



SANYO Semiconductors

# DATA SHEET

## LA7806

Monolithic Linear IC

For B/W TV

### Synchronization, Deflection Circuit

#### Overview

The LA7806 is a multifunctional integrated circuit which is based on the internal circuit of the LA7800, incorporates various functions required for synchronization and deflection circuits of monochromatic television set, and operates on line voltage or from battery. This IC was so designed as to streamline the set by making the device more compact (DIP-16) and reducing the number of parts.

The LA7806 differs from the LA7800 in the following points.

- No X-ray protection circuit is used.
- The ground pins for horizontal and vertical are provided separately.
- No horizontal regulator is used.
- Synchronizing separation output is for vertical only.

#### Features

- Multifunction and small-size (DIP-16)
- Minimum number of parts required
- Horizontal and vertical oscillators being stable to variation of ambient temperature and supply voltage owing to small warming-up drift
- Small variation of horizontal oscillation frequency
- Good linearity and interlace owing to DC bias at vertical output stage being sampling controlled within retrace time
- Vertical blanking pulse width being freely set up according to peripheral parts

#### Functions

- Synchro separator
- Horizontal AFC
- Vertical driver
- Horizontal oscillator
- Vertical oscillator
- Vertical blanking pulse making

■ Any and all SANYO Semiconductor Co.,Ltd. products described or contained herein are, with regard to "standard application" intended for the use as general electronics equipment (home appliances, AV equipment, communication device, office equipment, industrial equipment etc.). The products mentioned herein shall not be intended for use for any "special application" (medical equipment whose purpose is to sustain life, aerospace instrument, nuclear control device, burning appliances, transportation machine, traffic signal system, safety equipment, etc.) that shall require extremely high level of reliability and can directly threaten human lives in case of failure or malfunction of the product or may cause harm to human bodies, nor shall they grant any guarantee thereof. If you should intend to use our products for applications outside the standard applications of our customer who is considering such use and/or outside the scope of our intended standard applications, please consult with us prior to the intended use. If there is no consultation or inquiry before the intended use, our customer shall be solely responsible for the use.

■ Specifications of any and all SANYO Semiconductor Co.,Ltd. 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 Semiconductor Co., Ltd.**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

**Specifications**

**Maximum Ratings** at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>12</sub> , V <sub>15</sub>		14	V
Allowable power dissipation	Pd max	Ta = 60°C	450	mW
Operating temperature	T <sub>opr</sub>		-20 to +85	°C
Storage temperature	T <sub>stg</sub>		-55 to +125	°C

**Recommended Operating Conditions** at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended Supply voltage	V <sub>12</sub> , V <sub>15</sub>		12	V

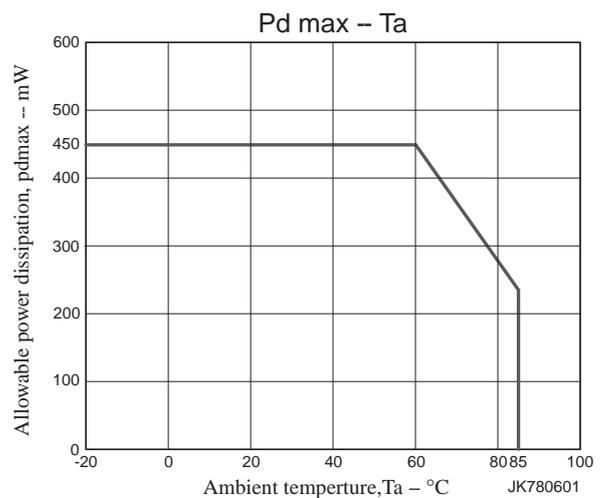
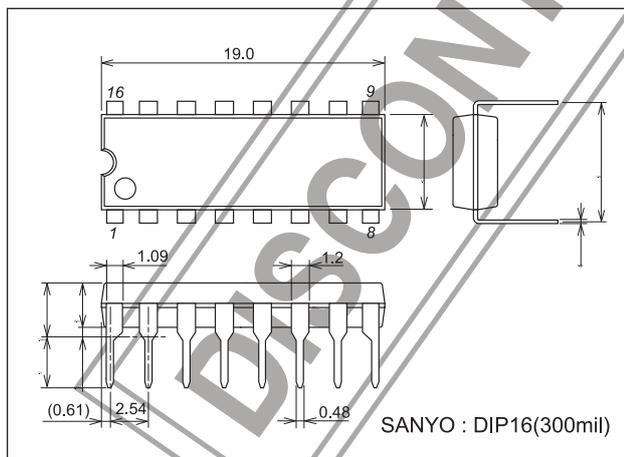
**Electrical Characteristics** at Ta = 25°C, V<sub>12</sub> = V<sub>15</sub> = 12V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
V <sub>CC12</sub> current drain	I <sub>CC12</sub>		10.0		19.0	mA
V <sub>CC15</sub> current drain	I <sub>CC15</sub>		6.0		11.0	mA
Vertical frequency pull-in range			9.0		11.0	Hz
Vertical free-running frequency	f <sub>V</sub>	f <sub>V</sub> center 55Hz	50		60	Hz
Supply voltage dependence of vertical frequency		V <sub>12</sub> = 12±1V, 55Hz at 12V	-0.5		+0.5	Hz
Temperature characteristic of vertical frequency		Ta = -10 to 60°C	-0.028		+0.028	Hz/°C
Vertical driver amplification factor			4.0		7.0	times
Horizontal free-running frequency	f <sub>H</sub>	f <sub>H</sub> center 15.750kHz	-750		+750	Hz
Supply voltage dependence of horizontal frequency		V <sub>15</sub> = 12±1V, 15.750kHz at 12V	-50		+50	Hz
Temperature characteristic of horizontal frequency		Ta = -10 to +60°C	-3.4		+3.4	Hz/°C
Horizontal output pulse width		f <sub>H</sub> = 15.750kHz	21.5		26.5	μs
Horizontal output drive current			4.2		7.8	mA

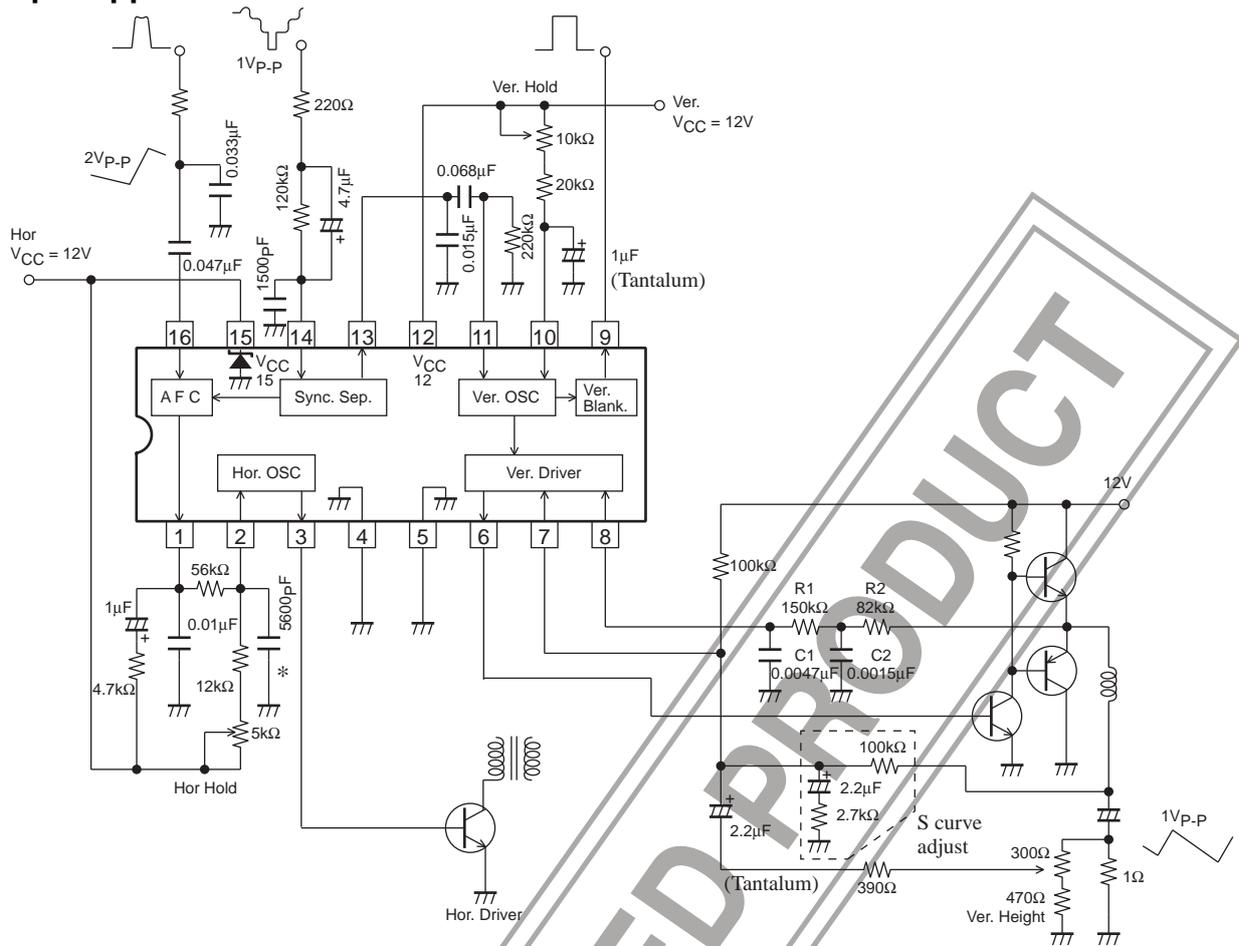
**Package Dimensions**

unit : mm (typ)

3006C



Sample Application Circuit



\* : Polyester-polypropylene film capacitor

- Note)
1. The vertical output circuit is shown by the basic circuit.
  2. The peripheral parts at pin 8 should be changed in accordance with the Ver. Out circuit conditions.
  3. The limiting resistor (220Ω : 1Vp-p) at pin 14 should be changed in proportion to the magnitude of the input video signal.
  4. In the time constant circuit (120kΩ, 4.7μF) at pin 14, the time constant should be changed by changing the resistance value in accordance with the DC level of the input video signal and then by changing the capacitance value.

## Peripheral parts at pin 8 (other applications)

	R <sub>1</sub>	C <sub>1</sub>	R <sub>2</sub>	C <sub>2</sub>
Line operate	220kΩ	0.01μF	68kΩ	0.068μF
Battery drive (pump-up)	220kΩ	0.0033μF	82kΩ	0.068μF

- SANYO Semiconductor Co.,Ltd. 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 Semiconductor Co.,Ltd. products described or contained herein.
- SANYO Semiconductor Co.,Ltd. strives to supply high-quality high-reliability products, however, any and all semiconductor products fail or malfunction with some probability. It is possible that these probabilistic failures or malfunction could give rise to accidents or events that could endanger human lives, trouble that could give rise to smoke or fire, or accidents 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 Semiconductor Co.,Ltd. products described or contained herein are controlled under any of applicable local export control laws and regulations, such products may require the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written consent of SANYO Semiconductor Co.,Ltd.
- 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 Semiconductor Co.,Ltd. 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.
- Upon using the technical information or products described herein, neither warranty nor license shall be granted with regard to intellectual property rights or any other rights of SANYO Semiconductor Co.,Ltd. or any third party. SANYO Semiconductor Co.,Ltd. shall not be liable for any claim or suits with regard to a third party's intellectual property rights which has resulted from the use of the technical information and products mentioned above.

This catalog provides information as of April, 2008. Specifications and information herein are subject to change without notice.