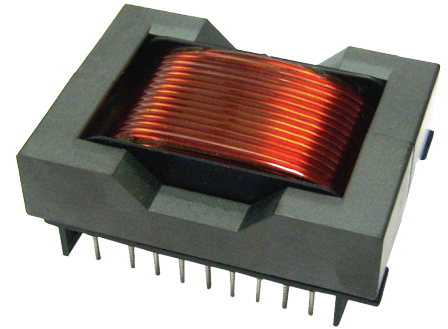


# WCM410-88 WCM410-60 WCM410-70 WCM410-50

## Switch Mode Transformers

### Product Description

West Coast Magnetics' new WCM410-88,-70,-60,-50 series raise the bar for high power switch mode transformers. This new series was designed in order to achieve 50% more power density than other geometries currently available on the market, without sacrificing isolation. The core and bobbin are also suitable for safe UL/CSA/VDE coupling with medical grade isolation standards.



### Output Power vs Frequency of Operation (Watts)

Product Code	Frequency	25 kHz	50 kHz	100 kHz	200 kHz	500 kHz	1 MHz
WCM410-88	Power Rating	1.8 kW	2.7 kW	3.7 kW	4.4 kW	5.1 kW	-
WCM410-70	Power Rating	1.1 kW	1.8 kW	2.4 kW	2.8 kW	3.2 kW	-
WCM410-60	Power Rating	-	-	1.0 kW	1.2 kW	1.9 kW	2.2kW
WCM410-50	Power Rating	-	-	550 W	660 W	1.0 kW	1.2 kW

### Engineering Data

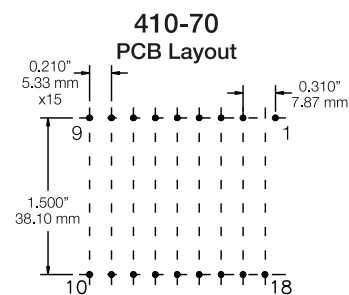
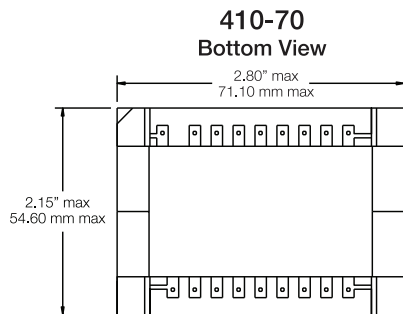
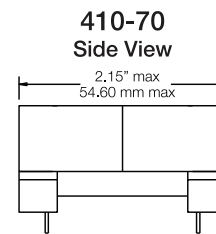
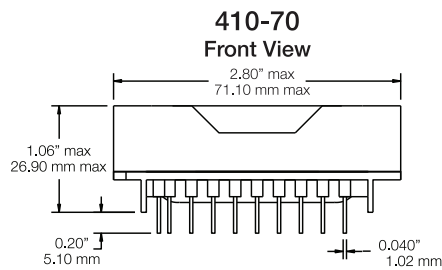
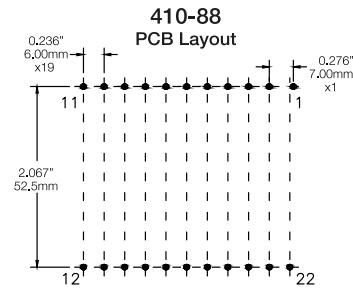
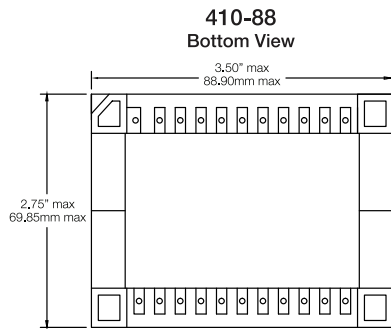
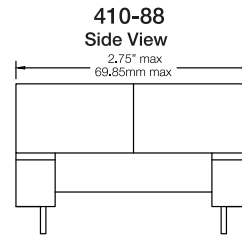
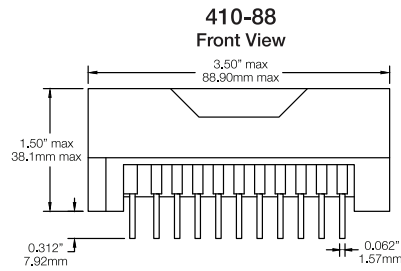
Product Code	Al (ungapped, nH/T <sup>2</sup> )	Ae Core Area (mm <sup>2</sup> )	Le magnetic path length (mm)	Ve core volume (mm <sup>3</sup> )	Wa bobbin winding area (mm <sup>2</sup> )	WaAc Core area winding area (mm <sup>4</sup> )	Bobbin window width (mm)	Bobbin window height (mm)	Mean length per turn (mm)	Core material
WCM410-88	5500	404.0	169.4	69,292	385.2	155,765	45.00	8.56	140.9	WCM-F100
WCM410-70	4400	245.0	129.0	31,600	201.6	49,392	31.75	6.35	108.0	WCM-F100
WCM410-60	3600	158.6	102.6	15,755	137.0	21,728	26.50	5.17	86.1	WCM-F300
WCM410-50	2100	106.7	89.2	9913	112.1	11,958	24.00	4.67	68.0	WCM-F300

**Note:**

Power rating is based on 40°C Temperature rise, unpotted, no forced air or cold plate cooling. Power rating will increase significantly with potted transformer and external cooling available.

# Schematics

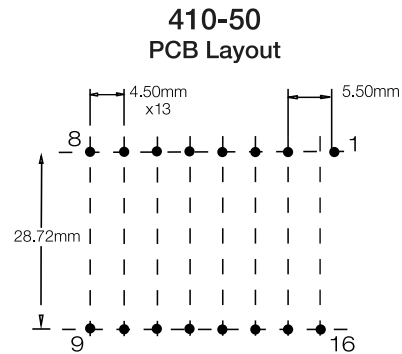
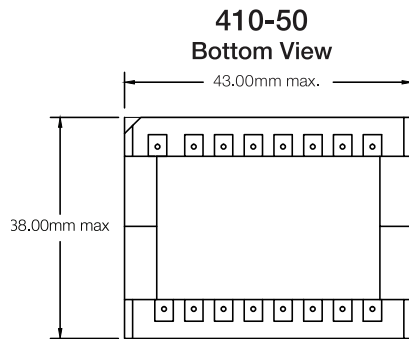
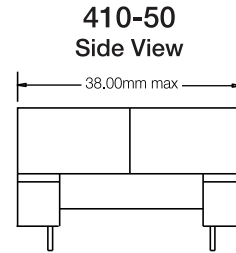
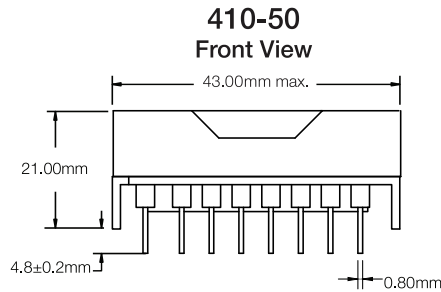
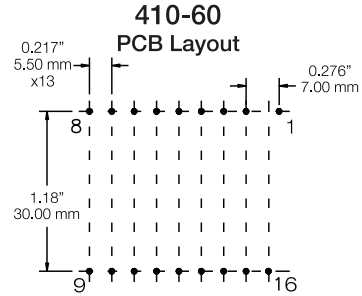
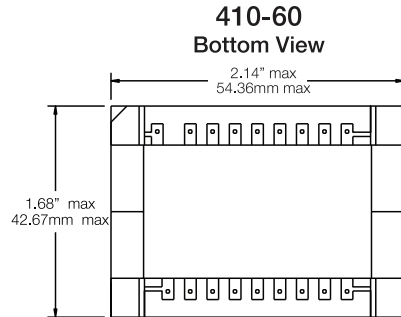
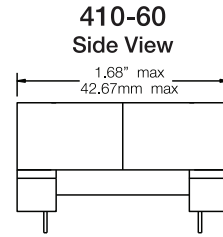
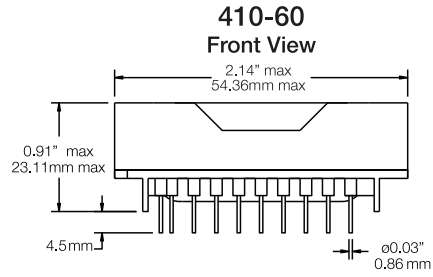
## WCM410-88 and WCM410-70



Dimensions:	Tolerance:
Inches	Inches
mm	x.xx ± 0.020"
	x.xxx ± 0.005"
	Millimeters
	x.x ± 0.25mm
	x.xx ± 0.13mm

# Schematics

## WCM410-60 and WCM410-50



**Dimensions:**

Inches  
mm

**Tolerance:**

Inches

x.xx ± 0.020"  
x.xxx ± 0.005"

Millimeters

x.x ± 0.25mm  
x.xx ± 0.13mm

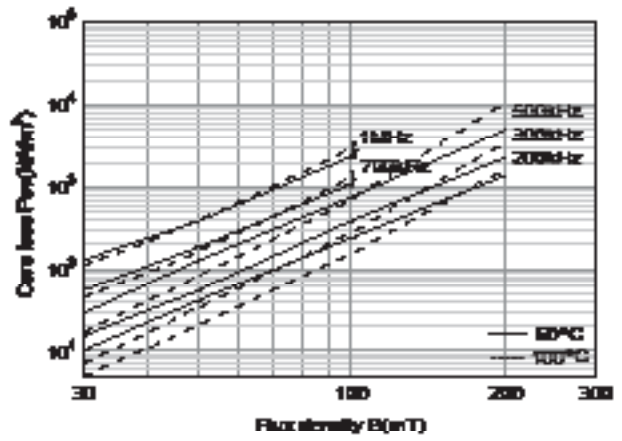
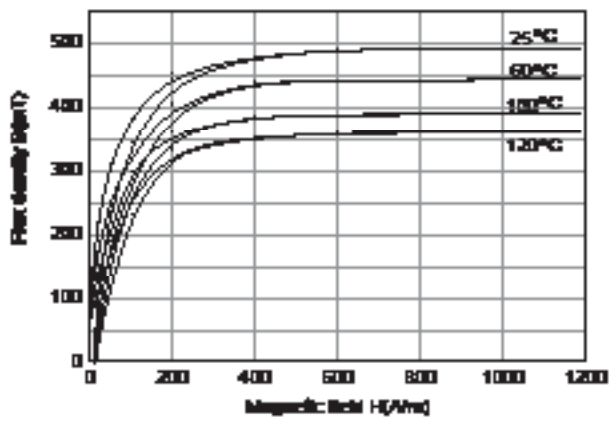
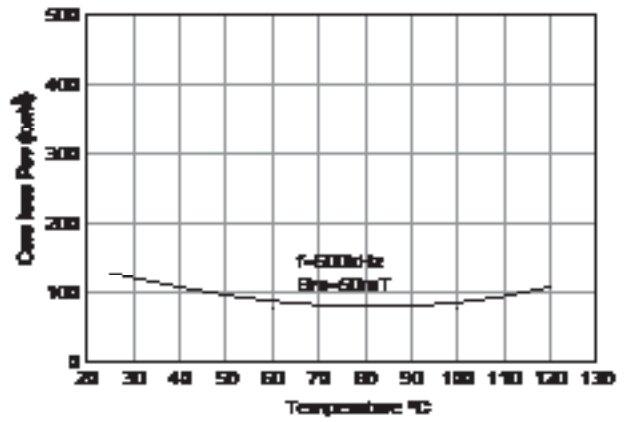
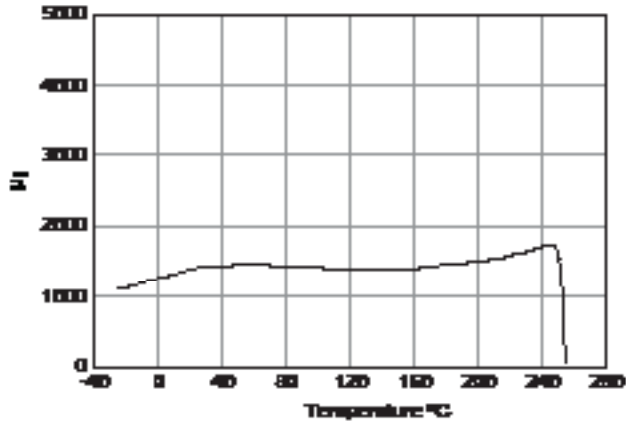
# Material Characteristics

## WCM-F300

Characteristics	Symbol	Unit		
Initial Permeability	$\mu_i$	-		1400 $\pm 25\%$
Amplitude Permeability	$\mu_a$	-		-
Saturation Flux Density at 1194 A/m	$B_s$	mT mT	25 °C 100 °C	490 390
Remanence	$B_r$	mT mT	25 °C 100 °C	100 70
Coercivity	$H_c$	A/m A/m	25 °C 100 °C	25 20
Core Loss	500 kHz 50 mT	$P_{cv}$	kw/m <sup>3</sup>	130
			kw/m <sup>3</sup>	80
			kw/m <sup>3</sup>	80
			kw/m <sup>3</sup>	110
			kw/m <sup>3</sup>	-
Electrical Resistivity	$\rho$	$\Omega \cdot m$		220
Curie Temperature	$T_c$	°C		>250
Density	$d$	kw/m <sup>3</sup>		$4.7 \times 10^3$

Test core: OD=25mm TH=8mm ID=15mm

Graphs  
WCM-F300



Test core: OD=25mm TH=8mm ID=15mm