

# CPML100MAX™

Inductor with nanocrystalline magnetic core



## FEATURES

- 1000V Class
- Supports switching frequencies up to 40kHz
- Highly linear inductance characteristic
- Optimized for liquid cooling
- High performance nanocrystalline magnetic core
- High efficiency
- Low capacitance
- High power density

## APPLICATIONS

- Data Centers
- EV chargers
- Uninterruptible Power Supplies
- Solar inverters
- DC-DC converters

## ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
INDUCTANCE	L	90.0	100.0	110.0	μH	T=25°C, f=40kHz
DC RESISTANCE	DCR		5.3	6.0	mΩ	T=25°C
SHUNT CAPACITANCE	C <sub>shunt</sub>		48		pF	T=25°C
TERMINAL-TO-CASE CAPACITANCE	C <sub>case</sub>		677		pF	T=25°C, f=1MHz
SELF-RESONANT FREQUENCY	SRF	1.7	2.1		MHz	T=25°C
POWER DISSIPATION	P <sub>max</sub>			383 <sup>1</sup>	W	T <sub>case</sub> = 25°C
DC CONTINUOUS CURRENT	I <sub>DC,max</sub>			216 <sup>1</sup> 183 <sup>1</sup>	A	T <sub>case</sub> = 25°C T <sub>case</sub> = 60°C
MAX INTERNAL TEMPERATURE	T <sub>max</sub>			150	°C	

<sup>1</sup>P<sub>max</sub> and I<sub>DC,max</sub> are maximum total power dissipation and maximum DC current respectively when operating at T=T<sub>max</sub>

## INSULATION CHARACTERISTICS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
ISOLATION VOLTAGE, TERMINAL TO CASE	$V_{iso}$	2500			$V_{RMS}$	60Hz, 1mA Max, 60s
CREEPAGE, TERMINAL TO TERMINAL		48.0			mm	
CLEARANCE, TERMINAL TO TERMINAL		48.0			mm	
CREEPAGE, TERMINAL TO CASE		14.0			mm	
CLEARANCE, TERMINAL TO CASE		14.0			mm	Terminal mounting hardware not installed

Creepage and clearance designed in accordance with UL840 and IEC 60664-1

## THERMAL SPECIFICATIONS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
THERMAL RESISTANCE	$R_{th}$		0.34		C/W	Baseplate to internal hotspot
THERMAL TIME CONSTANT	$\tau_{th}$		21		min	

## MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
WEIGHT	G		37.4		lbs	

## INSTALLATION REQUIREMENTS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
TERMINAL FORCE X	$F_x$			30	lbf	
TERMINAL FORCE Y	$F_y$			30	lbf	
TERMINAL FORCE Z	$F_z$			15	lbf	
TERMINAL BOLT MOUNTING TORQUE	$M_t$	9.0			ft-lbs	¼"-20 SAE J429 Grade 8
MOUNTING BOLT TORQUE	$M_b$	9.0	11.0	13.0	ft-lbs	¼"-20 SAE J429 Grade 8 <sup>1</sup>
HEATSINK MOUNTING SURFACE FLATNESS				127	µm	
HEATSINK MOUNTING SURFACE FINISH	$R_z$			15	µm	

(1) If stainless steel mounting bolts are used, it is recommended to apply an anti-seize product. Reduce torque by 50% for lubricated bolts.

## PERFORMANCE DATA

Typical values based on initial product testing.

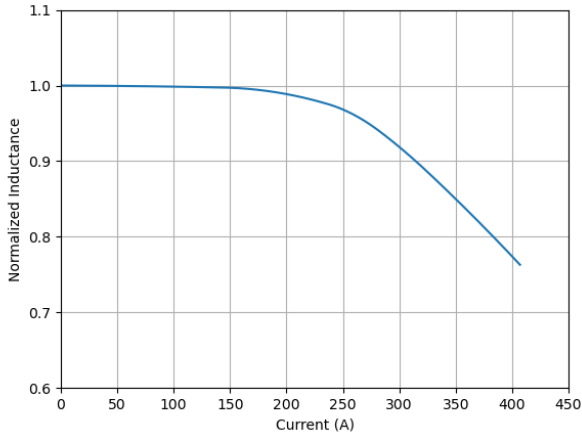


FIG. 1: INDUCTANCE VS. CURRENT

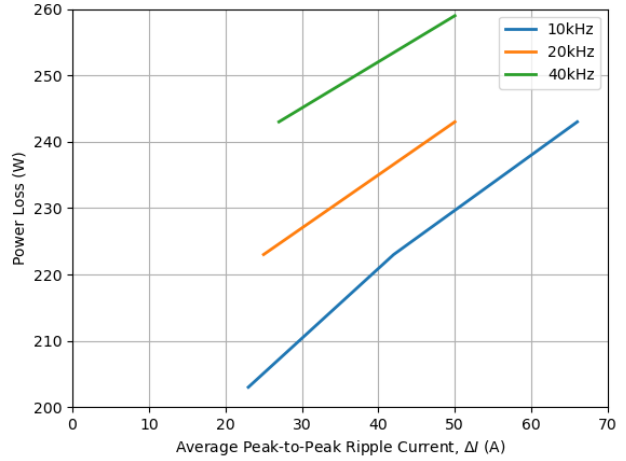


FIG. 2: POWER LOSS (F<sub>LINE</sub> = 60HZ, I = 180A<sub>RMS</sub>)

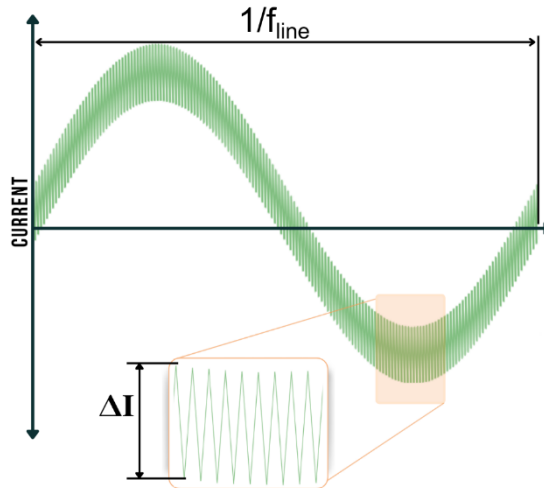
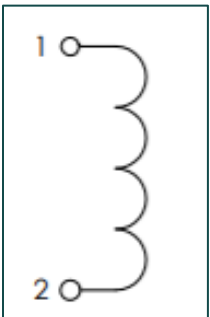
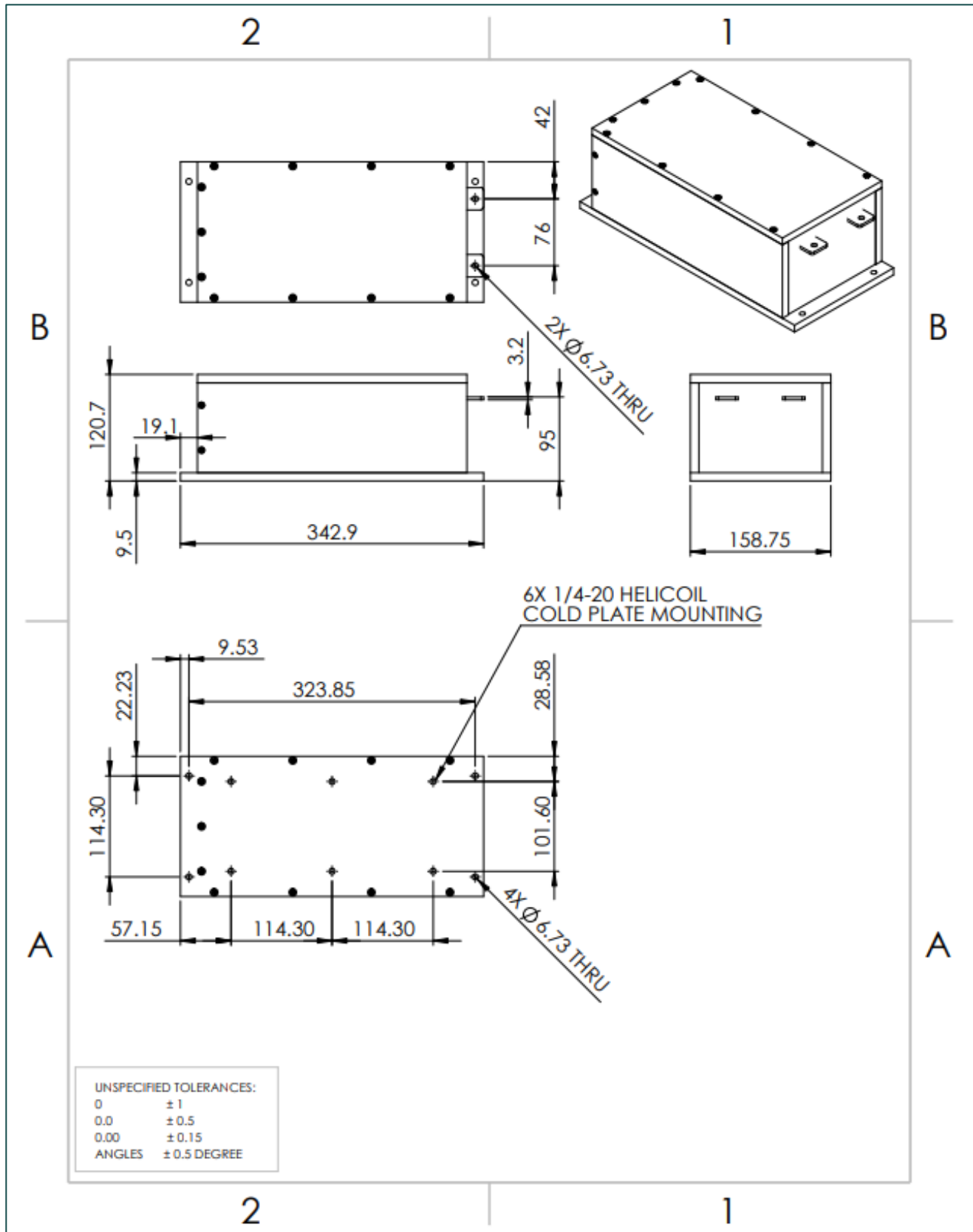


FIG. 3: CURRENT RIPPLE DEFINITION

## CIRCUIT DIAGRAM



DIMENSION DRAWING



**REVISION HISTORY**

<b>Document Version</b>	<b>Release Date</b>	<b>Description of Changes</b>
0.1	5/2/2025	Initial release
0.2	8/12/2025	Drawing updated
0.3	1/13/2025	Updated voltage class

## PARTNER WITH US

Contact us to learn more about our capabilities, or to schedule a tour of our facility in Pittsburgh, PA.

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