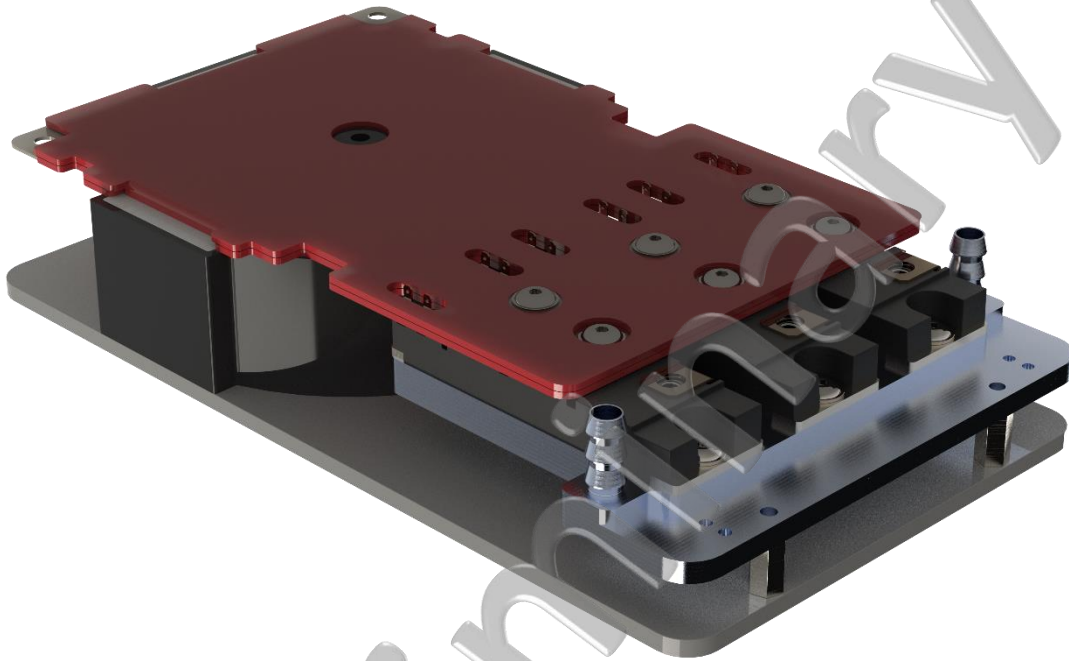


Cygnus200 Power Stack Test Kit

SiC semiconductors, cooling plate and DC link cap with busbar

- Ultra-high power density
- Max output 300A/module
- Low stray inductance
- 430uF DC link capacitance



ULTRA-HIGH POWER DENSITY

The Cygnus 200 test kit is a silicon carbide inverter power stack, aimed at applications which require ultra-high power density and can benefit from high frequency switching. It offers 430uF of DC link capacitance for a 750Vdc bus. Voltages up to 1000V are supported.

FEATURES

- PEN HV film capacitor for 125°C
- 300A max per semiconductor module¹
- Ultra-compact 430uF DC link capacitor
- Integrated, low-inductance busbar
- Vacuum brazed aluminium cooling plate

POTENTIAL APPLICATIONS

- Automotive traction inverters
- Active front ends
- Industrial motor drives
- Aerospace pump inverter
- Aerospace light aircraft propulsion

¹ Subject to switching freq. and coolant temperature conditions

ELECTRICAL PERFORMANCE

Symbol	Parameter	Min	Typ	Max	Test Conditions
V _{DC}	DC bus voltage maximum			750V	
	DC bus future expansion			1000V	
I _φ (rms)	AC output phase current (rms)		150A		V _{ACout} = 480V _{rms} , WEG coolant, 50% blend, 12L/min, f _{sw} = 16kHz, V _{DC} = 750V, f _{out} = 300Hz, DPF = 1.0
f _{sw}	Switching frequency		16kHz		
R _{DSon}	Semiconductor module drain to source resistance		4.1mΩ		
I _{mod-pk}	Peak current per module			300A	Inlet temp - 50 °C Switching freq. = 5kHz
I _{mod-cont}	Max continuous current per module			200A	Inlet temp - 50 °C Switching freq. = 5kHz
C _{DC}	DC bus capacitor bank capacity	390μF	430μF	470μF	@ 10kHz
ESL	Equivalent series inductance		10nH		At module terminals
ESR	Equivalent series resistance		550μΩ		

T_c = 25°C, T_a = 25°C unless otherwise stated

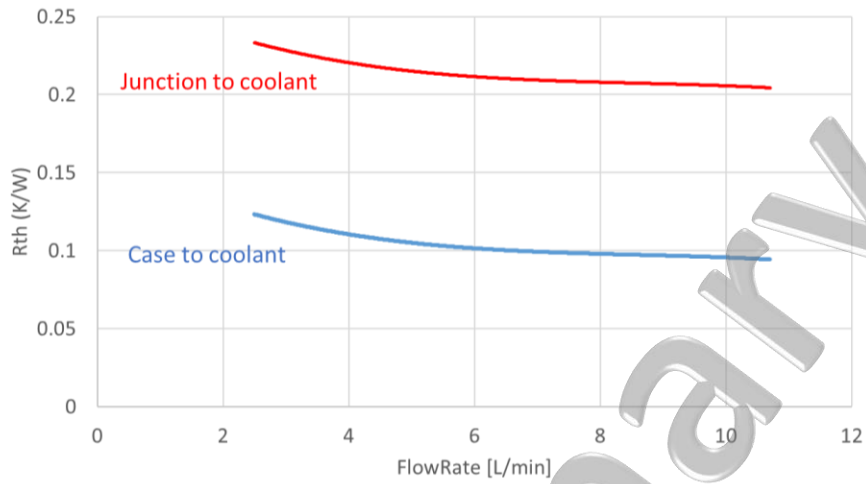
ENVIRONMENTAL SPECIFICATION

Symbol	Parameter	Min	Typ	Max	Test Conditions
T _a	Ambient temperature		25°C	70°C	Higher ambient temperature possible with power derating
T _{coolant}	Coolant temperature		25°C	90°C	Switching freq. and phase current must not exceed T _{J,Max}
T _{stg}	Storage temperature	-40°C		85°C	

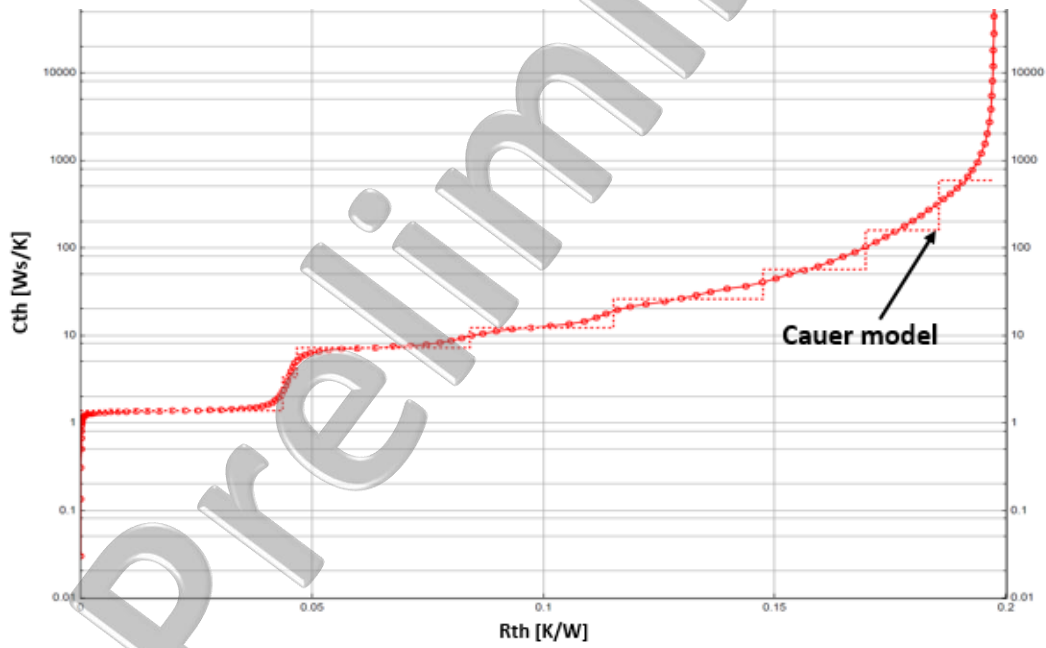
THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Parameter	Min	Typ	Max	Test Conditions
W	Weight		2.5kg		
V	Volume		2.1L		
l	Length		270mm		
w	Width		150mm		
h	Height		52mm		
P	Coolant operating pressure			5bar	
ΔP	Pressure drop		300mbar		12L/min, T _{coolant} = 25°C

THERMAL RESISTANCE V FLOW RATE

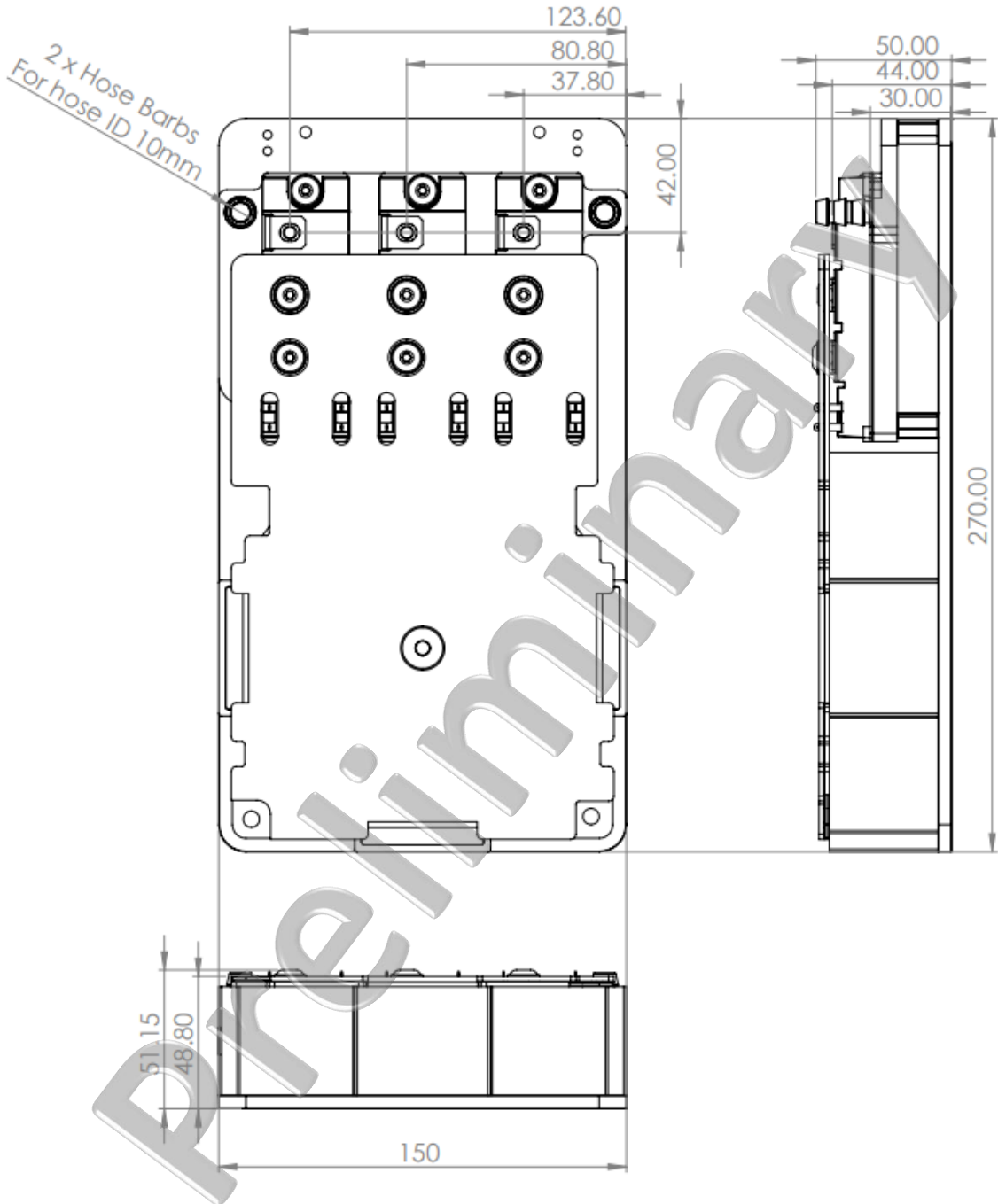


CAUER MODEL



8 stage cauer model of Rth - coolant rate =4.7L/min

OUTLINE DRAWING



Dimensions given are in mm