CPML30MAX™

Inductor with nanocrystalline magnetic core

FEATURES

600V 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	27.0	30.0	33.0	µH	T=25°C, f=40kHz
DC RESISTANCE	DCR		4.6	5.3	mΩ	T=25°C
SHUNT CAPACITANCE	C_{shunt}		29		pF	T=25°C
TERMINAL-TO-CASE CAPACITANCE	C_{case}		161		pF	T=25°C, f=1MHz
SELF-RESONANT FREQUENCY	SRF	5.1	6.2		MHz	T=25°C
POWER DISSIPATION	P_{max}			97[1]	W	T_{case} = 25°C
DC CONTINUOUS CURRENT	$I_{DC,max}$			110[1] 93[1]	A	T_{case} = 25°C T_{case} = 60°C
MAX INTERNAL TEMPERATURE	T_{max}			150	°C	

[1]P_{max} and $I_{DC,max}$ are maximum total power dissipation and maximum DC current respectively when operating at T=T_{max}

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		14.0			mm	
CLEARANCE, TERMINAL TO TERMINAL		14.0			mm	
CREEPAGE, TERMINAL TO CASE		6.0			mm	
CLEARANCE, TERMINAL TO CASE		6.0			mm	Terminal mounting hardware not installed

Creepage and clearance designed in accordance with UL840 and IEC60664

THERMAL SPECIFICATIONS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
THERMAL RESISTANCE	R_{th}		1.29		C/W	Baseplate to internal hotspot
THERMAL TIME CONSTANT	τ_{th}		8		min	

MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
WEIGHT	G		5.3		lbs	

INSTALLATION REQUIREMENTS

PARAMETER	SYMBOL	VALUE			UNIT	CONDITION
		MIN.	TYP.	MAX.		
TERMINAL FORCE X	F_x			25	lbf	
TERMINAL FORCE Y	F_y			25	lbf	
TERMINAL FORCE Z	F_z			11	lbf	
TERMINAL BOLT MOUNTING TORQUE	M_t	33			in-lbs	10-32 SAE J429 Grade 8
MOUNTING BOLT TORQUE	M_b	9.0	11.0	13.0	ft-lbs	¼”-20 SAE J429 Grade 8[1]
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.

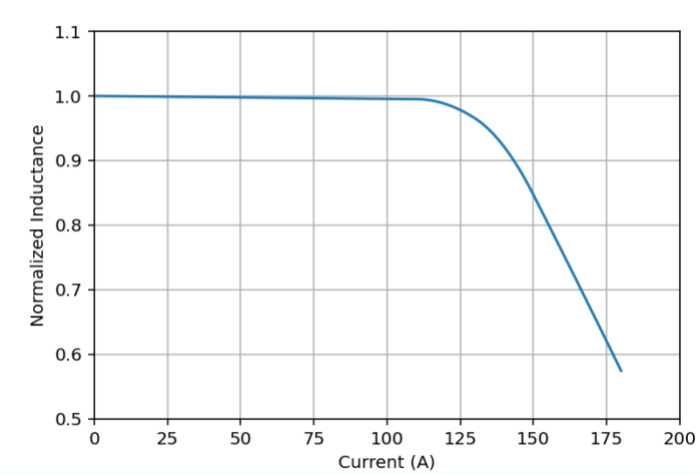


FIG. 1: INDUCTANCE VS. CURRENT

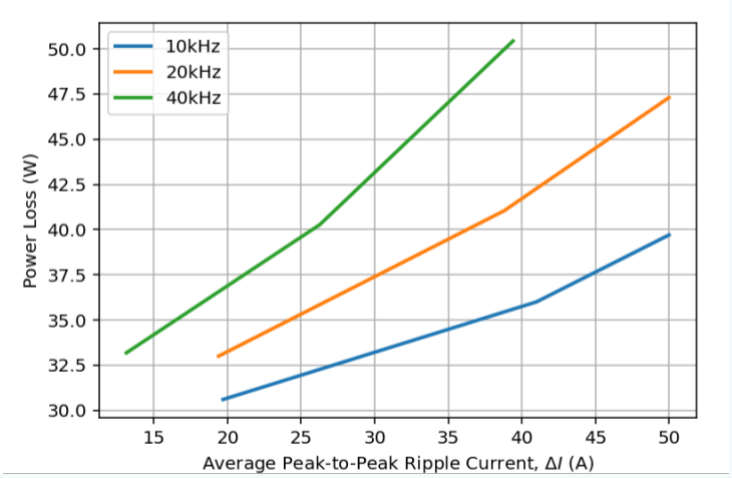


FIG. 2: POWER LOSS (F_{LINE} = 60HZ, I = 180A_{RMS})

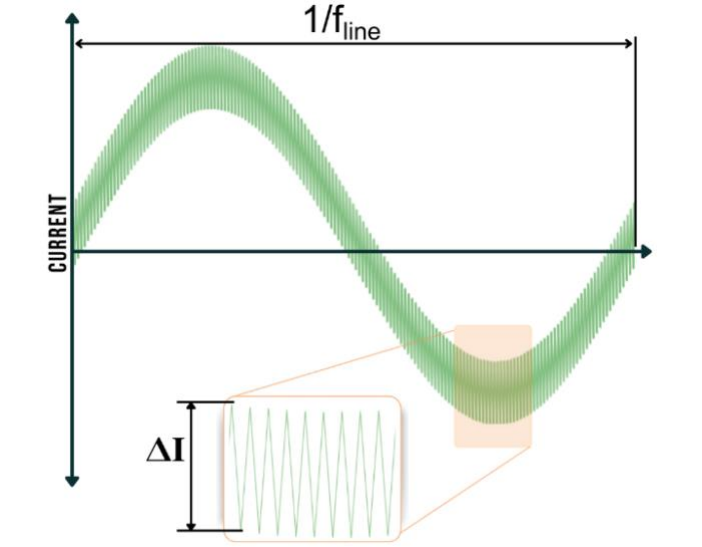
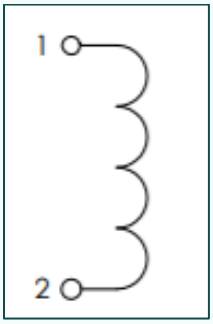


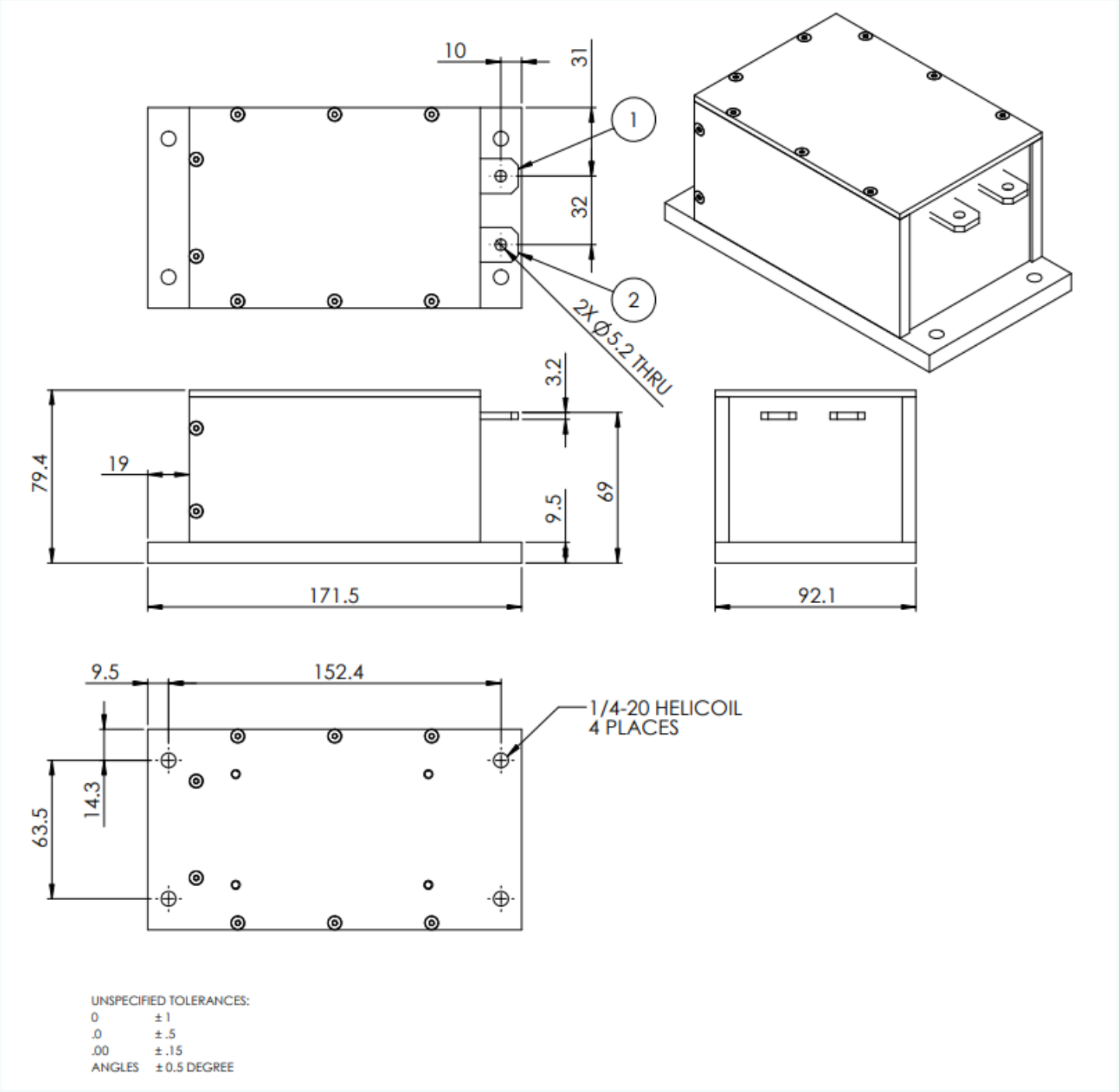
FIG. 3: CURRENT RIPPLE DEFINITION

CIRCUIT DIAGRAM



 Specifications subject to change without notice

DIMENSION DRAWING



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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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