



# NXP SMPS controller IC TEA1522 demonstration board

## Cut costs and size for efficient low-power supplies

Discover how you can reduce costs, improve efficiency and shrink footprint for your low-power switched-mode power supply (SMPS) with our STARplug TEA1522 demonstration board. Designed for applications requiring universal mains input and 5 V output, it is particularly useful for USB charger applications. Numerous energy-saving and protection features enable efficient, robust and attractive slim-line power plugs.

### TEA1522 key features

- ▶ Optimized for SMPS flyback operation
- ▶ Integrated 650 V MOSFET power switch
- ▶ Operates directly from rectified mains supply (80 to 276 V AC)
- ▶ Valley switching
- ▶ High voltage start-up
- ▶ Frequency reduction at low output power
- ▶ Switching can be stopped (0% duty cycle)
- ▶ Numerous built-in protections for robust design

### Key benefits

- ▶ High efficiency
- ▶ Low standby power (< 100 mW)
- ▶ Low EMI
- ▶ Cost efficient
- ▶ Small footprint

### Key applications

- ▶ USB charger
- ▶ Small power supplies
- ▶ White goods
- ▶ Small personal care equipment
- ▶ Chargers for portable equipment
- ▶ Coffee machines
- ▶ Security camera
- ▶ General domestic appliances

Our STARplug TEA1522 demo board is the perfect starting-point for creating compact, low-cost and highly efficient power supplies. Addressing applications that require universal mains input and 5 V output, the board is designed for outputs up to 1.2 A. It features secondary-side regulation with an opto coupler to ensure an extremely stable output.

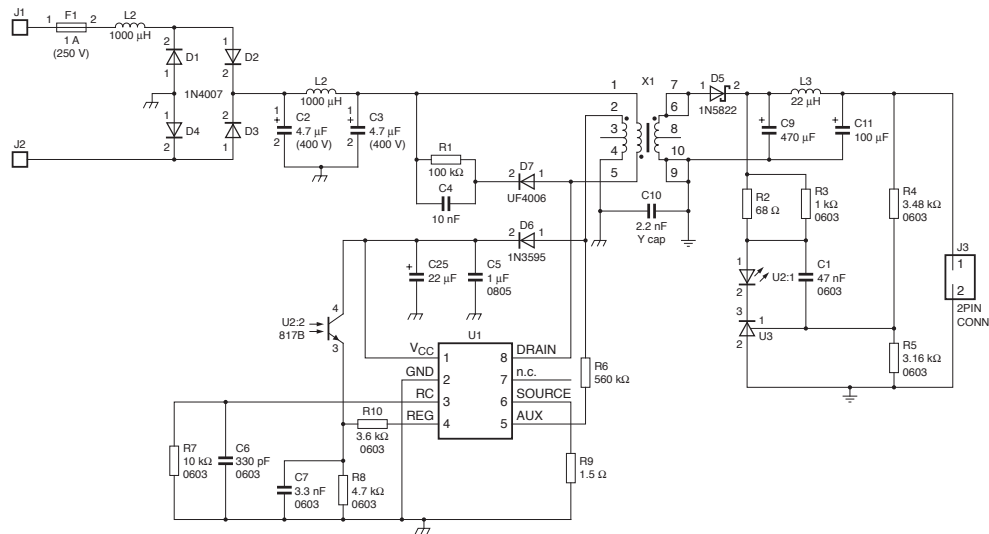
For further space savings, it includes an integrated high-voltage power switch, start-up circuit and numerous protection features. These include cycle by cycle adjustable over current protection and under voltage lock-out along with over voltage, over temperature, short winding and demagnetization protection.

At the heart of the board is our low-power SMPS controller TEA1522, which operates directly from rectified universal mains. This IC is manufactured using a combination of our high-voltage EZ-HV and low-voltage BiCMOS processes, enabling a highly compact and cost-effective solution. In addition, 'green' features such as valley switching and frequency reduction ensure maximum efficiency in any operating conditions.

#### SMPS controller ICs for low-power systems

Type number	Package	R <sub>DS(on)</sub> (Ω)	Max. output power	Application example
TEA1520T/N2	SO-14	48	2 – 5 W	Mobile adapter/standby supply
TEA1520P/N2	DIP-8	48	2 – 5 W	Mobile adapter/standby supply
TEA1521T/N2	SO-14	24	3 – 7 W	Mobile adapter/standby supply
TEA1521P/N2	DIP-8	24	3 – 7 W	Mobile adapter/standby supply
TEA1522T/N2	SO-14	12	7 – 9 W	Mobile adapter/standby supply
TEA1522P/N2	DIP-8	12	7 – 9 W	VCD
TEA1523P/N2	DIP-8	6.5	9 – 12 W	DVD
TEA1620P/N1	DIP-8	48	2 – 5 W	Standby supply
TEA1622P/N1	DIP-8	12	7 – 9 W	VCD
TEA1623P/N1	DIP-8	6.5	9 – 12 W	DVD
TEA1623PH/N1	HDIP-16	6.5	9 – 25 W	DVD-R/RW

#### Circuit diagram



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