



# TI 109 - 117 - 118

## EE CORE BASED GATE DRIVE TRANSFORMERS



### PURPOSE

Pulse transformers are used in high frequency power converters, when an electrical pulse has to be transferred from the control stage to the power stage, by keeping the galvanic isolation between the circuits, according to the required safety standards. The electrical signal is applied to the primary winding and transferred to the secondary side, to fire electronic switches. The 109, 117 and 118 families are based on different sizes of EE cores.

### FEATURES

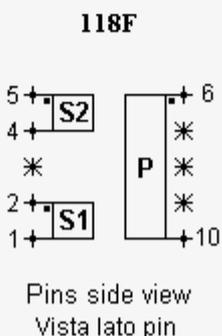
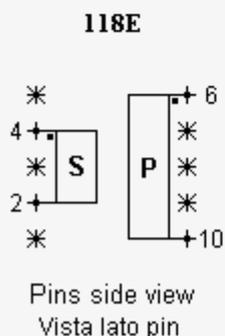
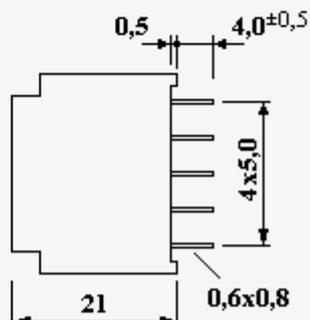
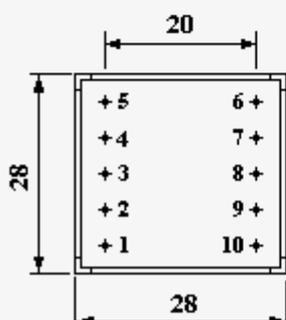
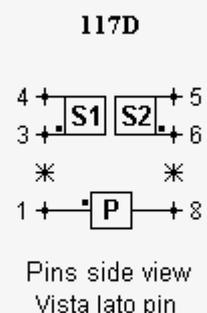
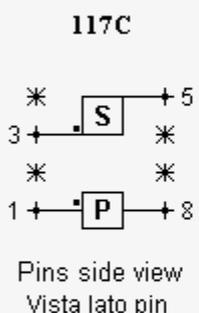
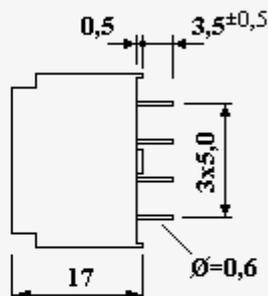
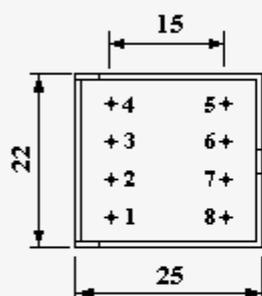
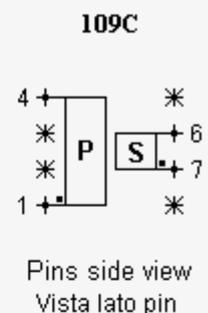
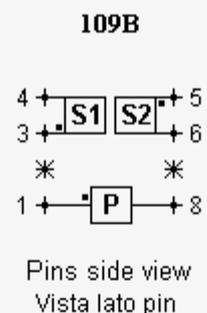
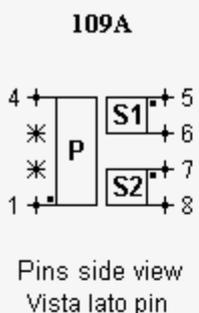
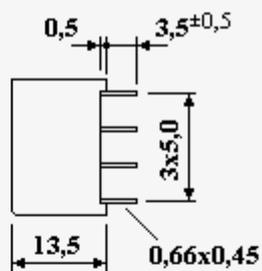
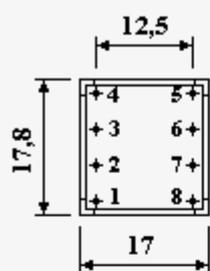
109, 117 and 118 gate drive transformers are by far the most used drive transformers because of their versatility, that makes them suitable for many application fields, with different working voltages, currents and frequencies. The greatest advantage of these families of components is the flexibility: it is very easy to obtain different solutions by changing the main winding variables. The development of such a type of drive transformers is oriented to the automatic line production, that is always more desirable than a manual winding process, as it allows a stable quality and a well defined construction for all pieces.

The standard codes, listed in the table for your reference, are just some examples. Sirio can develop special drive transformers with any turns ratio, dedicated to your application

Code	n	Vt [ $\mu$ Vs]	I <sub>p</sub> [mA <sub>rms</sub> ]	L <sub>p</sub> [mH]	L <sub>s</sub> [ $\mu$ H]	C <sub>k</sub> [pF]	U <sub>is</sub> [V <sub>rms</sub> ]	U <sub>p</sub> [V <sub>rms</sub> ]	Drawing
TI 109204	1 : 1 : 1	120	300	0,85	2,0	14	700	4200	109B
TI 109210	1 : 1 : 1	250	300	2,50	5,0	25	330	3100	109A
TI 109215	1 : 1,2 : 1,2	150	250	1,30	3,0	20	500	4000	109B
TI 109217	1 : 1	200	350	1,75	5,0	25	440	3750	109C

TI 117110	1 : 1	300	200	3,50	5,0	35	500	4000	117C
TI 117120	1 : 1 : 1	300	200	3,50	2,2	35	500	4000	117D
TI 117147	2 : 1	250	400	5,80	10,0	25	500	4000	117C
TI 117160	3 : 1	150	500	5,80	13,0	30	500	4000	117C
TI 117610	1 : 1	150	600	0,35	0,9	25	700	4000	117C
TI 117615	1 : 1 : 1	150	600	0,35	0,6	40	700	4000	117D

TI 118310	1 : 1	500	400	2,3	4,0	50	500	4000	118E
TI 118320	1 : 1 : 1	500	400	2,3	2,5	50	500	4000	118F
TI 118330	2 : 1 : 1	500	300	9,0	6,0	50	500	4000	118F
TI 118340	1 : 1	1000	300	9,0	14,0	50	500	4000	118E



values in mm

## SYMBOLS:

- n turns ratio
- $Vt$  secondary transfer area (voltage\*time integral), that can be transferred with unipolar pulse
- $t_r$  rise time, needed to transfer the pulse when the rated load resistance is connected to the secondary side
- $I_{MAX}$  maximum secondary current, available with a rise time equal to  $t_r$  (rated load resistance connected to the output)
- $R_C$  rated burden resistance
- $L_p$  primary winding inductance
- $L_s$  primary leakage inductance
- $C_k$  coupling capacity between windings
- $R_p$  primary winding resistance
- $R_s$  secondary winding resistance
- $I_p$  rated primary effective current (thermal current)
- $U_{IS}$  rated working voltage
- $U_p$  isolation voltage