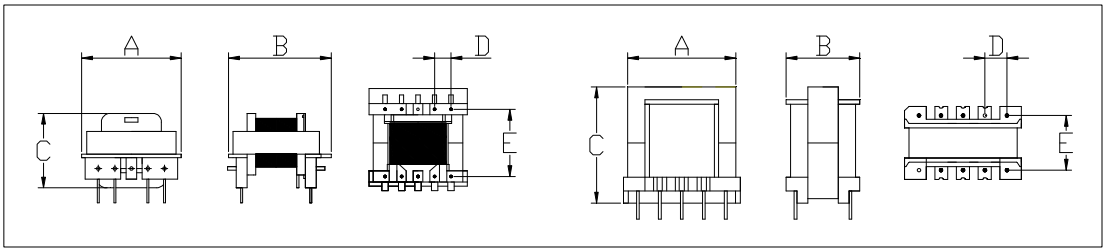
The new exigencies in the applications where the size, height and efficiency of power supply have priority make these transformers the most suitable for an optimal working in high frequency applications that goes from 30KHz to 300KHz and powers that can reach around 1000W.
These transformers are available in several series as E, EF, EFD, etc… depending on the needs of the design. They are appropriated for Flyback, Forward, Push-pull topologies used in a big variety of applications like Domotics, industrials, lighting….

- Theoretical power output of a forward converter working at 100KHz , max. Flux density = 0,18T and wire current density of 3,5A/mm^2.
- Other factors like skin effect, proximity effect, induction variations are not taken into consideration.
- Some families are also available in SMD technology.

E13/7/4 (EF 12.6) 2.4W

Technical characteristics

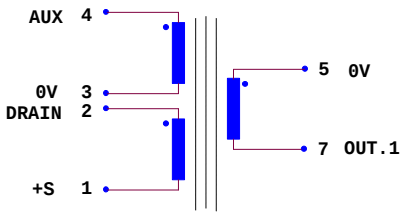
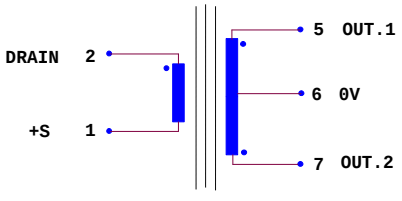
Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC



(in mm)

TYPE	A	B	C	D	E
E13Horz. 4+4	14.2	14.2	12.0	3.81	10.16
E13Vert. 3+3	14.2	14.2	15.8	3.81	7.62
E13Vert. 5+5	14.2	12.1	13.5	2.50	8.50

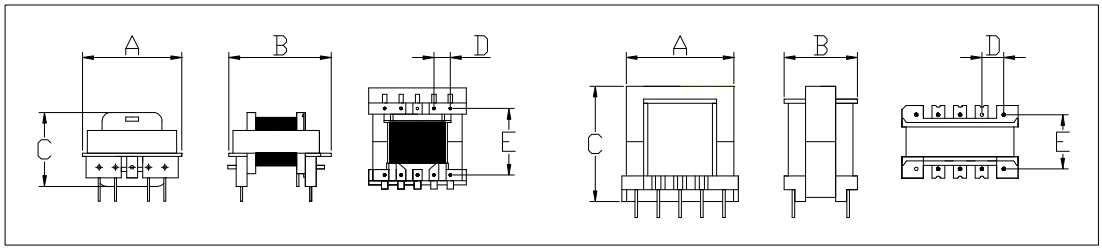
MODELS

Part number	Output Power	Winding	Voltages	IC Control	Electrical drawing
HR 181301	2W	PRIMARY AUX OUT.1	85-265Vac 12V/0.1A 12V/0.16A	LNK362PN	
HR 181302	2.2W	PRIMARY OUT.1 OUT.2	85-265Vac 12V / 0.1A 5V / 0,2A	LNK 364PN	

E16/7/4 (EF 16) 12W

Technical characteristics

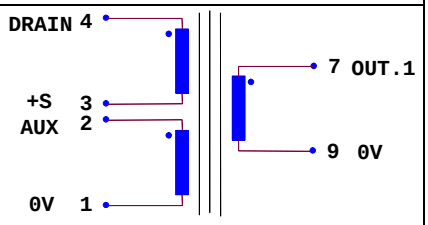
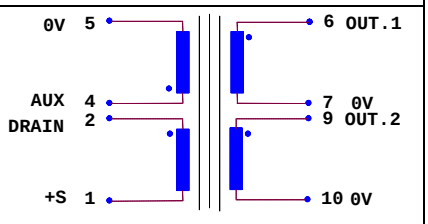
Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC



(in mm)

TYPE	A	B	C	D	E
E16Horz. 4+4	17.8	17.0	13.7	3.81	15.24
E16Vert. 4+4	17.8	11.1	18.2	3.81	8.89
E16Vert. 4+5	19.8	23.8	14.9	5.0/3.5	17.00
E16Vert 4+6	17.6	15.5	18.0	3.5/2.7	12.20
E16Horz. 5+5	16.0	18.4	12.2	3.2	15.50

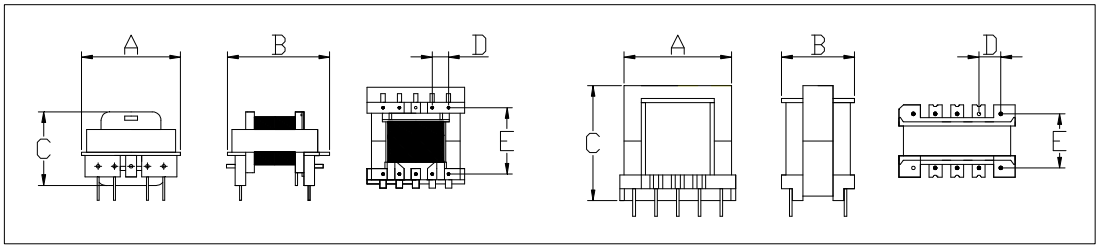
MODELS

Part number	Output Power	Winding	Voltages	IC Control	Electrical drawing
HR 181601	6W	PRIMARY AUX OUT.1	85-265Vac 12/0.1A 5 V/1.2 A	TDA-16831 VIPer20 TOP242P MC-33369	
HR 181602	12W	PRIMARY AUX OUT.1 OUT.2	85-265Vac 12V / 0.1A 5V / 2.0A 12V / 0.16A	TNY 267 TOP242 VIPer20 TDA 16831	

E20/10/6 (EF 20) 20W

Technical characteristics

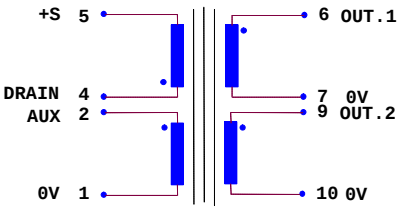
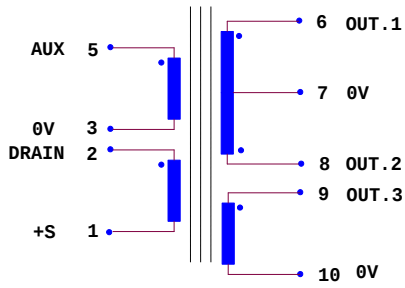
Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC



(in mm)

TYPE	A	B	C	D	E
E20Horz. 5+5	23.0	24.0	17.5	3.81	15.24
E20Vert. 5+5	22.0	13.9	21.2	3.81	10.16
E20Horz. 4+4	19.8	19.7	16.7	5.00	15.00

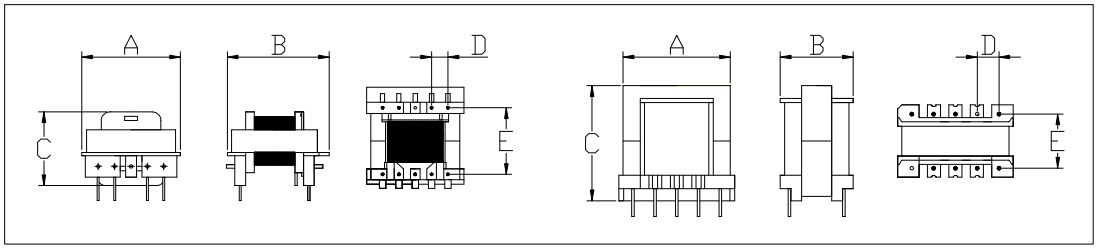
MODELS

Part number	Output Power	Winding	Voltages	IC Control	Electrical drawing
HR 182001	18W	Primary AUX OUT.1 OUT.2	85-265Vac 12V / 0.1A 5 V / 2.0A 18V / 0.44 A	TNY 255 TNY 264 TNY 266	
HR 182002	20W	PRIMARY AUX OUT.1 OUT.2 OUT.3	85-265Vac 12V / 0.1A 5V / 1.0A 12V / 0.25A 24V / 0.50A	TNY 267 TOP 242 VIPer20 MC33369	

E25/13/7 (EF 25) 35W

Technical characteristics

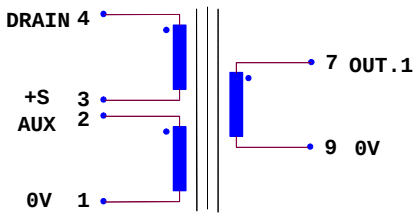
Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC



(in mm)

TYPE	A	B	C	D	E
E25Horz. 5+5	27.5	28.0	20.0	5.08	20.32
E25Vert. 5+5	27.5	17.3	26.0	5.08	12.70

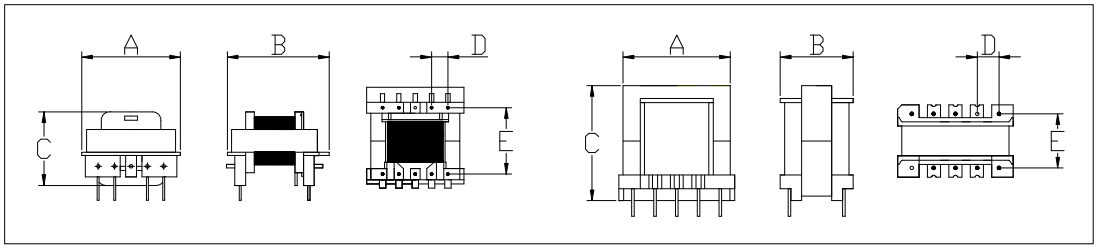
MODELS

Part number	Power	Winding	Voltages	IC Control	Electrical drawing
HR 182501	30W	Primary AUX OUT.1	85-265Vac 12V / 24V / 1.25 A	TOP254	

E30/15/7 59W

Technical characteristics

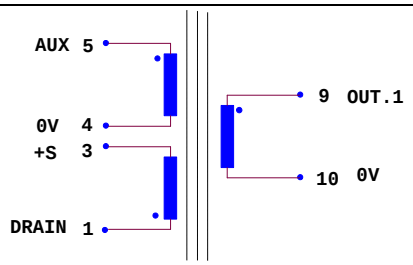
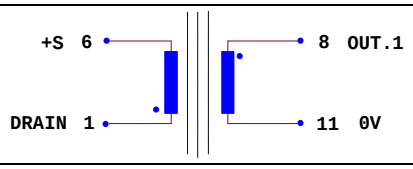
Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC



(in mm)

TYPE	A	B	C	D	E
E30Horz.7+7	35.4	31.4	22.6	5.08	22.86
E30Vert. 6+6	35.4	19.2	34.8	5.08	15.24
E30Horz. 5+5	30.8	30.0	19.0	5.08	25.00

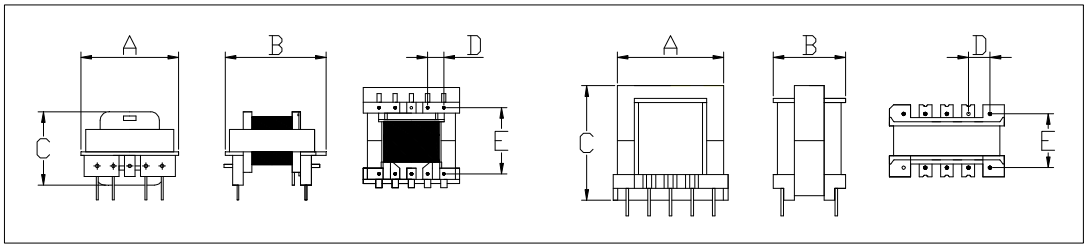
MODELS

Part number	Power	Winding	Voltages	IC Control	Electrical drawing
HR 183001	40W	Primary AUX OUT.1	85-265Vac 15V / 0.1A 15V / 2.66 A	TOP 270VG	
HR 183002	50W	PRIMARY OUT.1	195-265Vac 24V / 2.08A	TOP267E	

E32/16/9 (EF32) 98W

Technical characteristics

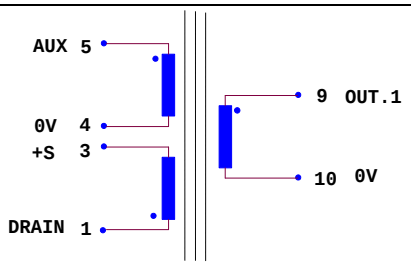
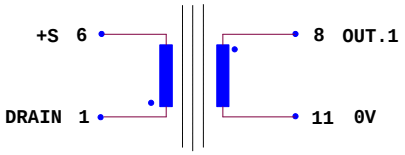
Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC



(in mm)

YPE	A	B	C	D	E
E30Horz.7+7	35.4	31.4	22.6	5.08	22.86
E30Vert. 6+6	35.4	19.2	34.8	5.08	15.24
E30Horz. 5+5	30.8	30.0	19.0	5.08	25.00

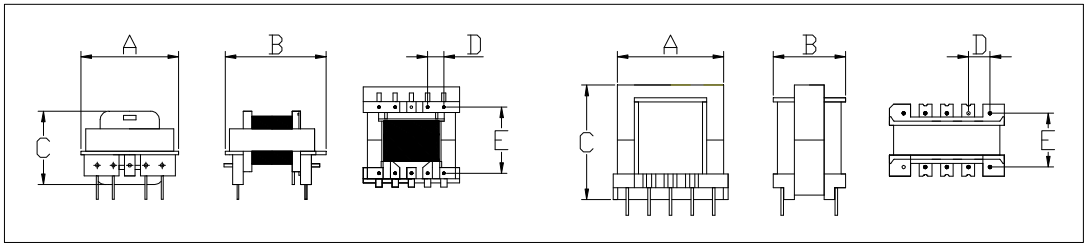
MODELS

Part number	Power	Winding	Voltages	IC Control	Electrical drawing
HR 183201	40W	Primary AUX OUT.1	85-265Vac 15V / 0.1A 15V / 2.66 A	TOP 270VG	
HR 183202	50W	PRIMARY OUT.1	195-265Vac 24V / 2.08A	TOP267E	

E42/21/15 500W

Technical characteristics

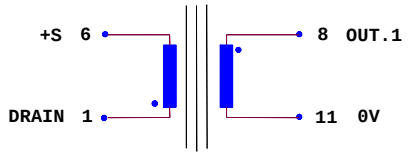
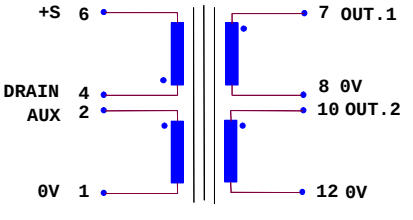
Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC



(in mm)

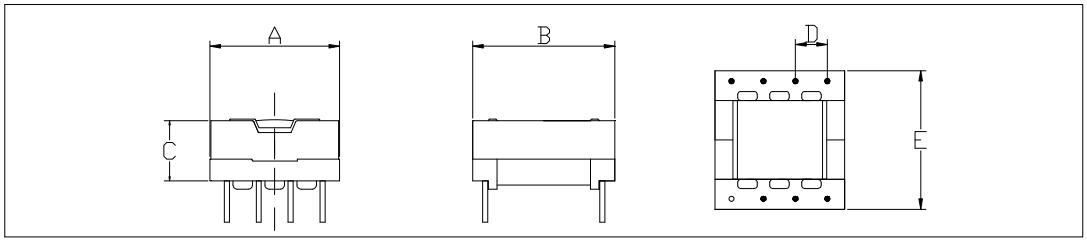
TYPE	A	B	C	D	E
E4215Horz.6+6	42.0	42.5	34.2	5.0	35.00
E4215Vert. 9+9	47.5	34.0	47.0	5.0	27.50

MODELS

Part number	Power	Winding	Voltages	IC Control	Electrical drawing
HR 184201	250W	Primary OUT.1	195-265Vac 12V / 20.8A	Discrete components	
HR 184202	150W	PRIMARY AUX OUT.1 OUT.2	85-265Vac 12V / 0.1A 5V / 6A 12V / 10A	TOP 247Y	

EFD SERIES 2.7 ~ 43W

EFD “Economical Flat Desing” is a low verison of the cores E/EF. They are used when a low profile transformer is needed. They are suitable for porwer converters and pulse transformers. There is also a SMD version.



(in mm)

TYPE	A	B	C	D	E	OUTPUT POWER
EFD 15/8/5 4+4	15.2	16.7	8.0	3.75	13.75	2.7
EFD 20/10/7 4+4	20.2	21.2	10.0	5.00	17.50	10
EFD 25/13/9 5+5	25.2	26.2	12.6	5.00	22.50	28
EFD 30/15/9 6+6	29.2	31.2	12.6	5.00	27.5	43

- Theoretical power output of a forward converter working at 100KHz , max. flux density = 0,18T and wire current density of 3,5A/mm^2.
- Other factors like skin effect, proximity effect, induction variations are not taken into consideration.
- Some families are also available in SMD technology.

MODELS

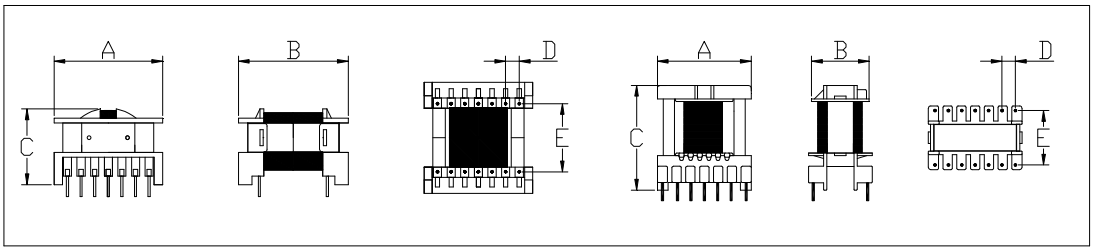
Non-standard transformers availables on request.

Technical characteristics

Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC

ETD SERIES 85 ~ 200W

Economical Transformer Design. Especially designed for power applications in a switch mode power supply, with a constant cross section along the magnetic path, it is round centre leg, makes easy the winding specially the thick wires. Available in a wide range of sizes and vertical or horizontal mounting positions.



(in mm)

TYPE	A	B	C	D	E	OUTPUT POWER
ETD 29/16/10 Horz. 7+7	35.2	35.2	25.4	5.08	25.40	85
ETD 29/16/10 Vert. 7+7	35.2	24.0	41.0	5.08	20.32	
ETD 34/17/11 Horz, 7+7	39.6	42.8	32.9	5.08	25.40	145
ETD 34/17/11 Vert. 7+7	39.6	30.0	46.0	5.08	22.86	
ETD 39/20/13 Horz. 8+8	44.6	47.8	36.1	5.08	30.48	345
ETD 39/20/13 Vert. 8+8	44.6	33.0	50.0	5.08	25.40	
ETD 44/22/15 Horz. 9+9	49.6	52.2	38.1	5.08	35.55	580
ETD 44/22/15 Vert. 9+9	49.6	35.0	55.0	5.08	27.94	
ETD 49/25/16 Horz. 10+10	54.5	57.2	40.6	5.08	40.64	900
ETD 49/25/16 Vert. 10+10	55.0	36.0	56.0	5.08	30.48	

- Theoretical power output of a forward converter working at 100KHz , max. flux density = 0,18T and wire current density of 3,5A/mm^2.
- Other factors like skin effect, proximity effect, induction variations are not taken into consideration.

MODELS

Non-standard transformers availables under request.

Technical characteristics

Plastic material	Self-extinguishing UL 94 VO compliant
Thermal class materials	B 130ºC/266ºF - F 155ºC/311ºF (optional)
Impregnation	Synthetic resin Varnish thermal class F155ºC/311ºF
Copper wire	Grade 2 isolation type
Dielectric strength Pri/Sec	=4 kV
Creepage lines and clearances	According regulation IEC EN 60950/EN 61558/EN 60335
Connection pins	Lead free
Working ambient temperature	70ªC