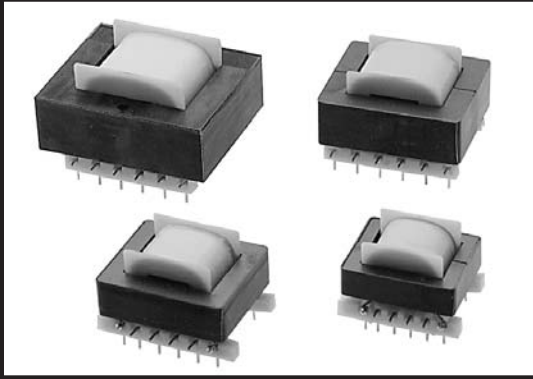


SWITCH MODE TRANSFORMERS

WCM 407 Series



PRODUCT DESCRIPTION

West Coast Magnetics' 407 series transformers have been designed for power use including linear and switch mode applications. The power handling capability is as high as 1500 watts in bipolar topologies. This type of transformer is often used in forward converter topologies. Recommended frequency of operation is as low as 10 kHz and as high as 500 kHz. This E-core series is based on popular lamination sizes. As a result 60 Hz transformers and inductors can be constructed from this geometry by replacing the ferrite cores with silicon steel laminations.

FEATURES - BENEFITS



Power to 1.5 kW • Fast prototype turnarounds • Complete designs from West Coast Magnetics

DESIGN CONSTANTS

Size Code	A _{ungapped}	A _{single gap}	A _{e core area} (mm ²)	l _{e magnetic path length} (mm)	V _{e core volume} (mm ³)	W _{a bobbin winding area} (mm ²)	W _{aAc core area x winding area} (mm ⁴)	Bobbin window width (mm)	Bobbin window height (mm)	Mean length per turn (mm)
E 34	2950±25%	Any	84.9	69.6	5907	94.8	8,048	16.5	5.7	73.5
E 41	5060±25%	Any	156.7	77.6	12,165	101.0	15,826	18.1	5.7	85.6
E 47	5100±25%	Any	233.0	89.0	20,700	119.3	27,796	21.1	5.7	99.1
E 56	6700±25%	Any	340.0	107.0	36,400	189.0	64,260	26.2	7.2	117.6

OUTPUT POWER VS FREQUENCY OF OPERATION (WATTS)

Size Code	60 Hz	25 kHz	50 kHz	100 kHz	250 kHz	500 kHz
E 34	3.5	82	109	145	205	246
E 41	7.0	166	221	293	415	498
E 47	12.0	265	352	469	663	795
E 56	22.0	553	735	978	1382	1659

Power Curve Assumptions:

1. Push/Pull circuit topology
2. Bobbin Window area utilization = 40%
3. Flux density (B) chosen so that core losses at all frequencies except 60 Hz are 70 mW/cm³.

Notes:

1. Reduce power rating in Table above by 50% for forward and flyback converter topologies.
2. Final sizing of the transformer will depend on a number of interrelated variables. The data in the above table should be considered a starting point only.
3. If safety agency is required, the final size may be significantly larger than the data in the table would indicate.

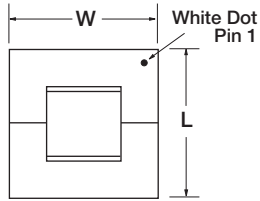


SWITCH MODE TRANSFORMERS

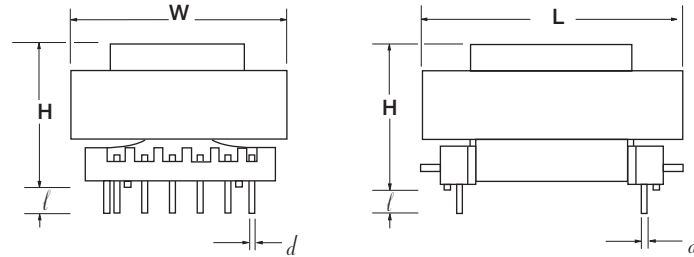
WCM 407 Series

Dimensions: $\frac{\text{Inches}}{\text{mm}}$

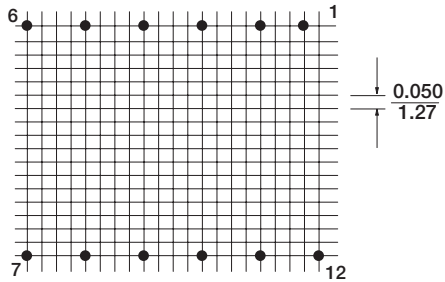
Top View
All Sizes



Side Views
All Sizes



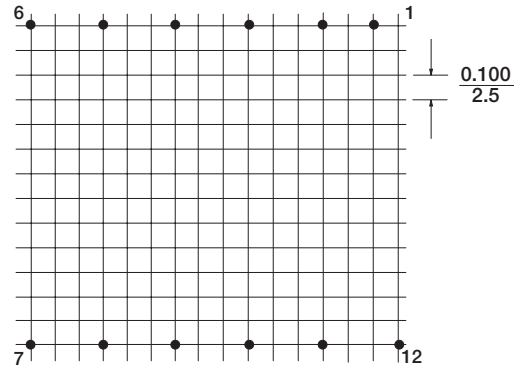
E34



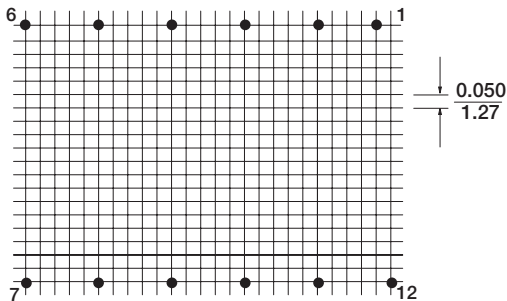
PCB Layouts

- Holes for bobbin

E56



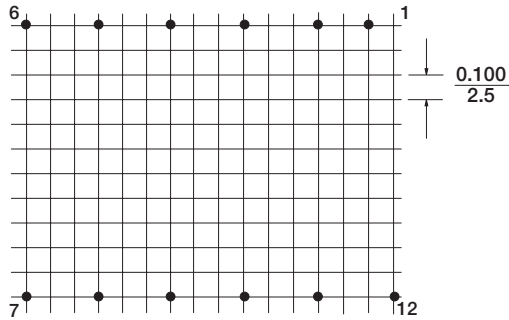
E41



Note: L,W,H are maximum dimensions with mounting hardware.

Note: l is nominal pin length. Allow for $\pm 10\%$ variation in this dimension.

E47



Size Code	L	W	H	l	d^*	* square
E34	$\frac{1.25}{31.8}$	$\frac{1.49}{37.8}$	$\frac{1.05}{26.7}$	$\frac{.125}{3.2}$	$\frac{.025}{.64}$	
E41	$\frac{1.40}{35.6}$	$\frac{1.69}{42.9}$	$\frac{1.15}{29.2}$	$\frac{.150}{3.8}$	$\frac{.025}{.64}$	
E47	$\frac{1.60}{40.6}$	$\frac{1.90}{48.3}$	$\frac{1.32}{33.5}$	$\frac{.135}{3.4}$	$\frac{.025}{.64}$	
E56	$\frac{1.90}{48.3}$	$\frac{2.27}{57.7}$	$\frac{1.58}{40.1}$	$\frac{.165}{4.2}$	$\frac{.025}{.64}$	

Note: All materials of construction minimum Class B 130 degrees C rated.

