

1.本站收集的数据手册和产品资料都来自互联网,版权归原作者所有。如读者和版权方有任 何异议请及时告之,我们将妥善解决。

本站提供的中文数据手册是英文数据手册的中文翻译,其目的是协助用户阅读,该译文无法自动跟随原稿更新,同时也可能存在翻译上的不当。建议读者以英文原稿为参考以便获得更精准的信息。

3.本站提供的产品资料,来自厂商的技术支持或者使用者的心得体会等,其内容可能存在描 叙上的差异,建议读者做出适当判断。

4.如需与我们联系,请发邮件到marketing@iczoom.com,主题请标有"数据手册"字样。

Read Statement

1. The datasheets and other product information on the site are all from network reference or other public materials, and the copyright belongs to the original author and original published source. If readers and copyright owners have any objections, please contact us and we will deal with it in a timely manner.

2. The Chinese datasheets provided on the website is a Chinese translation of the English datasheets. Its purpose is for reader's learning exchange only and do not involve commercial purposes. The translation cannot be automatically updated with the original manuscript, and there may also be improper translations. Readers are advised to use the English manuscript as a reference for more accurate information.

3. All product information provided on the website refer to solutions from manufacturers' technical support or users the contents may have differences in description, and readers are advised to take the original article as the standard.

4. If you have any questions, please contact us at marketing@iczoom.com and mark the subject with "Datasheets".

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010 Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

EOL C

Send any inquiries to http://www.renesas.com/inquiry.

Notice

- 1. All information included in this document is current as of the date this document is issued. Such information, however, is subject to change without any prior notice. Before purchasing or using any Renesas Electronics products listed herein, please confirm the latest product information with a Renesas Electronics sales office. Also, please pay regular and careful attention to additional and different information to be disclosed by Renesas Electronics such as that disclosed through our website.
- Renesas Electronics does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Renesas Electronics products or technical information described in this document. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
- 3. You should not alter, modify, copy, or otherwise misappropriate any Renesas Electronics product, whether in whole or in part.
- 4. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation of these circuits, software, and information in the design of your equipment. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from the use of these circuits, software, or information.
- 5. When exporting the products or technology described in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations. You should not use Renesas Electronics products or the technology described in this document for any purpose relating to military applications or use by the military, including but not limited to the development of weapons of mass destruction. Renesas Electronics products and technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations.
- 6. Renesas Electronics has used reasonable care in preparing the information included in this document, but Renesas Electronics does not warrant that such information is error free. Renesas Electronics assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.
- 7. Renesas Electronics products are classified according to the following three quality grades: "Standard", "High Quality", and "Specific". The recommended applications for each Renesas Electronics product depends on the product's quality grade, as indicated below. You must check the quality grade of each Renesas Electronics product before using it in a particular application. You may not use any Renesas Electronics product for any application categorized as "Specific" without the prior written consent of Renesas Electronics. Further, you may not use any Renesas Electronics. Renesas Electronics product for any application for which it is not intended without the prior written consent of Renesas incurred by you or third parties arising from the use of any Renesas Electronics product for an application categorized as "Specific" or for which the product is not intended where you have failed to obtain the prior written consent of Renesas Electronics. The quality grade of each Renesas Electronics product is "Standard" unless otherwise expressly specified in a Renesas Electronics data sheets or data books, etc.
 - "Standard": Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; and industrial robots.
 - "High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control systems; anti-disaster systems; anticrime systems; safety equipment; and medical equipment not specifically designed for life support.
 - "Specific": Aircraft; aerospace equipment; submersible repeaters; nuclear reactor control systems; medical equipment or systems for life support (e.g. artificial life support devices or systems), surgical implantations, or healthcare intervention (e.g. excision, etc.), and any other applications or purposes that pose a direct threat to human life.
- 8. You should use the Renesas Electronics products described in this document within the range specified by Renesas Electronics, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas Electronics shall have no liability for malfunctions or damages arising out of the use of Renesas Electronics products beyond such specified ranges.
- 9. Although Renesas Electronics endeavors to improve the quality and reliability of its products, semiconductor products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Further, Renesas Electronics products are not subject to radiation resistance design. Please be sure to implement safety measures to guard them against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas Electronics product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or system manufactured by you.
- 10. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. Please use Renesas Electronics products in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. Renesas Electronics assumes no liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
- 11. This document may not be reproduced or duplicated, in any form, in whole or in part, without prior written consent of Renesas Electronics.
- 12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products, or if you have any other inquiries.
- (Note 1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its majorityowned subsidiaries.
- (Note 2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

Regarding the change of names mentioned in the document, such as Hitachi Electric and Hitachi XX, to Renesas Technology Corp.

The semiconductor operations of Mitsubishi Electric and Hitachi were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Hitachi, Hitachi, Ltd., Hitachi Semiconductors, and other Hitachi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Renesas Technology Home Page: http://www.renesas.com



Renesas Technology Corp. Customer Support Dept. April 1, 2003



Cautions

Keep safety first in your circuit designs!

 Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

Notes regarding these materials

- 1. These materials are intended as a reference to assist our customers in the selection of the Renesas Technology Corporation product best suited to the customer's application; they do not convey any license under any intellectual property rights, or any other rights, belonging to Renesas Technology Corporation or a third party.
- 2. Renesas Technology Corporation assumes no responsibility for any damage, or infringement of any third-party's rights, originating in the use of any product data, diagrams, charts, programs, algorithms, or circuit application examples contained in these materials.
- 3. All information contained in these materials, including product data, diagrams, charts, programs and algorithms represents information on products at the time of publication of these materials, and are subject to change by Renesas Technology Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact Renesas Technology Corporation or an authorized Renesas Technology Corporation product distributor for the latest product information before purchasing a product listed herein.

The information described here may contain technical inaccuracies or typographical errors. Renesas Technology Corporation assumes no responsibility for any damage, liability, or other loss rising from these inaccuracies or errors.

Please also pay attention to information published by Renesas Technology Corporation by various means, including the Renesas Technology Corporation Semiconductor home page (http://www.renesas.com).

- 4. When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a total system before making a final decision on the applicability of the information and products. Renesas Technology Corporation assumes no responsibility for any damage, liability or other loss resulting from the information contained herein.
- 5. Renesas Technology Corporation semiconductors are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact Renesas Technology Corporation or an authorized Renesas Technology Corporation product distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
- 6. The prior written approval of Renesas Technology Corporation is necessary to reprint or reproduce in whole or in part these materials.
- 7. If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination.

Any diversion or reexport contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.

8. Please contact Renesas Technology Corporation for further details on these materials or the products contained therein.

Silicon PNP Epitaxial

RENESAS

Application

- Low frequency low noise amplifier
- Complementary pair with 2SC2545, 2SC2546 and 2SC2547

Outline



Absolute Maximum Ratings ($Ta = 25^{\circ}C$)

| Item | Symbol | 2SA1083 | 2SA1084 | 2SA1085 | Unit |
|------------------------------|------------------|-------------|-------------|-------------|------|
| Collector to base voltage | V _{CBO} | -60 | -90 | -120 | V |
| Collector to emitter voltage | V_{ceo} | -60 | -90 | -120 | V |
| Emitter to base voltage | V_{EBO} | -5 | -5 | -5 | V |
| Collector current | I _c | -100 | -100 | -100 | mA |
| Emitter current | I _E | 100 | 100 | 100 | mA |
| Collector power dissipation | Pc | 400 | 400 | 400 | mW |
| Junction temperature | Тј | 150 | 150 | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | -55 to +150 | -55 to +150 | °C |

| | | 2SA1083 | | | 2SA1084 2SA1 | | 1085 | | | | | |
|---|----------------------|---------|------|------|--------------|------|------|------|------|------|------------|--|
| ltem | Symbol | Min | Тур | Max | Min | Тур | Max | Min | Тур | Max | Unit | Test conditions |
| Collector to base breakdown voltage | V _{(BR)CBO} | -60 | _ | _ | -90 | _ | _ | -120 | — | _ | V | $I_{c} = -10 \ \mu A, \ I_{E} = 0$ |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | -60 | — | _ | -90 | — | _ | -120 | — | — | V | $I_{c} = -1 \text{ mA},$ $R_{BE} = \infty$ |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | -5 | _ | _ | -5 | _ | _ | -5 | _ | _ | V | $I_{\rm E} = -10 \ \mu A, \ I_{\rm C} = 0$ |
| Collector cutoff current | I _{CBO} | _ | _ | -0.1 | _ | _ | -0.1 | _ | _ | -0.1 | μA | $V_{CB} = -50 \text{ V}, I_{E} = 0$ |
| Emitter cutoff current | I_{EBO} | _ | — | -0.1 | — | _ | -0.1 | _ | _ | -0.1 | μA | $V_{EB} = -2 V, I_{C} = 0$ |
| DC current transfer ratio | h _{FE} *1 | 250 | _ | 800 | 250 | _ | 800 | 250 | - | 800 | | $V_{CE} = -12 \text{ V},$ $I_{C} = -2 \text{ mA}$ |
| Collector to emitter saturation voltage | $V_{\text{CE(sat)}}$ | — | — | -0.2 | — | _ | -0.2 | _ | - | -0.2 | V | $I_{\rm C} = -10$ mA, $I_{\rm B} = -1$ mA |
| Base to emitter voltage | V_{BE} | — | -0.6 | _ | — | -0.6 | - | - | -0.6 |) | V | $V_{CE} = -12 \text{ V},$ $I_{C} = -2 \text{ mA}$ |
| Gain bandwidth product | f _T | — | 90 | _ | — | 90 | 5 | 5 | 90 | — | MHz | $V_{CE} = -12 \text{ V},$ $I_{C} = -2 \text{ mA}$ |
| Collector output capacitance | Cob | — | 3.5 | _ | - | 3.5 | 3 | _ | 3.5 | — | pF | $V_{CB} = -10 \text{ V}, \text{ I}_{E} = 0,$ f = 1 MHz |
| Noise voltage reffered to input | e _n | | 0.5 | ~ | 2 | 0.5 | _ | | 0.5 | _ | nV/ √Hz | $V_{CE} = -6V,$ $I_{C} = -10 \text{ mA},$ $f = 1 \text{ kHz},$ $R_{n} = 0, \Delta f = 1\text{ Hz}$ |

Electrical Characteristics (Ta = 25°C)

Note: 1. The 2SA1083, 2SA1084 and 2SA1085 are grouped by h_{FE} as follows.

D

250 to 500 400 to 800

Е









When using this document, keep the following in mind:

- 1. This document may, wholly or partially, be subject to change without notice.
- 2. All rights are reserved: No one is permitted to reproduce or duplicate, in any form, the whole or part of this document without Hitachi's permission.
- 3. Hitachi will not be held responsible for any damage to the user that may result from accidents or any other reasons during operation of the user's unit according to this document.
- 4. Circuitry and other examples described herein are meant merely to indicate the characteristics and performance of Hitachi's semiconductor products. Hitachi assumes no responsibility for any intellectual property claims or other problems that may result from applications based on the examples described herein.
- 5. No license is granted by implication or otherwise under any patents or other rights of any third party or Hitachi, Ltd.
- 6. MEDICAL APPLICATIONS: Hitachi's products are not authorized for use in MEDICAL APPLICATIONS without the written consent of the appropriate officer of Hitachi's sales company. Such use includes, but is not limited to, use in life support systems. Buyers of Hitachi's products are requested to notify the relevant Hitachi sales offices when planning to use the products in MEDICAL APPLICATIONS.

HITACHI

Hitachi, Ltd.

Semiconductor & IC Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100, Japan Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

For further information write to:

Hitachi America, Ltd. Semiconductor & IC Div. 2000 Sierra Point Parkway Brisbane, CA. 94005-1835 U S A Tel: 415-589-8300 Fax: 415-583-4207 Hitachi Europe GmbH Electronic Components Group Continental Europe Dornacher Straße 3 D-85622 Feldkirchen München Tel: 089-9 91 80-0 Fax: 089-9 29 30 00 Hitachi Europe Ltd. Electronic Components Div. Northern Europe Headquarters Whitebrook Park Lower Cookham Road Maidenhead Berkshire SL6 8YA United Kingdom Tel: 0628-585000 Fax: 0628-778322 Hitachi Asia Pte. Ltd. 16 Collyer Quay #20-00 Hitachi Tower Singapore 0104 Tel: 535-2100 Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd. Unit 706, North Tower, World Finance Centre, Harbour City, Canton Road Tsim Sha Tsui, Kowloon Hong Kong Tel: 27359218 Fax: 27306071

