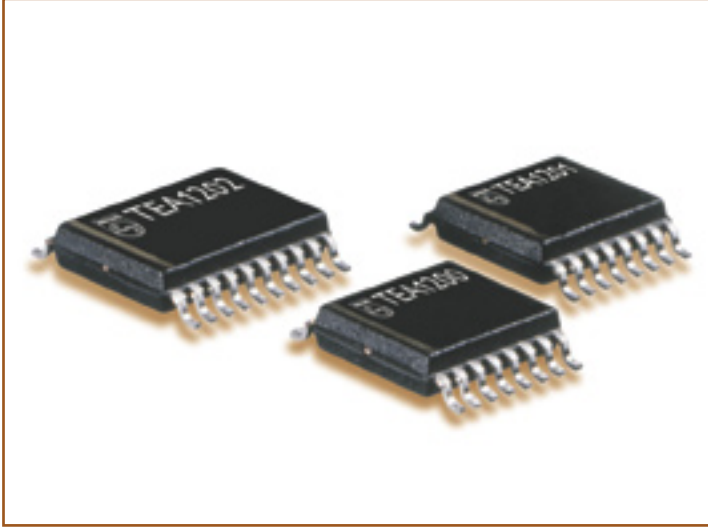


TEA1200/1201/1202

Battery power unit ICs

As accomplished innovator in battery and power management solutions for mobile devices, Philips continues its focus on control and efficiency with the TEA120x single-chip battery power management family. Delivering advanced and efficient DC/DC conversion, variants within this highly integrated family also incorporate optional features such as LDO voltage regulators and a high power switch.



Features

- Configurable for single- and multi-cell, NiCd or NiMH and single-cell Li-Ion batteries
- Guaranteed DC/DC converter start-up from 0.95 V (single-cell NiCd or NiMH)
- Up- or down-conversion and adjustable output voltages
- Synchronous rectification for high efficiency
- Automatic PWM/PFM mode selection, with PWM-only option
- Stand-alone low battery detector requires no additional supply voltage
- High power switches
- Two LDO voltage regulators (TEA1202 only)
- Soft start and shut-down functions
- Small outline SSOP package

Key applications

- Cellular phones
- Cordless phones
- Personal Digital Assistants (PDAs)
- Portable audio players
- Pagers
- Mobile equipment

Semiconductors

The TEA120x family of fully integrated battery power units can be easily configured to provide an optimal solution for any power supply system. They all feature a high efficiency DC/DC converter and a low battery detector. In addition, the TEA1201 features a high power switch and the TEA1202 also incorporates two low drop-out (LDO) voltage regulators, answering the performance and power needs of today's range of mobile applications.

DC/DC conversion

The integrated DC/DC converter can be configured for either up- or down-conversion and features efficient, compact and dynamic power conversion using a novel digital control concept. This enables the TEA120x family to operate in either Pulse Width Modulation (PWM) or Pulse Frequency Modulation (PFM) modes, ensuring optimum power efficiency over the complete range of converter operation.

All switching actions are completely determined by the digital control circuit, using the output voltage level as its control input. The DC/DC converter operates at a switching frequency of 600 kHz, enabling the use of external components with minimum board space requirements. The switching frequency can be synchronized to an external high frequency clock signal or, optionally, can be kept in PWM control mode only. Active current limiting enables efficient conversion in pulsed-load systems found in communications standards such as GSM and DECT.

Low battery detector

The low battery detector can be configured for several types of batteries, providing accurate low battery detection even when all other blocks are switched off. It has a built-in detection level, optimized for a single-cell NiCd or NiMH battery. Higher battery voltages can be translated to this single-cell level by an additional built-in LDO circuit.

PHILIPS

TEA1200/1201/1202

Battery power unit ICs



High power switch (TEA1201 and TEA1202)

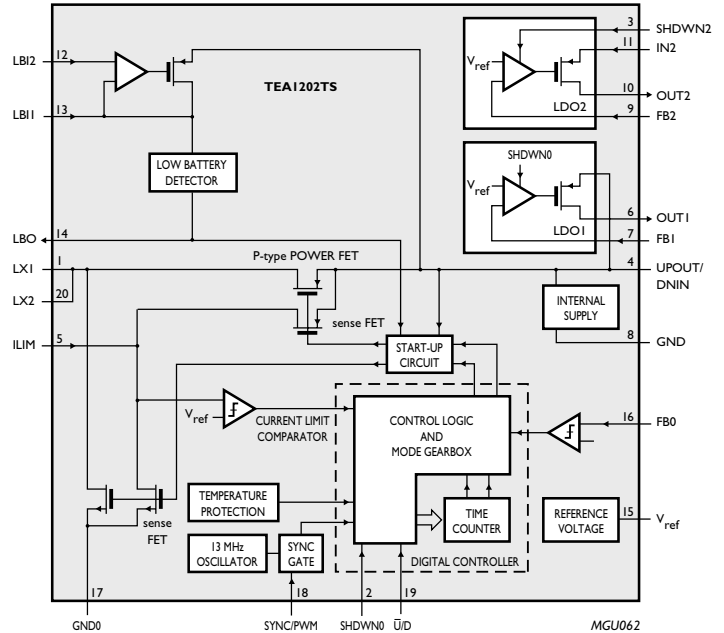
A built-in high power switch offers the possibility for switching off part of the application when not required, delivering higher system-efficiency and longer battery life. For example, in a portable CD-MP3 player the switch can operate the spindle-driver motor – when the internal memory of the player has been loaded with songs it can then automatically switch of the motor, providing significant energy savings and extending battery life.

LDO regulators (TEA1202)

The TEA1202's two on-chip LDO regulators can operate either as inherently stable LDO regulators or as a high power switch. This means the TEA1202 can deliver up to three separate output voltages; alternatively, the second LDO can be configured as a high power switch with its associated benefits (see above).

Comparison chart

Device	TEA1200	TEA1201	TEA1202
DC/DC converter	Yes	Yes	Yes
Switching frequency (kHz)	600	600	600
Low battery indicator	Yes	Yes	Yes
High power switch	Yes	Yes	Yes (using LDO)
LDO regulators	No	No	2
Package	SSOP16	SSOP16	SSOP20



Philips Semiconductors

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