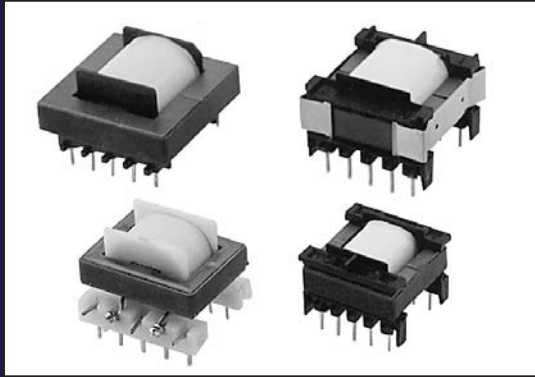


SWITCH MODE TRANSFORMERS

WCM 406 Series



PRODUCT DESCRIPTION

West Coast Magnetics' 406 series transformers have been designed for power use including linear and switch mode applications. Gapped cores will support significant amount of DC so this series is ideal for flyback applications. Recommended frequency of operation is as low as 10 kHz and as high as 500 kHz. The 406 series geometry will also support a high level of creepage and clearance and is suited for designs requiring high levels of safety isolation.

FEATURES - BENEFITS



Fast prototype turnarounds • Complete designs from West Coast Magnetics • Adaptable to UL, CSA, VDE safety agency requirements

DESIGN CONSTANTS

Size Code	A_1 ungapped	A_1 single gap	A_e core area (mm ²)	l_e magnetic path length (mm)	V_e core volume (mm ³)	V_{Wa} bobbin winding area (mm ²)	W_{Ac} core area x winding area (mm ⁴)	Bobbin window width (mm)	Bobbin window height (mm)	Mean length per turn (mm)
E 20	1350±25%	Any	32.1	46.3	1490	34	1091	12.5	2.7	41.2
E 25	1440min	Any	38.5	48.5	1870	41	1579	10.3	4.0	54.0
E 28	1800±25%	Any	52.5	57.5	3020	61	3203	15.6	3.9	50.0
E 30	1680min	Any	60.1	65.6	3940	83	4988	17.3	4.8	55.0

OUTPUT POWER VS FREQUENCY OF OPERATION (WATTS)

Size Code	25 kHz	50 kHz	100 kHz	250 kHz	500 kHz
E 20	21	25	33	51	57
E 25	28	34	45	71	79
E 28	52	62	85	129	144
E 30	78	93	124	194	217

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 are 100 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.

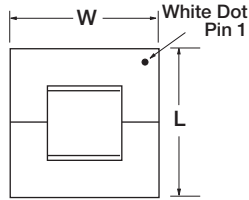


SWITCH MODE TRANSFORMERS

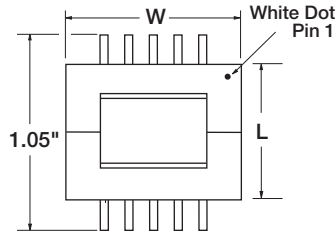
WCM 406 Series

Dimensions: Inches
mm

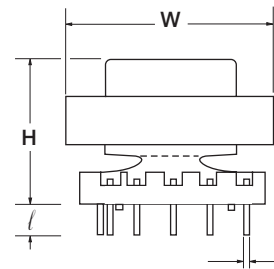
Top View
E20, E28 & E30



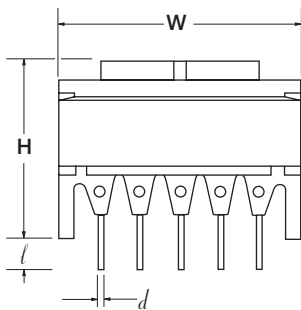
Top View
E25



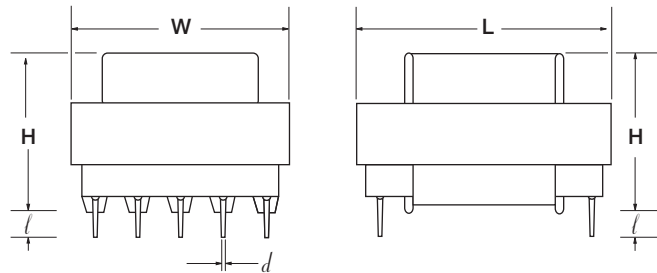
Side View
E25



Side View
E20 & E28

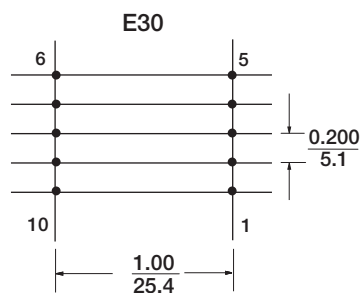
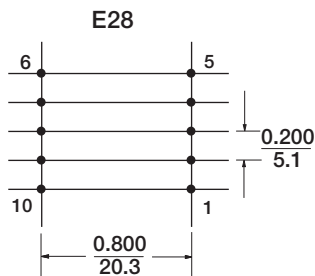
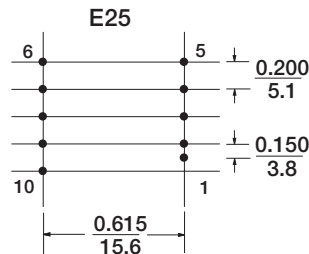
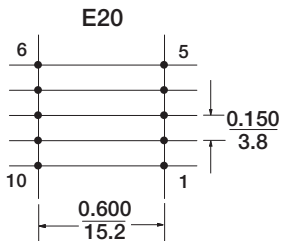


Side Views
E30



PCB Layouts

- Holes for bobbin



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

Note: d is maximum diameter. This dimension may vary by 15%.

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

Size Code	L	W	H	l	d
E20	.85 21.6	.88 22.2	.70 17.8	.138 3.5	.018* .45
E25	.82 20.8	1.05 26.7	.83 21.1	.135 3.4	.025* 0.64
E28	1.10 27.9	1.11 28.2	.83 21.1	.138 3.5	.028* 0.71
E30	1.23 31.2	1.23 31.2	.79 20.1	.120 3.0	.030 0.76

* square

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

