



TA 152-153-150 hf >50A

HIGH FREQUENCY CURRENT TRANSFORMERS OVER 50 A



PURPOSE

Current sense transformers are used to detect high frequency currents, in order to protect an electronic switch against overcurrents in switching converters. They are typically connected to the primary side of medium-high power high frequency transformers, but they are furthermore suitable for currents measurement, in applications which don't require high accuracy, but rather prompt response of the measurement equipment.

FEATURES

These current sense transformers are developed to detect alternate currents over 50 A, in the frequency range of some kHz. By connecting a burden resistance to the secondary side, you can read a proportional voltage signal, isolated from the mains but, depending on the application, other different signal processing are possible, whether by using digital or analogue techniques. Those current transformers can be built with any turns ratio, depending on what the application requires, but the most typical ratios are the following ones: 1:50, 1:100, 1:200.

As the number of turns increases, the optimum working frequency range moves towards low frequencies. The minimum working frequency is related to the capability of the core to transfer the current pulse (see the transfer area value).

The burden resistance sets the output voltage range, so after the developer has chosen the signal level, the minimum working frequency is fixed and for higher frequencies the detection circuit will not show any signal distortion. The maximum working frequency is influenced mainly by two factors: the core material behaviour versus frequency and the secondary intrawinding capacity, that limitate the current transformer bandwidth.

From building point of view, high frequency current transformers can be wound both on toroidal cores or on E cores.

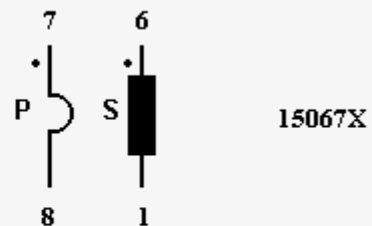
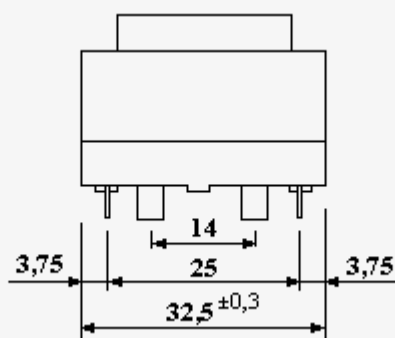
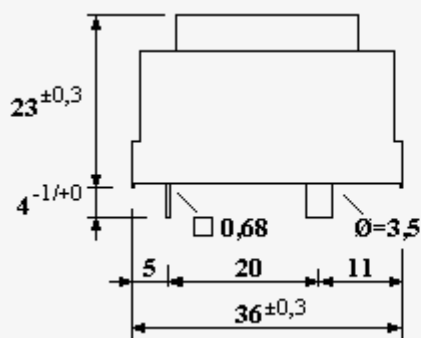
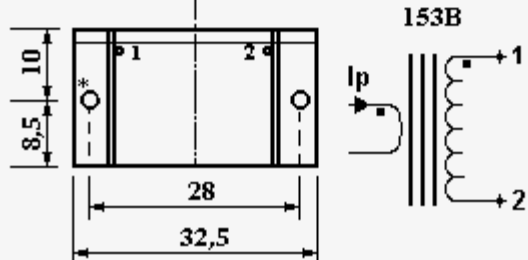
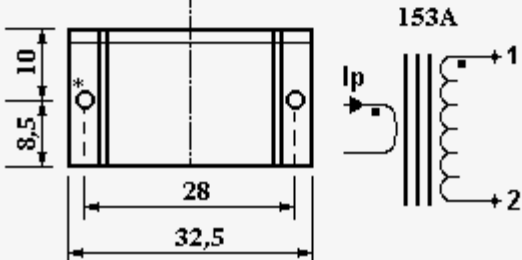
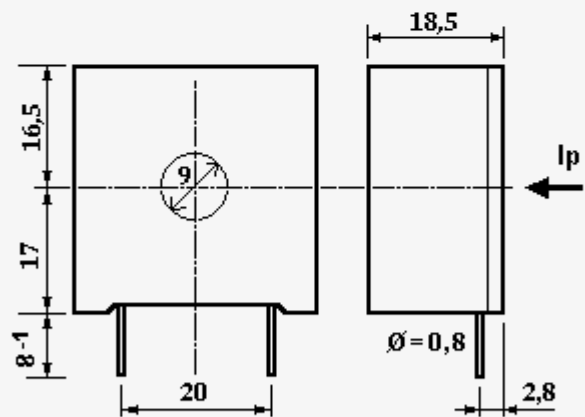
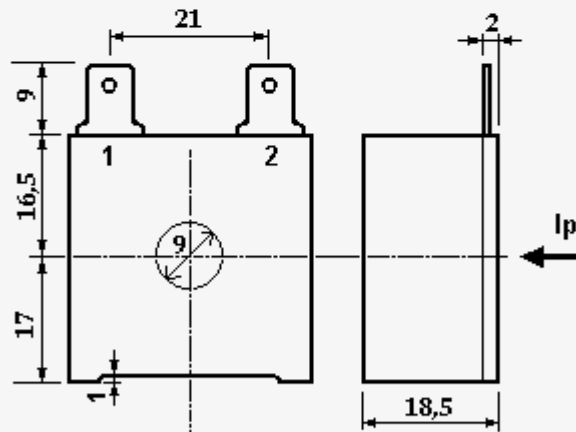
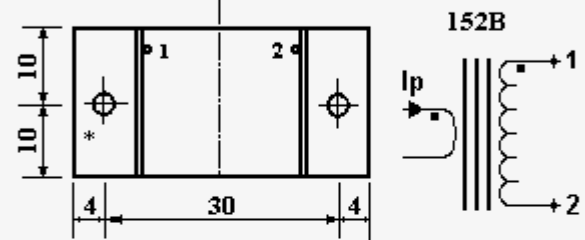
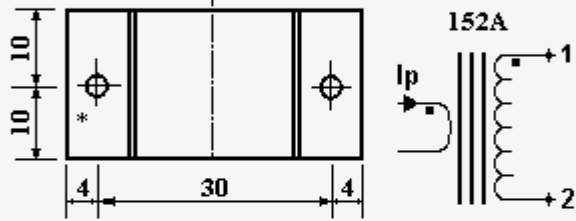
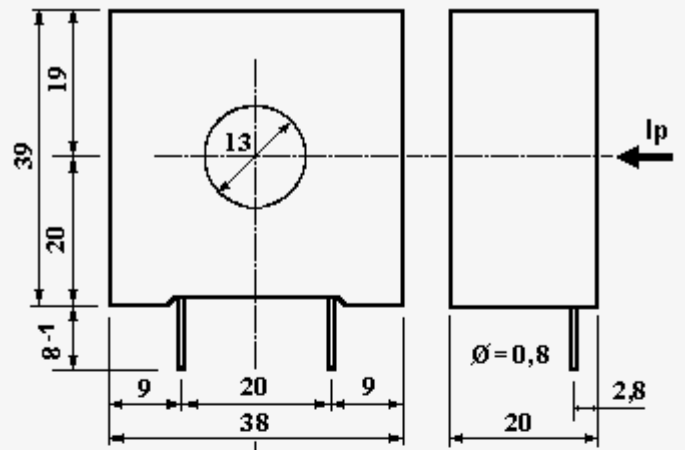
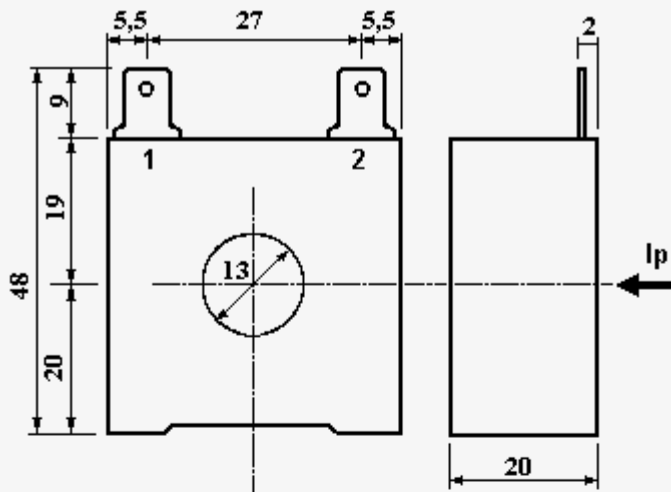
Linear models, based on E cores, are available exclusively with the primary turn inside, so they are especially recommended for control functions in equipments where the low cost is achieved by simply, safe and easy-mounting components.

The table shows some of our most wanted high frequency current transformers

Code	I_p [Arms]	n	L_s [mH]	f_{max} [kHz]	V_t [μ Vs]	Drawing	D [mm]	U_{is} [Vrms]	U_p [Vrms]
TA 152009	100	(1) : 100	31	60	2250	152A	13	1000	4000
TA 152059	100	(1) : 200	124	25	4500	152B	13	1000	4000
TA 153201	70	(1) : 50	11,5	500	650	153A	9	1000	4500
TA 153202	70	(1) : 100	45	200	1300	153A	9	1000	4500
TA 153203	70	(1) : 200	180	50	2700	153A	9	1000	4500
TA 153206	70	(1) : 50	11,5	500	650	153B	9	1000	4500
TA 153207	70	(1) : 100	45	200	1300	153B	9	1000	4500
TA 153208	70	(1) : 200	180	50	2700	153B	9	1000	4500
TA 150671	70	1 : 100	31	100	1400	15067X	3,5	600	5000
TA 150672	70	1 : 200	124	50	2800	15067X	3,5	600	5000

SYMBOLS:

- n turns ratio
- R_s secondary winding resistance
- I_p rated primary current (rms value)
- L_s rated secondary inductance
- f_{max} recommended maximum working frequency
- V_t secondary transfer area at 25°C
- U_{is} maximum working voltage primary/secondary
- U_p isolation voltage primary/secondary
- D central hole diameter/primary turn diameter



15067X

values in mm

TA06 - Rev.0



Certificate nr. 50 100 3372



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