

# WE-UOST

## Universal Offline Standard Transformer



**SMD standard offline transformer  
ex stock for more than 30 applications**

### Characteristics

- Input voltage range 85–265 V<sub>AC</sub> (125–375 V<sub>DC</sub>)
- Output power 12–16 W
- Designed to comply with EN61558-2-16:  
Reinforced insulation
- Creepage and clearance distance >6.5 mm
- Insulation test voltage 4 kV<sub>AC</sub>
- For SMD assembly

### Applications

- SMPS with power up to 16 W
- Auxiliary power supplies
- Usable with all low power AC/DC ICs like LT3798/99,  
UCC28610, ViPER & Tiny/Link Switch

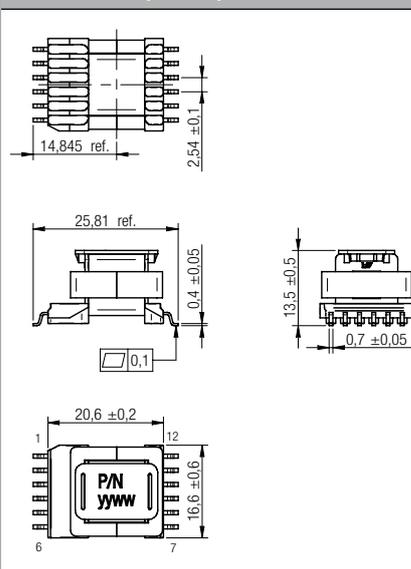
QR-Code



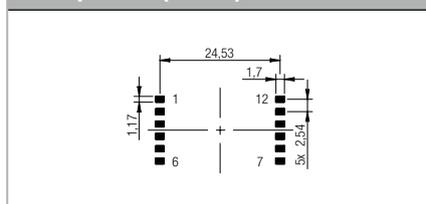
### Electrical properties

Order Code	U <sub>i</sub> (V <sub>DC</sub> )	L (μH)	f <sub>switch</sub> (kHz)	U <sub>o1</sub> (V)	I <sub>o1</sub> (A)	U <sub>o2</sub> (V)	I <sub>o2</sub> (A)	U <sub>aux</sub> (V)	Schematic	Qty.
760 871 113	125–375	1310	60–150	5	1.25	5	1.25	14	1	150
760 871 135		1250		12	0.55	12	0.55		1	
760 871 543		1310		24	0.30	5	1.15		2	
760 871 534		1250		12	0.55	5	1.25		2	
760 871 142		1250		24	0.28	24	0.28		1	
760 875 112	275–375	1500	5	1.50	5	1.50	1			
760 875 131		1500	12	0.65	12	0.65	1			
760 875 532		1500	12	0.70	5	1.36	2			

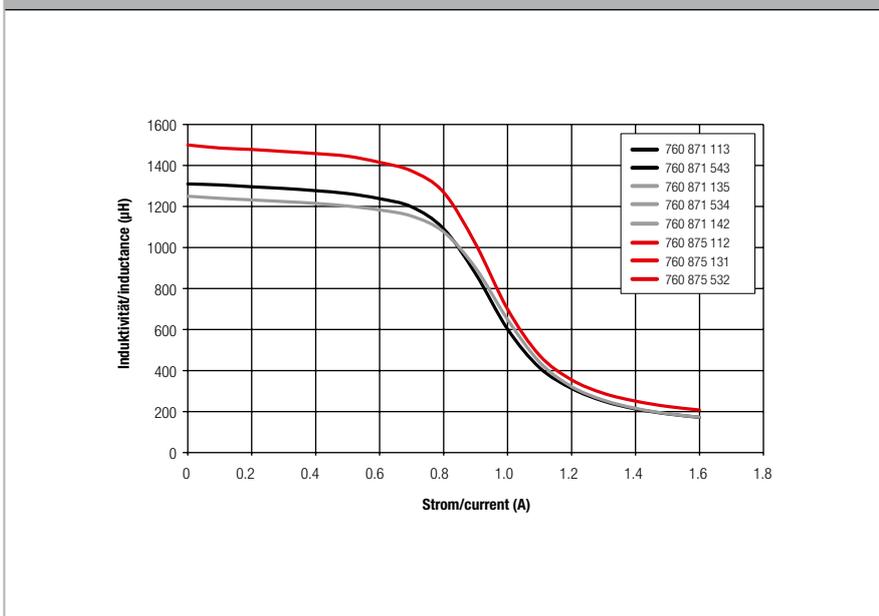
### Dimensions (in mm)



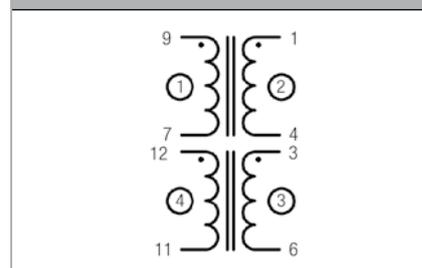
### Land pattern (in mm)



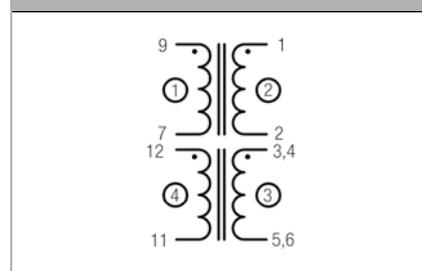
### Inductance vs. current



### Schematic 1



### Schematic 2



## Universal offline standard transformers

Switch Mode Power Supplies are state of the art to generate the universal input mains (85–265 V<sub>AC</sub>) isolated output voltages in lower voltage ranges. Especially in the low power range of 10–20 W there are a lot of state of the art different IC solutions on the market. Typically for isolated power supplies there has to be a customized transformer. Getting samples of a customized transformer needs a certain time which engineers have to wait to start their first measurements or prototype production.

The standard offline transformers WE-UOST enable customers to build a power supply with one out of 8 standard transformers which are on stock. These transformers are designed to supply the standard output voltages of 5 V, 12 V and 24 V. Also some of the parts allow 2 output voltages (5 V and 12 V resp. 5 V and 24 V). Due to the intelligent winding construction it is also possible to supply different output voltages by connecting windings in series which allows to build a 10 V (9 V), a 12 V/24 V dual output or a 48 V power supply. The table shows the possibilities of the standard parts.

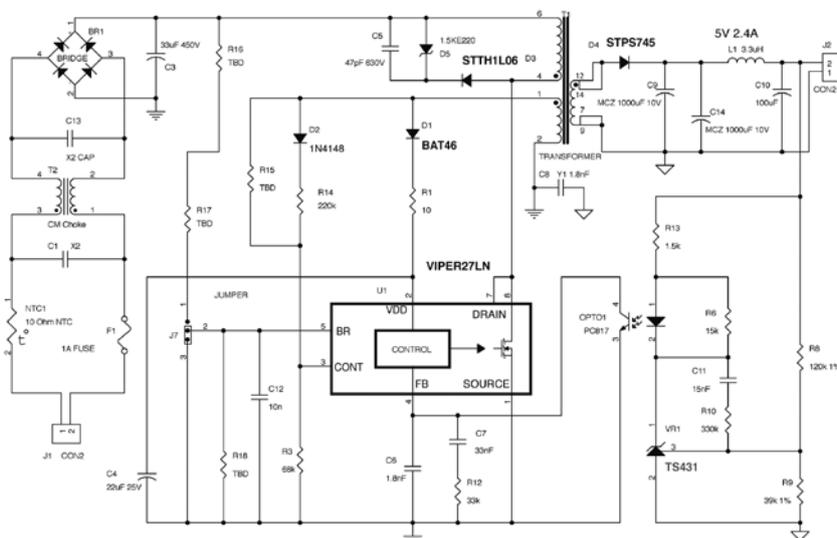
Target output voltage		Order Code for 85–265 V <sub>AC</sub> (125–375 V <sub>DC</sub> ) input voltage range	Order Code for 195–265 V <sub>AC</sub> (275–375 V <sub>DC</sub> ) input voltage range	Connection of secondary windings
U <sub>o1</sub> (V)	U <sub>o2</sub> (V)			
5	–	760 871 113	760 875 112	Parallel
5	5	760 871 113	760 875 112	Separate
5	10	760 871 113	760 875 112	Series stacked secondaries
5	12	760 871 534	760 875 532	Series stacked secondaries
5	24	760 871 543	760 871 543	Series stacked secondaries
9	–	760 871 113	760 875 112	Series
10	–	760 871 113	760 875 112	Series
12	–	760 871 135	760 875 131	Parallel
12	12	760 871 135	760 875 131	Separate
12	24	760 871 135	760 875 131	Series stacked secondaries
15	–	760 871 135	760 875 131	Parallel
15	15	760 871 135	760 875 131	Separate
24	–	760 871 135	760 875 131	Series
		760 871 142	760 871 142	Parallel
24	24	760 871 142	760 871 142	Separate
24	48	760 871 142	760 871 142	Series stacked secondaries
48	–	760 871 142	760 871 142	Series

Another hint for offline transformers is that these are generally through hole devices. International safety standards require creepage and clearance distances which are usually not achievable with Surface Mount Technology transformers. A special constructed bobbin has integrated the required creepage distance from pins to winding resp. core. Due to the used triple insulated wire these parts are designed to comply with IEC (EN) 61558-2-16 reinforced isolation for a working voltage of 250 Vrms. A plastic cap allows for full automatic assembly.

A typical offline flyback power supply is shown in the figure.

### Reference Design

Circuit example of a typical SMPS for 12.5 W and 5 V output voltage



Source: STMicroelectronics