

## CONSUMER PRODUCTS



Pulse offers a complete range of Switch-Mode Transformers in various technologies (slot, layer and triple insulation wire) used for power supplies in television, set-top boxes, satellite receivers, DVD players, telephone chargers, and white goods. Pulse also offers a new range of specific magnetics for LCD TV power supplies and inverters to meet the growing, worldwide demand for flat-screen televisions.

These innovative, components are manufactured in state-of-the-art, modern facilities. Switch-Mode Transformers, as well as new LCD components are produced in one of four different factories in China, depending on the technology.

The products mentioned in this section serve as an overview of Pulse's Consumer magnetics product line. For more information about Consumer products, contact Pulse Consumer Division Applications Engineering via e-mail at [consumer@pulseeng.com](mailto:consumer@pulseeng.com).



### SWITCH-MODE TRANSFORMER GUIDE BY TECHNOLOGY

Series (Part Number)	Ferrite	Pins	Technology	Pin Spacing (mm)	Pitch (mm)	Power Input @ 50 kHz (W)	Application
2182	E30/15/7	3 + 3	Slot	16.5	7.5	30	PFC (dynamic focus transformer)
2414	ETD29X16X10	7 + 7	Slot	17.5	5	40	14"-15" CTV 90° and satellite receiver
2444	ETD29X15X10	9 + 9	Slot	20	4	40	14"-15" CTV 90° DVD and satellite receiver
2464	ETD29X11X10	7 + 7	Slot	17.5	5	40	DVD, digital/analog satellite receiver
2074	ETD34X13X11	7 + 7	Slot	27.5	5	40	14"-15" CTV 90° and satellite receiver
2074.5	ETD34X17X11	7 + 7	Slot	27.5	5	60	14"-15" CTV 90°
2084	ETD39X17X13	8 + 8	Slot	27.5	5	90	17"-20" CTV 90°
2094	ER48X18X18	9 + 9	Slot	27.5	5	190	25"-29" CTV 110°
2344	ER54X20X18	11 + 11	Slot	27.5	5	250	High-end CTV 110°
2354	E42X21X15	9 + 9	Slot	27.5	5	130	High-end CTV 110°
2502	ER28X17X11 (VERTICAL)	9 + 9	Layer	20	4	40	14"- 90° color TV
2502.5	ER28X17X11 (HORIZONTAL)	6 + 6	Layer	20	4	40	Set-top Box
2512	ER35X21X11	6 + 6	Layer	22.5	5	60	14"±21" - 90°
2522	ER39X23X13	8 + 8	Layer	24.8	5	90	17"±21" - 90°
2532	ER42X23X15	7 + 7	Layer	25.2	5	120	110° Color TV
2542	ER49X25X16	9 + 9	Layer	27.5	5	200	25"±29" 110° Color TV
2552	ER53X23X21	9 + 9	Layer	32	5	250	28"±34" 110° Color TV
2562	ETD34X17X11	7 + 7	Layer	25.2	5	70	14"-15" CTV 90°
2102	ER48X22X21	11 + 11	Layer	27.5	5	300	25"-29" CTV 110°
2722	PQ32/20	6 + 6	Layer	30.5	5	90	LCD TV 26"
2732	PQ32/30	6 + 6	Layer	30.5	5	170	LCD TV 26"-32"
2742	PQ40/40	6 + 6	Layer	38.1	5,08/ 15,24	350	LCD TV 37"-42"
2432	E13X7X4	4 + 4	TIW	18.5	5	4	Battery chargers
2182.5	E30/15/7	6 + 6	TIW	25	5	30	LCD 22"
2252	ETD29X11X10	9 + 9	TIW	20	4	30	Satellite receiver
2262	E16X8X5	4 + 4	TIW	15	3.75	8	Battery chargers, stand-by circuits, white goods
2262.5	E16X8X5	5 + 4	TIW	15	3.75	8	Battery chargers, stand-by circuits, white goods
2362	E20X10X6	4 + 4	TIW	16.25	5	18	Battery chargers, stand-by circuits, Set-top Box
2361	E20X10X6	4 + 4	TIW	16.25	5	18	Not mains insulated SMT
2362.3	E20X10X6	5 + 5	TIW	15	3.75	18	Battery chargers, stand-by circuits, Set-top Box
2362.5	E20X10X6	5 + 5	TIW	20	5	18	Battery chargers, stand-by circuits, Set-top Box
2362.7	E20/10/6	5 + 5	TIW	16.25	3.81	18	Set-top Box, White goods
2452	E25X13X7	5 + 5	TIW	20.32	5	25	DVD, satellite receiver
2452.7	E25X13X7	5 + 5	TIW	20.32	5	25	DVD, satellite receiver for slim version
2472	E25X16X6	7 + 7	TIW	27	4	30	DVD, satellite receiver for slim version

## CONSUMER PRODUCTS



## LCD TV &amp; PLASMA TV COMPONENTS

## SLOT SMT 200 W

## Series 2652 – Resonant-type Power Supply Switch-Mode Transformer



## Applications

This transformer is mainly intended to be used as a Resonant Switch-Mode Transformer for high-end 30" to 42" LCD TV sets with mains insulation. The most suitable circuit topology for this transformer is a half-bridge, quasi-resonant converter using ON Semiconductor's ZVS controller MC34067. The common range of operation for this Switch-Mode Transformer is from 50-150 kHz.

## Features

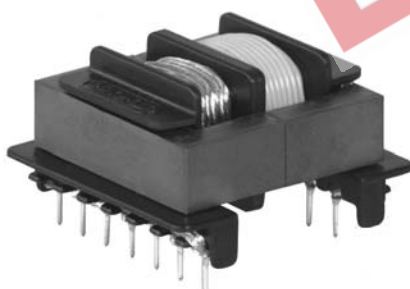
- Magnetic circuit of this transformer consists of two (asymmetrical) E-type ferrite cores having a rectangular central leg where the windings and the air gap are placed
- Maximum primary power: 200 W @ 100 kHz
- Slot technology, Litz wire recommended for proximity and skin effects reduction
- Mains insulation according to IEC60065 and IEC60950 safety standards
- Adjustable magnetising-to-leakage primary inductance ratio  $L_p/L_L$  (recommended values range is  $L_p/L_L @ 100 \text{ kHz} = 2.5 \sim 4$ )

## Mechanical and Magnetic Data

- Pinout configuration: 16 dual-in-line pins with 35mm spacing and 5mm pitch
- The ferrite core is a slim EE50-type, leading to a maximum transformer height of 28mm above the PCB
- Maximum horizontal dimensions: 51mm x 52mm

## Options

- Customized electrical design and pinout



## SLOT SMT 100 W

## Series 2642 – Resonant-Type Power Supply Switch-Mode Transformer

## Applications

This transformer is mainly intended to be used as a Resonant Switch-Mode Transformer for low-end 22" LCD TV sets with mains insulation. The most suitable circuit topology for this transformer is a half-bridge, quasi-resonant converter using Phillips ZVS controller TEA1610. The common range of operation for this switch-mode transformer is from 50-200 kHz.

## Features

- Magnetic circuit of this transformer consists of EE-type ferrite cores having a squared central leg where the windings and the air gap are placed
- Maximum primary power: 100 W @ 100 kHz.
- Slot technology, Litz wire is recommended for proximity and skin effects reduction
- Mains insulation according to IEC60065 and IEC60950 safety standards
- Recommended magnetising-to-leakage primary inductance ratio  $L_p/L_L @ 100 \text{ kHz} \sim 5$

## Mechanical and Magnetic Data

- Pinout configuration: 14 dual-in-line pins with 25.4mm spacing and 5.08mm pitch
- Ferrite core is a EE32-type, leading to a maximum transformer height of 22mm above the PCB
- Maximum horizontal dimensions: 39mm x 38mm

## Options

- Customized electrical design and pinout

## CONSUMER PRODUCTS



### LCD TV & PLASMA TV COMPONENTS *(continued)*



## Layer SMT 250 W/200 W

**Series 2712** (standard core), **Series 2702** (low-profile core), **Power Supply Switch-Mode Transformers**

### Applications

These transformers are mainly intended to be used as Switch-Mode Transformers in high-end 26" to 42" LCD TV sets with mains insulation. The most suitable circuit topologies for these transformers are one-transistor (standard core) or half-bridge (low-profile core) forward converters. The common range of operation for these Switch-Mode Transformers is from 100 kHz to 200 kHz.

### Features

- Magnetic circuit of these transformers consists of two RM14-type ferrite cores having a round central leg where the windings and the air gap are placed
- Maximum primary power: 200 W @ 150 kHz for low-profile RM14; 250 W @150 kHz for standard RM14
- Layer technology, enameled and TIW Litz wire recommended for proximity and skin effects reduction
- Copper-foil windings for high-current outputs
- Mains insulation according to IEC60065 and IEC60950 safety standards

### Mechanical and Magnetic Data

- Pinout configuration: 12 in-line pins (6+6) with 35.6mm spacing and 5.08mm pitch
- Ferrite core can be either standard or low-profile RM14-type, leading to a transformer height down to 21mm above the PCB
- Maximum horizontal dimensions: 42mm x 44mm (47mm x 44mm including mounting clips)

### Options

- Customized electrical design and pinout
- Mounting clips
- Total height above PCB: 30mm for standard RM14; 21mm for low-profile RM14

## Mains Filter

**Series 6001 – Frame-core Mains Filter\***

### Applications

These chokes are mainly intended to be used as common-mode EMC mains filters for 22" to 42" LCD TV sets to make them comply with the EN55022 standard.

### Features

- Magnetic circuit of these chokes consists of ET-type/FT-type closed cores made by high-performance soft ferrite
- Slot technology, enameled copper wire
- Compact size even for high mains current values
- High impedance and very low leakage flux
- Low interwinding capacitance

### Mechanical and Magnetic Data

- Low-profile horizontal coil-formers result in a component height down to 18mm above the PCB
- Component height above the PCB according to the ferrite size
- Maximum horizontal dimensions: 35mm x 35mm

### Options

- Customized pinout and inductance value
- Available core size range: ET 20~35

\* Not shown here.

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## LCD TV &amp; PLASMA TV COMPONENTS (continued)

## Passive PFC Coil

### Series 6001 – Laminated-core Power-Factor-Correction Coil



#### Applications

These chokes are mainly intended to be used as harmonics coils for high-end 30" to 42" LCD TV sets to make them comply with the EN61000-3-2 standard. These components are suitable for operation at mains frequency (50-60 Hz)

#### Features

- Magnetic circuit of these chokes consists of UU or EI laminated cores made by high performance silicon steel
- Single-winding (EI) or double-winding (UU) construction
- Acoustical noise-free construction
- Input power up to 200 W @ mains frequency with EI-42 core size and horizontal dimensions down to 42mm x 56mm

#### Mechanical and Magnetic Data

- High permeability and saturation flux density core
- High inductance value allowed
- Low-profile horizontal coil-formers result in a component height down to 28mm above the PCB

#### Options

- Customized pinout and inductance value
- Core fixing by mylar tape or argon welding
- Available core dimensions up to EI-66 and UU-40

## Active PFC Coil

### Series 2712 (standard core), Series 2702 (low-profile core), Power-Factor-Correction Coil

#### Applications

These chokes are mainly intended to be used as harmonics coils for high-end 26" to 42" LCD TV sets to make them comply with the EN61000-3-2 standard. The most suitable circuit topology for these chokes is transition-mode controlled boost DC/DC converter (i.e. L6561 from ST or MC33262 from ON Semiconductor). The common range of operation for these chokes is from 100-200 kHz.

#### Features

- Magnetic circuit of chokes consists of two, RN14-type ferrite cores having a round central leg where the windings and the air gap are placed
- Maximum primary power: 200 W @150 kHz for low-profile RM14; 250 W @ 150 kHz for standard RM14
- Layer technology, enameled Litz wire recommended for proximity and skin effects reduction



#### Mechanical and Magnetic Data

- Pinout configuration: 12 in-line pins (6+6) with 35.56mm spacing and 5.08mm pitch
- The ferrite core can be either standard or low-profile RM14-type, resulting in a component height down to 21mm above the PCB

#### Options

- Customized electrical design and pinout
- Mounting clips
- 2702 bobbin without through-hole flange available
- Total height above the PCB: 30 mm for standard RM14; 21mm for low-profile RM14

For more information, contact Pulse Consumer Division Applications Engineering via e-mail at: [consumer@pulseeng.com](mailto:consumer@pulseeng.com).

## CONSUMER PRODUCTS

### LCD TV & PLASMA TV COMPONENTS (continued)

## Active PFC Coil

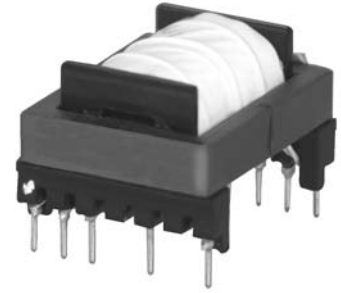
### Series 2182.5 – Power-Factor-Correction Coil

#### Applications

This choke is mainly intended to be used as harmonics coils for high-end 22" LCD TV sets to make them comply with the EN61000-3-2 standard. The most suitable circuit topology for this choke is a transition-mode controlled boost DC/DC converter (i.e. MC33262 from ON Semiconductor). The common range of operation for this choke is from 50-150 kHz.

#### Features

- Magnetic circuit of chokes consists of EE-type ferrite core having a squared central leg where the windings and the air gap are placed
- Maximum primary power: 100 W @ 100 kHz
- Layer technology, enameled Litz wire are recommended for proximity and skin effect reduction



#### Mechanical and Magnetic Data

- Pin-out configuration: 10 dual-in-line pins (5+5) with 25mm spacing and 5mm pitch
- The ferrite core is E30/15/7-type, resulting in a component height down to 22mm above the PCB
- Maximum horizontal dimensions: 24mm x 30mm

#### Options

- Customized electrical design and pinout

## SLOT SMT CCFL

### Series 7001 – Switch-Mode Transformers for Cold-Cathode Florescent Lamp (CCFL) Inverters

#### Applications

These transformers are mainly intended to be used as Switch-Mode Transformers for LCD TV sets from 15" to 37", as DC/AC inverters for CCFL backlight or supplied as complete inverter backlight board to be assembled to the LCD panel for its power supply.

#### Features

- The magnetic circuit of these transformers consists of two UI (FRM)-/EFD-type, low-profile ferrite cores having rectangular central leg where the windings and the air gap are placed
- Maximum Output Power: 6 W @ 50 kHz
- Slot technology, copper wire windings
- Non-potted construction
- Start-up Output Voltage: 2 kVrms; Open Output Voltage: 1.6k Vrms; Lamp Voltage: 750 Vrms

#### Mechanical and Magnetic Data

- Low-profile, horizontal SMD coil-formers result in a component height down to 5mm above the PCB
- Maximum horizontal dimensions: 32mm x 21mm

#### Options

- Customized electrical design and pinout
- Wide core shapes and size range availability: UI-8.8~17, EFD-10~25
- Potted construction on request

