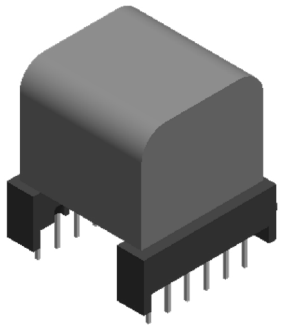
WEST COAST MAGNETICS

WCM430-60 WCM430-40 WCM430-20 WCM430-50 WCM430-30 WCM430-10

Switch Mode Transformers

Product Description

This new series was designed for applications requiring very high power density, and low emitted EMI. The core geometry was designed to equalize flux distribution throughout the core and minimize board space. The core material has very low loss at frequencies from 100 kHz to 500 kHz. The standoff between core and bobbin has creepage and clearance values which exceed competitive geometries, making theWCM430 series suitable for high voltage applications. This series puts out 10 watts to 700 watts of power.



Output Power vs Frequency of Operation (Watts)

Product Code	Frequency	100 kHz	200 kHz	400 kHz	600 kHz	1 MHz
WCM430-60	Power Rating	238	314	405	524	714
WCM430-50	Power Rating	98	130	167	216	295
WCM430-40	Power Rating	41	54	70	91	124
WCM430-30	Power Rating	17	22	28	37	50
WCM430-20	Power Rating	6	7	9	12	17
WCM430-10	Power Rating	3	4	5	7	10

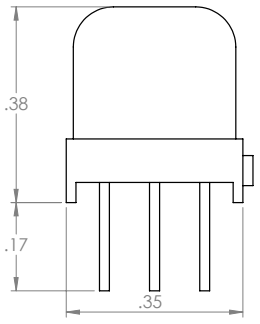
Engineering Data

Product Code	Ae Core Area (mm^2)	Le magnetic path length (mm)	Ve core volume (mm^3)	Wa bobbin winding area (mm^2)	WaAc Core area winding area (mm^4)	Bobbin window width (mm)	Bobbin window height (mm)	Mean length per turn (in)	Core material 25KHZ to 500KHZ
WCM430-60	63.9	68.0	3623	82.9	5297.3	17.2	4.8	2.17	WCM-F200
WCM430-50	39.4	54.1	2065	49.5	1949.7	13.4	3.7	1.72	WCM-F200
WCM430-40	25.4	42.9	989	28.8	731.3	10.3	2.8	1.34	WCM-F200
WCM430-30	15.9	34.1	494	16.6	263.5	8.0	2.1	1.07	WCM-F200
WCM430-20	7.4	27.2	247	10.6	78.4	6.4	1.7	0.85	WCM-F200
WCM430-10	6.3	21.1	123	6.2	39.5	4.9	1.3	0.68	WCM-F200

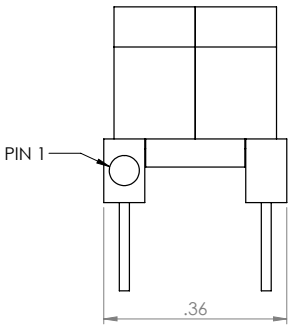
ISO 13485 ISO 9001 RoHS COMPLIANT ITAR International Traffic in Arms Regulations Compliant

Schematics
WCM430-10 and WCM430-20

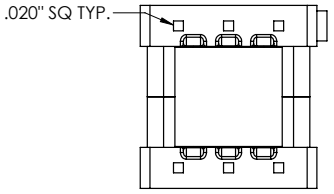
WCM430-10
Front View



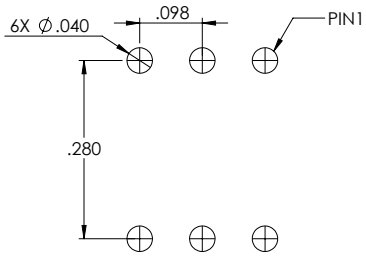
WCM430-10
Side View



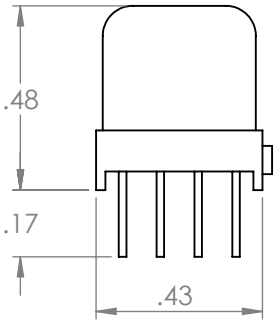
WCM430-10
Bottom View



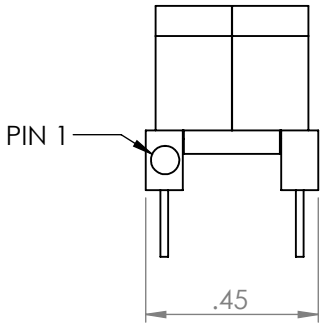
WCM430-10
PCB LAYOUT



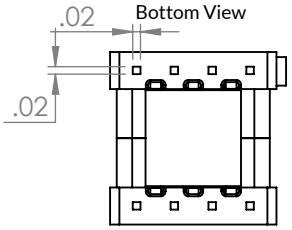
WCM430-20
Front View



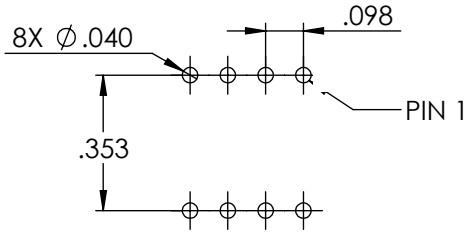
WCM430-20
Side View



WCM430-20
Bottom View



WCM430-20
PCB LAYOUT



Dimensions:

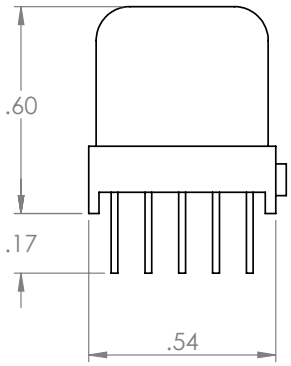
Inches
mm

Tolerance:

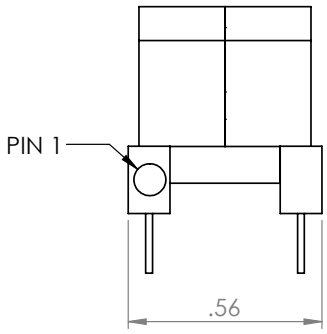
Inches
x.xx ± 0.020”
x.xxx ± 0.005”
Millimeters
x.x ± 0.25mm
x.xx ± 0.13mm

Schematics
WCM430-30 and WCM430-40

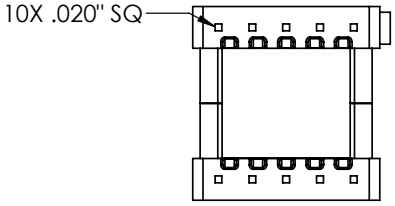
WCM430-30
Front View



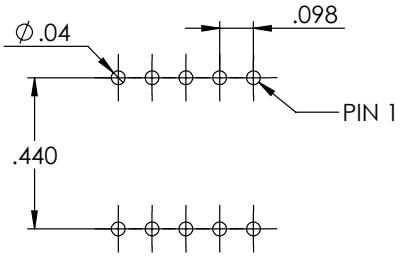
WCM430-30
Side View



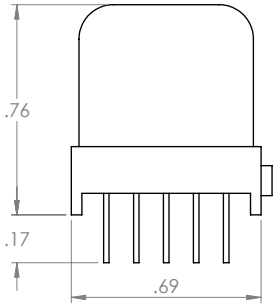
WCM430-30
Bottom View



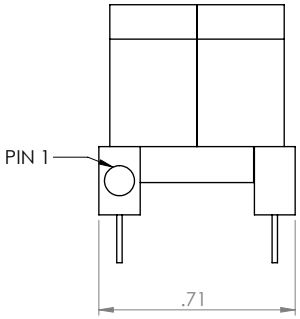
WCM430-30
PCB LAYOUT



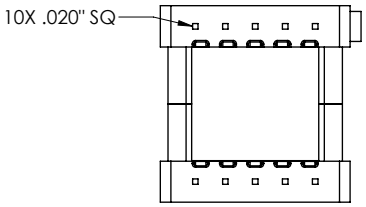
WCM430-40
Front View



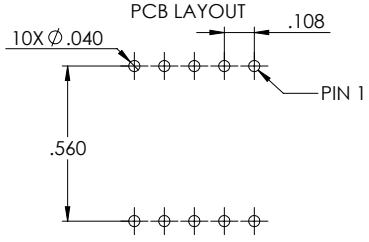
WCM430-40
Side View



WCM430-40
Bottom View



WCM430-40
PCB LAYOUT



Dimensions:

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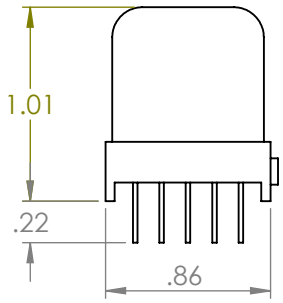
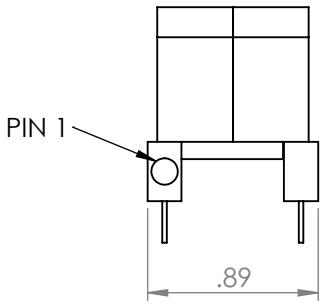
Schematics
WCM430-50 and WCM430-60

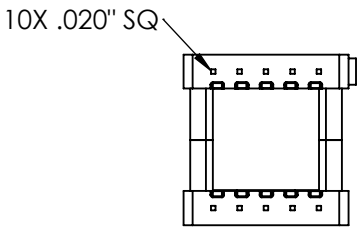
WCM430-50
Front View



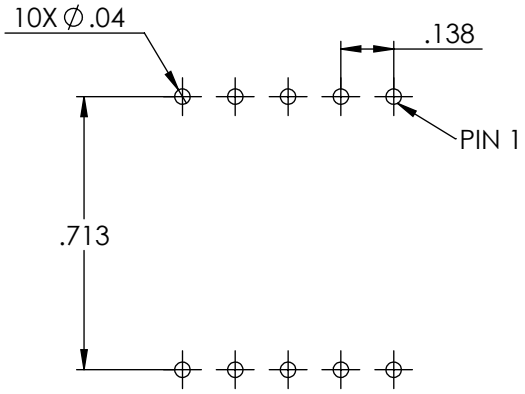
WCM430-50
Side View



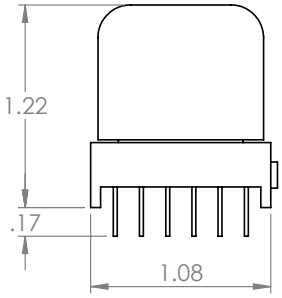
WCM430-50
Bottom View



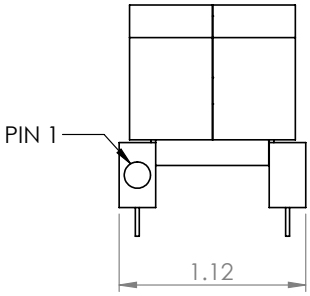
WCM430-50
PCB LAYOUT



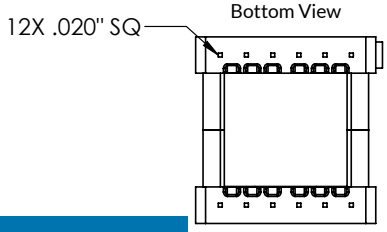
WCM430-60
Front View



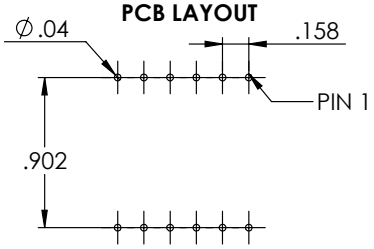
WCM430-60
Side View



WCM430-60
Bottom View



WCM430-60
PCB LAYOUT



Dimensions:

Inches
mm

Tolerance:

Inches
x.xx ± 0.020”
x.xxx ± 0.005”
Millimeters
x.x ± 0.25mm
x.xx ± 0.13mm

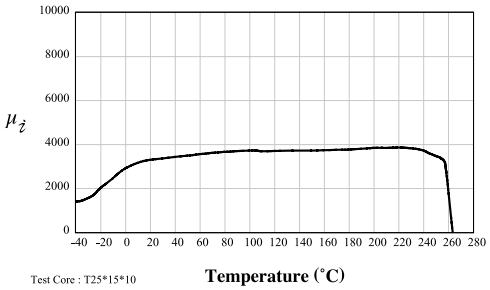
Material Characteristics
WCM-F200

Characteristics	Symbol	Unit	Measuring Conditions			Low Loss Materials
			Freq.	Flux den.	Temp.	P47
Initial Permeability	μi	-			25°C	3000 ±25%
Amplitude Permiability	μa	-	25kHz	200mT	25°C 100 °C	> 5000 > 5000
Power Loss	Pv	kw/m3	100kHz	200mT	25°C 60°C 100 °C 120 °C	430 390 360 380
Saturation Flux Density	Bms	mT	10KHz	H = 1200A/m	25 °C 100 °C	520 420
Remanence	Brms	mT	10KHz	H = 1200A/m	25 °C 100 °C	85 70
Coercivity	Hc	A/m	10KHz	H = 1200A/m	25 °C 100 °C	10 7
Hysteresis Material Constant	ΔB	10^{-6}mT	10KHz	1.5-3.0mT	25 °C	<0.6
Disaccommodation Factor	DF	10^{-6}	10KHz	< 0.1mT	25 °C	<1
Curie Temperature	Tc	°C				>220
Resistivity	ρ	Ωm				5.00
Density	d	g/cm3				4.90

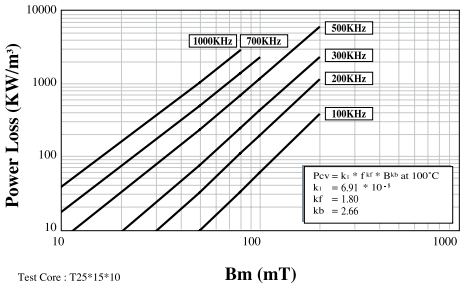
Test core: OD=25mm TH=8mm ID=15mm

Graphs
WCM-F200

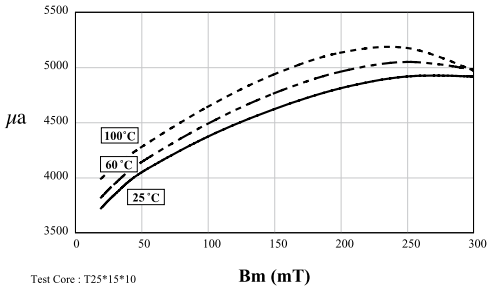
Initial Permeability V.S. Temperature



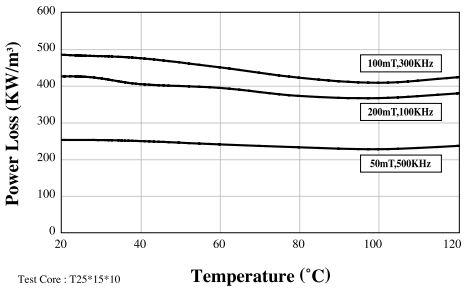
Power Loss V.S. Temperature/Flux Density/Frequency



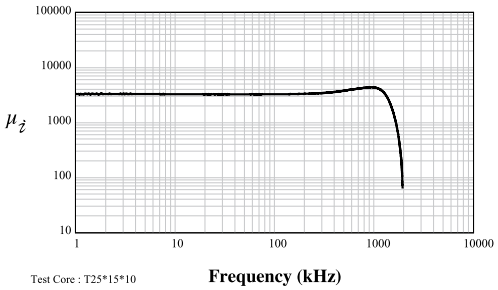
Amplitude Permeability V.S. Flux Density (Bm)



Power Loss V.S. Temperature



Initial Permeability V.S. Frequency



Saturation Flux Density V.S. Magnetic Field