



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



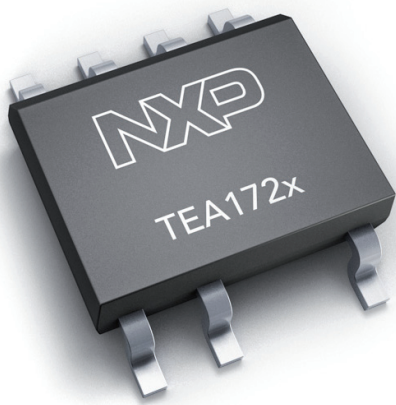
Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





NXP GreenChip low power SMPS controller TEA172x

Ultra-low standby, cost-effective power supplies up to 11 W

These highly integrated devices enable low no-load power consumption below 10 mW, reduce component count for a cost-effective application design, and provide advanced control modes that deliver exceptional efficiency.

Key features

- ▶ SMPS controller with integrated power switch up to 5 or 11 W
- ▶ 700 V high-voltage MOSFET for global mains operation
- ▶ Primary sensed output voltage control eliminates opto coupler
- ▶ Operates with advanced control modes for optimal performance and high efficiency
- ▶ Variable switching frequency up to 50.5 kHz
- ▶ EEPROM-programmable burst frequencies create flexibility between transient response and no-load power consumption
- ▶ Avoids audible noise in all operating modes (min $f_{sw} > 22$ kHz)
- ▶ Includes compensation of cable impedance
- ▶ Jitter function for reduced EMI
- ▶ USB battery charging (CC/CV) and Energy Star 2.0 compliant
- ▶ Enables no-load power consumption below 10 mW
- ▶ High-voltage start-up with zero current under normal switching operation
- ▶ Safe restart mode for system fault conditions
- ▶ OverVoltage Protection (OVP) with auto-restart
- ▶ UnderVoltage LockOut (UVLO) and clamp protection

- ▶ OverTemperature Protection (OTP)
- ▶ Soft-start by reduced peak current for zero and low output voltage
- ▶ Demagnetization protection for guaranteed DCM mode
- ▶ FB open pin and short-circuit protection
- ▶ Available in halogen-free and RoHS SO7 package with HV spacing

Applications

- ▶ Mobile USB chargers
- ▶ Battery chargers for smartphones and media tablets
- ▶ Power supplies for white goods
- ▶ Industrial systems, including smart meters

The NXP TEA172x family is a series of small, low-cost module Switched Mode Power Supply (SMPS) controller ICs that operate directly from the rectified universal mains input and are tailored for low-power applications up to 5 or 11 W. Each device is equipped with a high-voltage power MOSFET switch (700 V) and is optimized for flyback, buck, and buck-boost converter topologies. The result is high efficiency over



the entire load range. Power consumption in the no-load condition below 10 mW at 5 W, which exceeds the EPA 2.0 rating and the 5-star rating defined by EnergyStar.

The TEA1721 supports operation up to 5 W and is ideally suited for use in mobile USB chargers, major home appliances, and industrial systems. The TEA1723 runs at up to 11 W and targets tablet PCs, e-readers, and set-top boxes (STBs). All three TEA172x devices have the same feature set but use a different power MOSFET, tailored for operation up to 5 or 11 W, respectively.

The TEA172x architecture provides a circuit for start-up directly from the rectified mains voltage without any external bleeder circuits. The converter operates as a regulated voltage source from no-load up to the maximum output current and operates as a current source that delivers the maximum current over a broad output voltage range.

The architecture includes several features that serve to reduce total component count, minimize the design

Selection guide

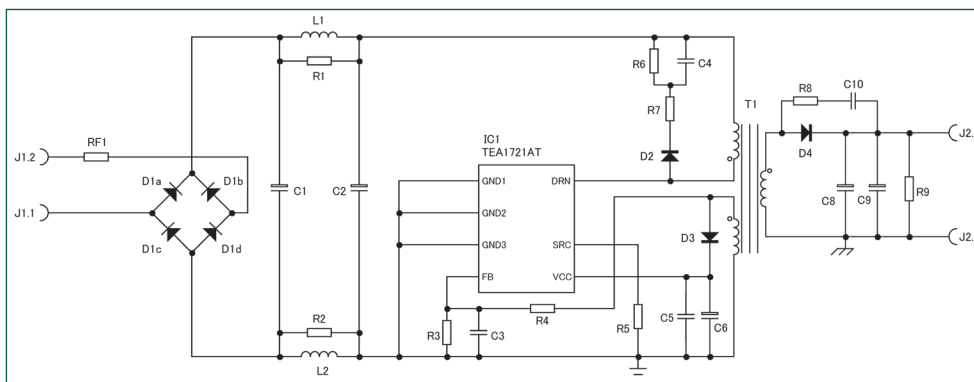
Product	Cable comp (Ω)	Power (W)	No-load (mW)	Fswitch (kHz)	Fburst (Hz)	CV	CC	Package	Applications
TEA1721	0	5	< 10	50.5	430	±5%	±10% +Lp	SO-7	White goods, industrial, smart meters, mobile USB chargers, general-purpose adapters
			< 15		905				
			< 20		1270				
	0.3		< 25		1750				
			< 10		430				
			< 15		905				
			< 20		1270				
			< 25		1750				
			< 50		1750				
TEA1723	0	11	< 20	50.5	430	±5%	±10% +Lp	SO-7	White goods, industrial, smart meters, chargers for smartphones and media tablets, general-purpose adapters
			< 30		905				
			< 40		1270				
	0.3		< 50		1750				
			< 20		430				
			< 30		905				
			< 40		1270				
			< 50		1750				
			< 50		1750				

footprint, and lower overall cost. Primary side-sensing, which eliminates the need for a power-consuming opto-coupler. The architecture meets EMI specification without an external Y-cap, and integrated active HV start-up eliminates resistor bleeder circuitry. Fewer than 30 external components are required for a complete bill of materials.

Advanced control modes enable very high average efficiency (above 77%) over the entire load range, and compliance with USB 1.1 and 1.2 makes them well suited for use in mobile phone charger applications. Switching losses are kept low with a burst frequency of 430 Hz, and a variety of protection features ensure reliable operation under a wide range of conditions.

Design tools for the TEA172x family include a range of demo boards, extensive application notes, and an online calculator that helps predict real-world performance.

TEA1721AT application diagram



www.nxp.com

© 2012 NXP Semiconductors N.V.

All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Date of release: August 2012

Document order number: 9397 750 17320

Printed in the Netherlands