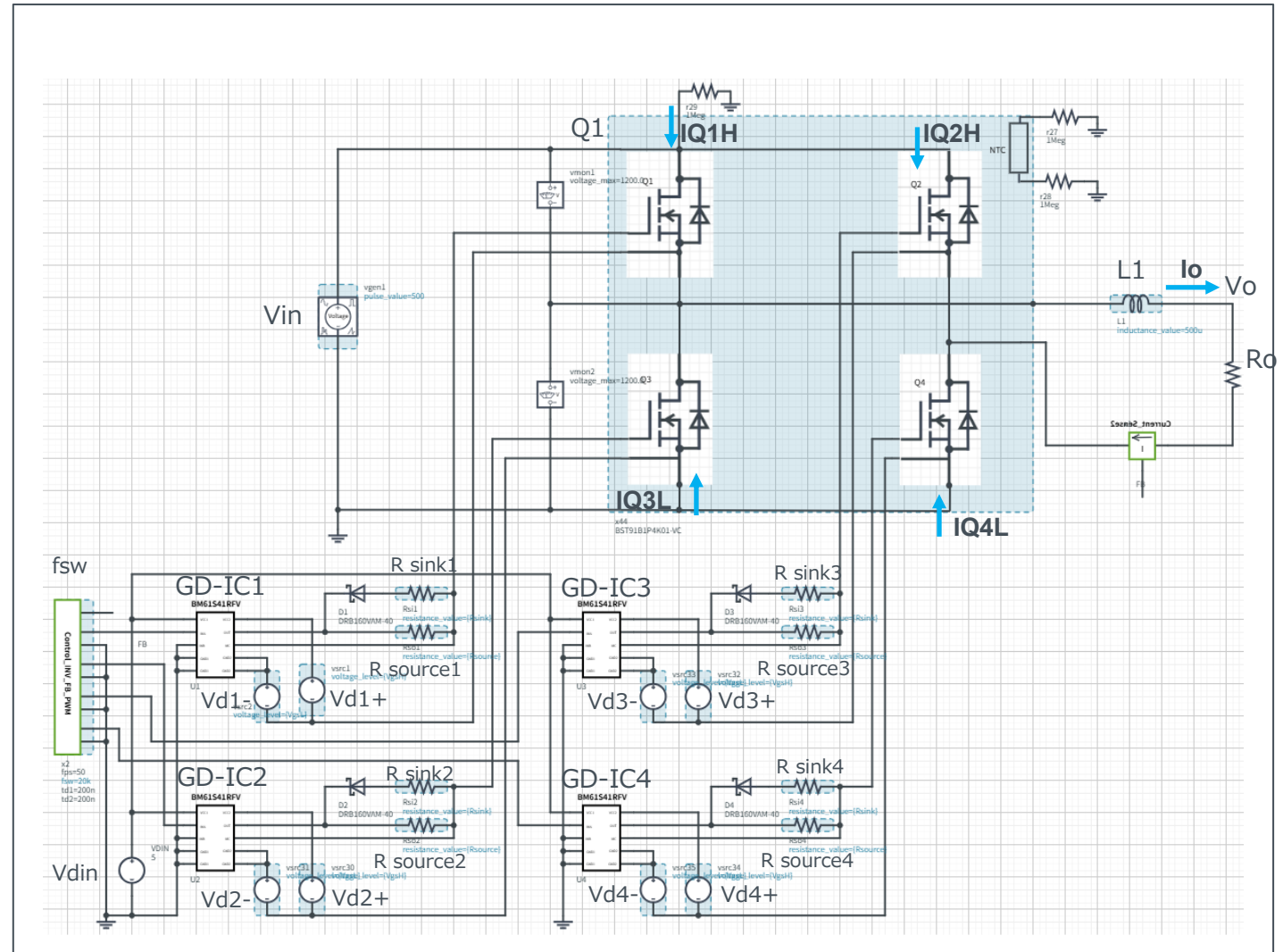
Simulation Parameters

Component name	Component	Default	Simulation Setting Range
Vin	Input voltage	500Vdc	
Vo	Output voltage	200Vac	
Io	Output current	100Aac	
fsw	Switching frequency	20kHz	10k – 300kHz
Tj	Temperature	100°C	
Vd1-4+	Gate Drive voltage H	18V	
Vd1-4-	Gate Drive voltage L	0V	
Vdin	Signal voltage level	5V	

Devices

Component Name	Component	Default	Simulation Setting Range
Q1	SiC Power Module	Selectable	
GD-IC1-4	Gate Driver	BM61S41RFV-C	
R sink1-4	Resistor for sink	ESR18 5Ω	
R source1-4	Resistor for source	ESR18 5Ω	
L1	Inductor	500μH	10μH - 2mH
Ro	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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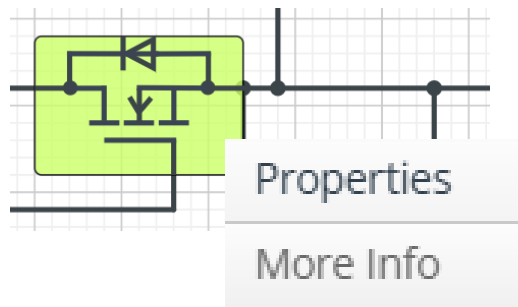
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Selectable Devices

Component name	Component
Q1	SiC Power Module (HSDIP20)

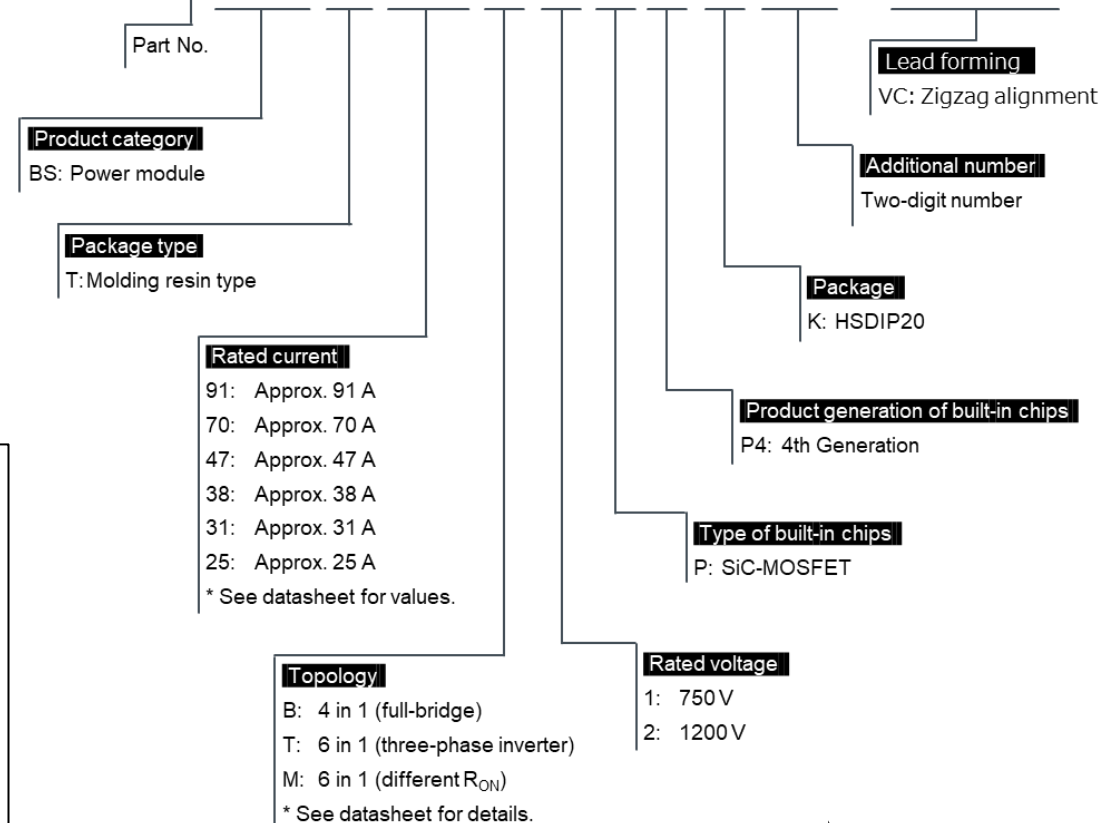
For more information, go to “**More Info**” and click on “**Link to Datasheet**”.



Model Links:
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SiC Power Module part number information

B S T 9 1 B 1 P 4 K 0 1 - V C



Product Lineup: [SiC Power Module](#)

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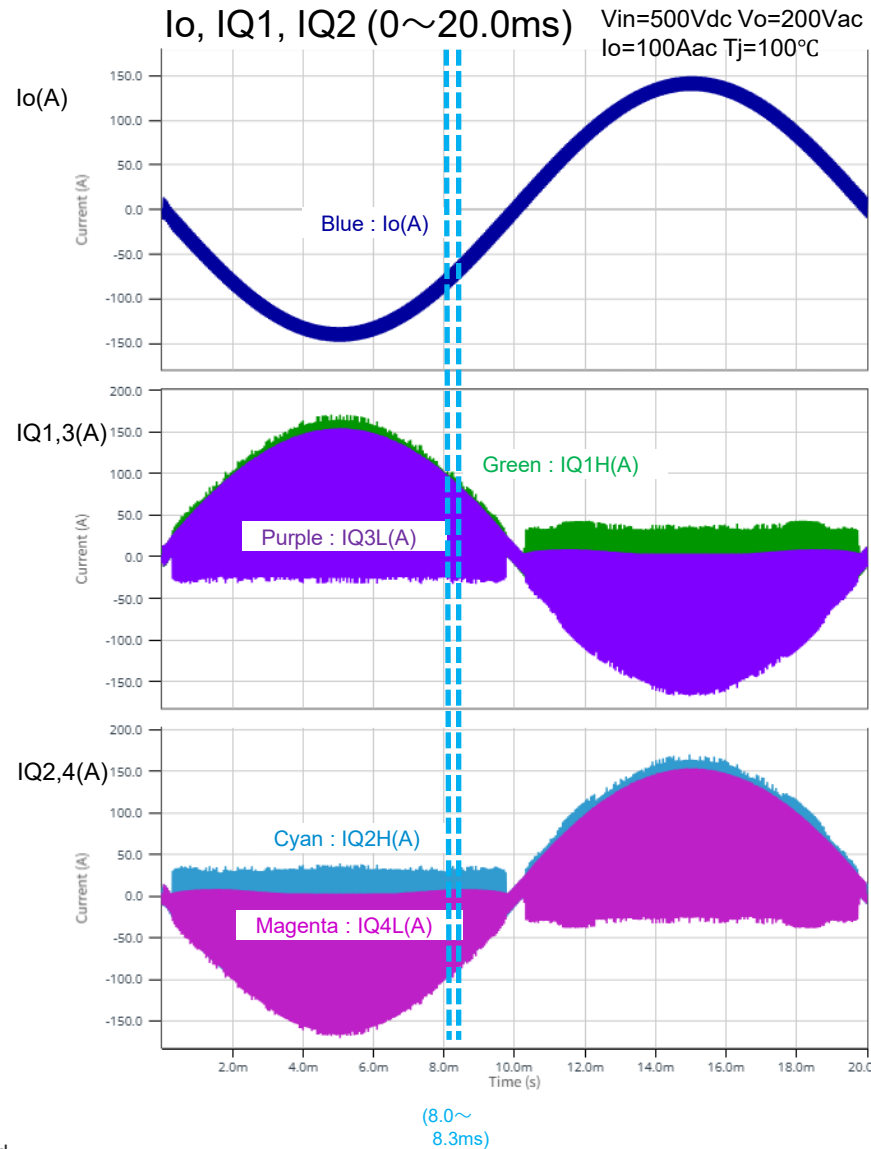


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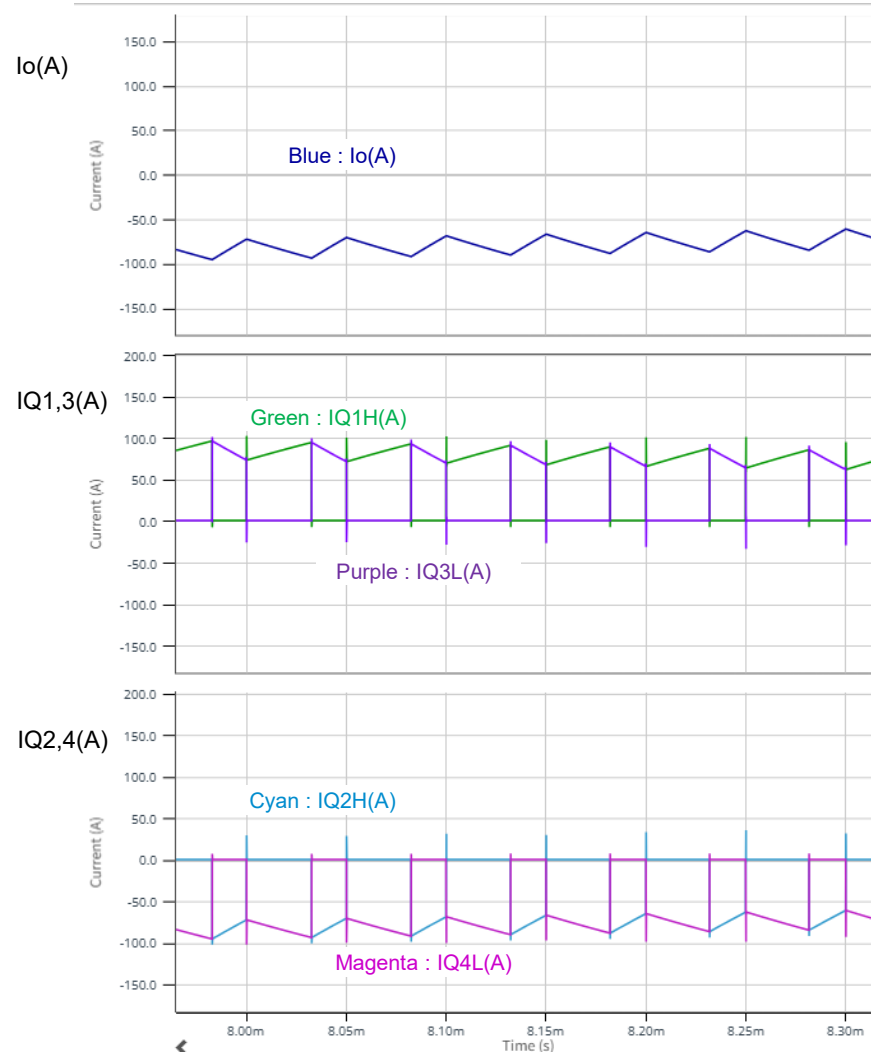
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Selectable Devices

Component name	Component	Product No.	feature
GD-IC1-4	Gate Driver	BM61S41RFV-C	for SiC MOSFET Isolation Voltage : 3750 Vrms I/O Delay Time (max) : 65ns Miller Clamp : Built-in UVLO : 14.5V

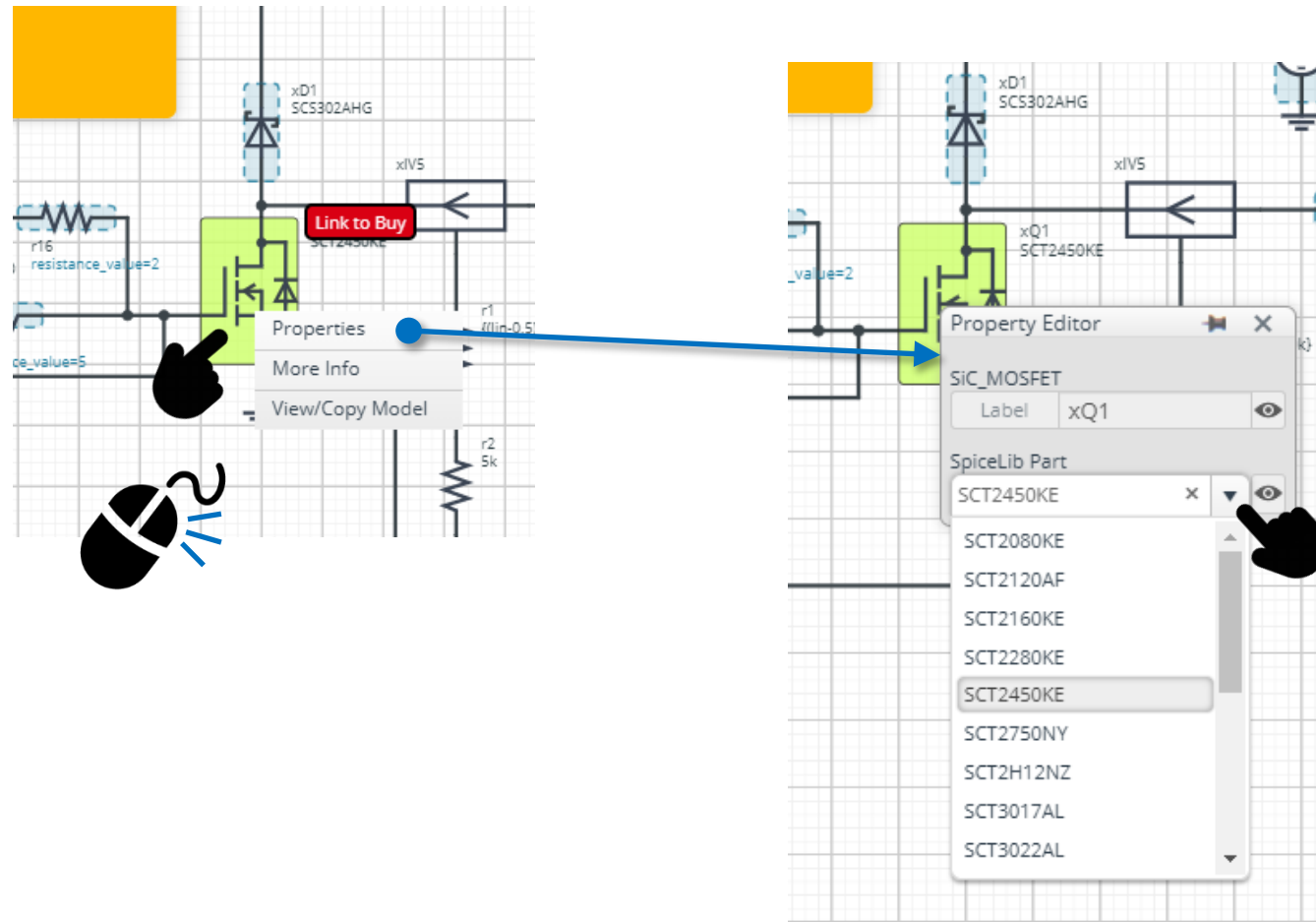


Expansion (8.0~8.3ms)



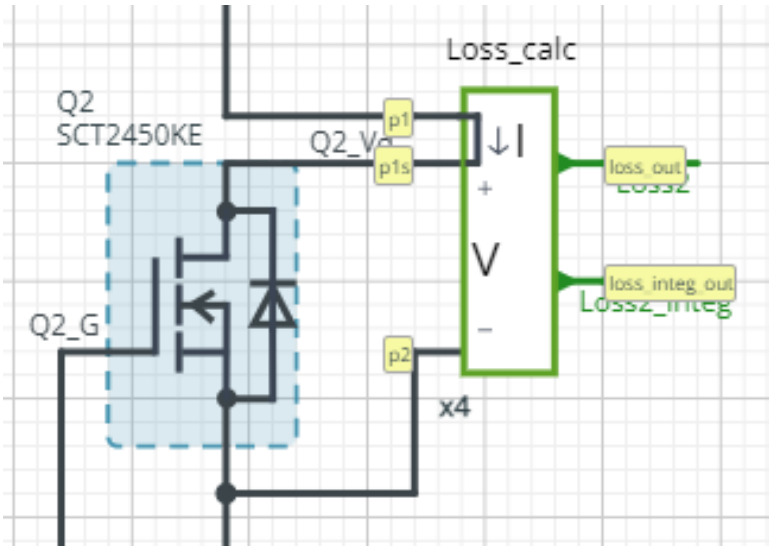
How to change the devices

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.

Loss calculation model 'Loss_calc'



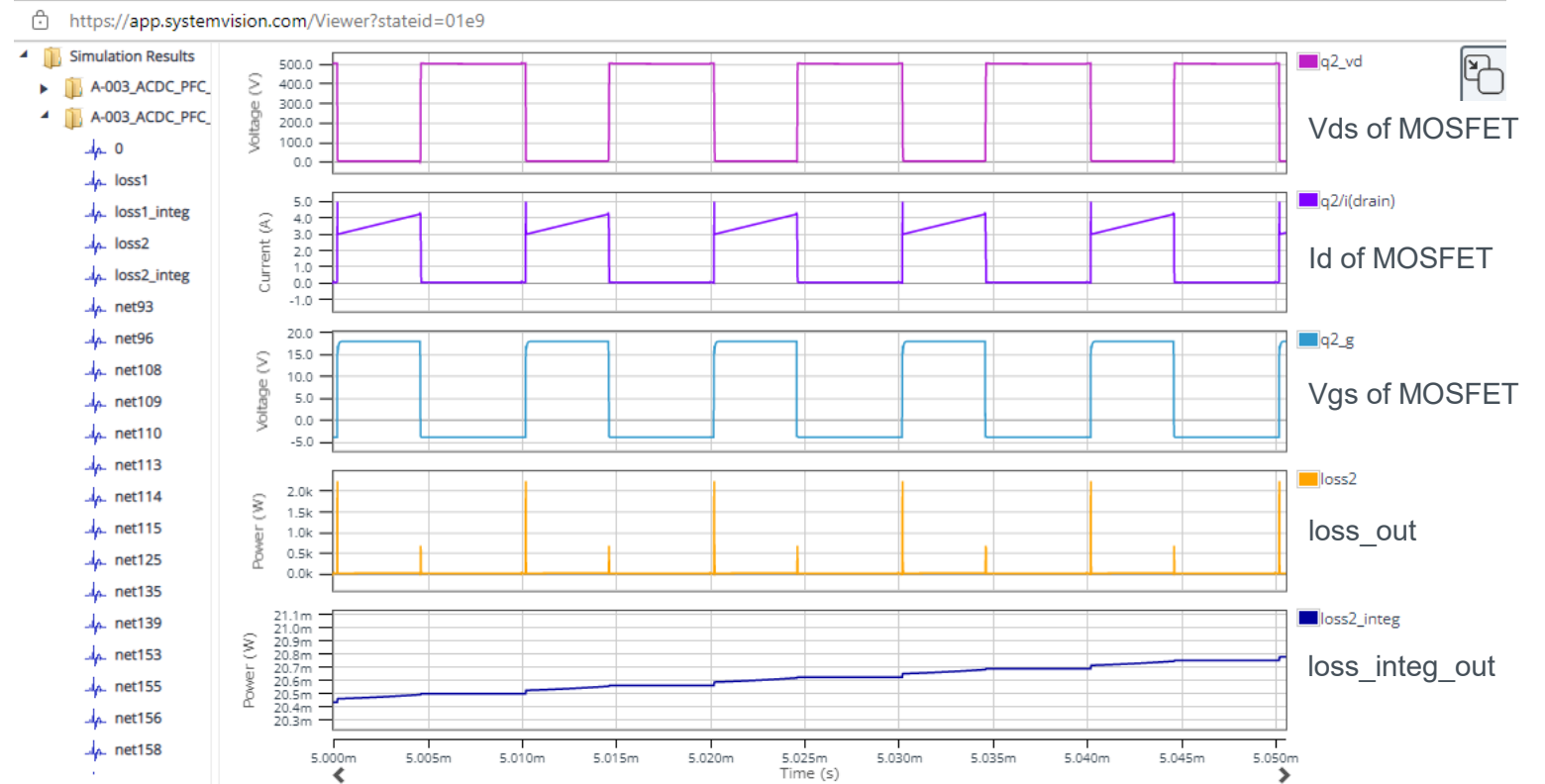
$$loss_out(t) = I(t) \times V(t)$$

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

I : Current through p1 to p1s

V : Voltage between p1s and p2

Waveform example



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