PRODUCT INFORMATION

Vol. 79

Personal Computer DC Fan Motor Driver

Low saturation voltage drive and the smallest/thinnest 8-pin package available

LB1964T

Overview

Fans are used for cooling in personal computers. The PC power supply is cooled by a fan with a diameter of between 60 and 92 mm, and the CPU is cooled by a fan with a diameter of between 40 and 60 mm. The motor drivers used must provide high reliability, protection functions, and the capability to provide the required output current.

Sanyo has already developed and is manufacturing in volume several fan motor drivers. These include the 2-phase unipolar drive LB1966M (RD output: outputs a lock detection signal that is low when the motor is turning and high when it is stopped.) and the LB1967M (FG output: outputs a number of pulses proportional to the motor speed) for use in desktop PCs, and the single-phase unipolar drive LB1862M (RD output) and LB1962M (FG output) for use in CPU cooler fan motors. However, there are now needs for even further miniaturization, thinner form factors, and higher efficiency/lower power dissipation due to the adoption of cooling modules in notebook personal computers.

To respond to these market needs, Sanyo has now developed a new package, the MSOP (micro small outline package), to contribute to the provision of ultraminiature and thin form factor devices. As the first adoption of this new package, Sanyo has now developed the LB1964T fan motor driver for notebook personal computers to further expand the Sanyo line of miniature fan motor drivers.

By adopting the newly-developed ultraminiature MSOP-8 package, the LB1964T achieves dimensions of $3.0 \times 4.9 \times 0.93$ mm^3 (W×L×T) (typical values). Notebook personal computer fan motor drivers are usually incorporated in the fan unit itself and the size of these ICs has prevented the further miniaturization of the printed circuit board. However, the adoption of the MSOP package means that the LB1964T has a mounting area reduced by 25% over earlier products and a thinner form factor as well. Thus this device can contribute to miniaturization in fan units.

The LB1964T achieves a 40% reduction in power dissipation as compared to 2-phase unipolar products by implementing single-phase bipolar drive with a low saturation voltage output in a Sanyo-developed power pnp bipolar process (NSV). This device also supports drive voltages in the range 2 to 8 V, and thus can provide low speed fan operation simply by lowering the applied voltage.

PRODUCT INFORMATION

The LB1964T provides an FG output for motor speed detection.

Sanyo is committing to continued contribution to end product miniaturization and is developing several devices that will adopt the MSOP package. They will include low-noise fan motor drivers, low saturation voltage forward/reverse motor drivers, operational amplifiers, comparators, and regulators.

Features

- Single-phase full-wave drive
- Low voltage drive (2 to 8 V)
- Low saturation voltage output (Vosat = 0.4 V, Io = 100 mA)
- Ultraminiature package: MSOP-8
- Alarm signal: FG output
- Built-in thermal protection circuit

Specifications

- Supply voltage: 9 V
- OUT pin output current: 0.3 A
- OUT pin output withstand voltage: 9 V
- FG pin output withstand voltage: 7 V
- FG pin output current: 5 mA
- Operating temperature: –20 to +85°C

Sample Availability

Sample of the LB1964T will be available in June 1999; production quantities will be anticipated in the end of 1999.

JUNE 7, 1999

PRODUCT INFORMATION

- Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.
- SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.
- Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
-
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.