

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

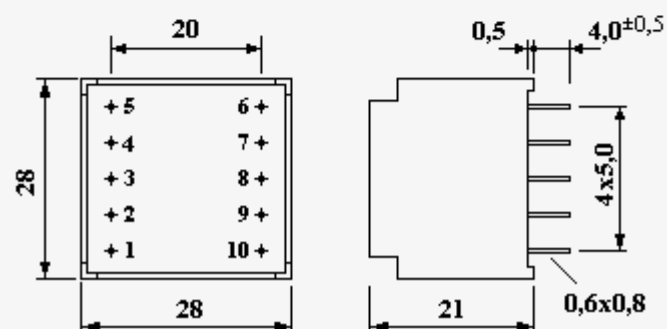
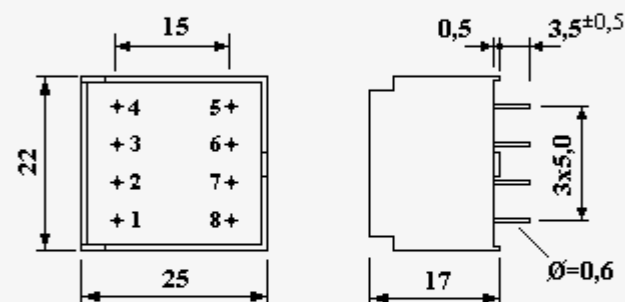
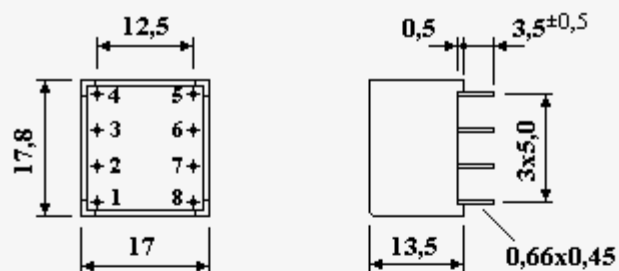
109, 117 and 118 gate drive transformers are by far the most used drive transformers because of their versatility, that makes them suitable for many application fields, with different working voltages, currents and frequencies. The greatest advantage of these families of components is the flexibility: 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

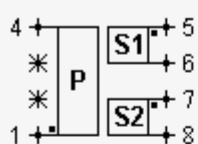
| Code | n | Vt [μVs] | I _p [mA _{rms}] | L _p [mH] | L _s [μH] | C _k [pF] | U _{is} [V _{rms}] | U _p [V _{rms}] | Drawing |
|-----------|---------------|-------------|--|------------------------|------------------------|------------------------|--|---------------------------------------|---------|
| 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 |

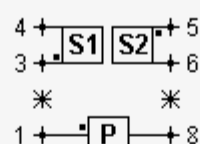


109A



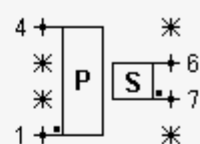
Pins side view
Vista lato pin

109B



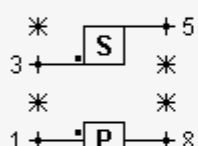
Pins side view
Vista lato pin

109C



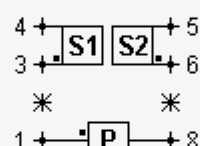
Pins side view
Vista lato pin

117C



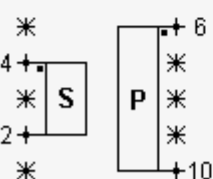
Pins side view
Vista lato pin

117D



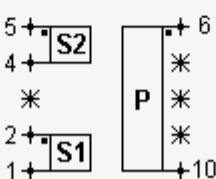
Pins side view
Vista lato pin

118E



Pins side view
Vista lato pin

118F



Pins side view
Vista lato pin

values in mm

SYMBOLS:

- n turns ratio
- Vt secondary transfer area (voltage*time integral), that can be trasferred with unipolar pulse
- t_r rise time, needed to trasfer 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