

HTT1213S

Silicon NPN Epitaxial Twin Transistor

HITACHI

ADE-208-1448(Z)

Preliminary
Rev. 0
Aug. 2001

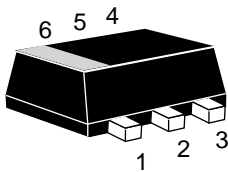
Features

- Include 2 transistors in a small size SMD package: SMFPAK-6 (6 Leads: 1.5 x 1.1 x 0.55 mm)

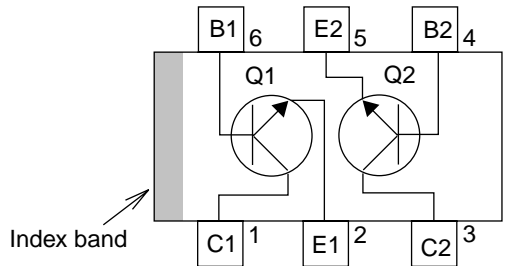
| Q1: Equivalent Buffer Transistor | Q2: Equivalent OSC Transistor |
|--|-------------------------------------|
| 2SC5700 | 2SC5700 |

Outline

SMFPAK-6



Pin Arrangement



- | | |
|-----------------|---------------|
| 1. Collector Q1 | 4. Base Q2 |
| 2. Emitter Q1 | 5. Emitter Q2 |
| 3. Collector Q2 | 6. Base Q1 |

Note: Marking is "CK1".

HTT1213S

Absolute Maximum Ratings

(T_a = 25 °C)

| Item | Symbol | Ratings | |
|------------------------------|------------------|-------------|------|
| | | Q1 and Q2 | Unit |
| Collector to base voltage | V _{CBO} | 15 | V |
| Collector to emitter voltage | V _{CEO} | 4 | V |
| Emitter to base voltage | V _{EBO} | 1.5 | V |
| Collector current | I _C | 50 | mA |
| Collector power dissipation | P _C | Total 220* | mW |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

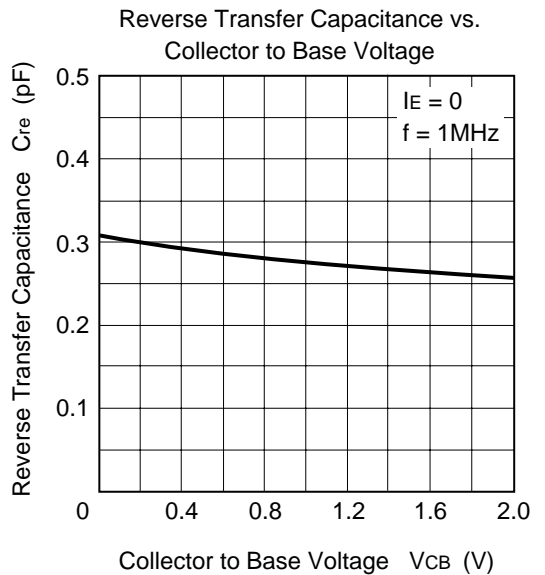
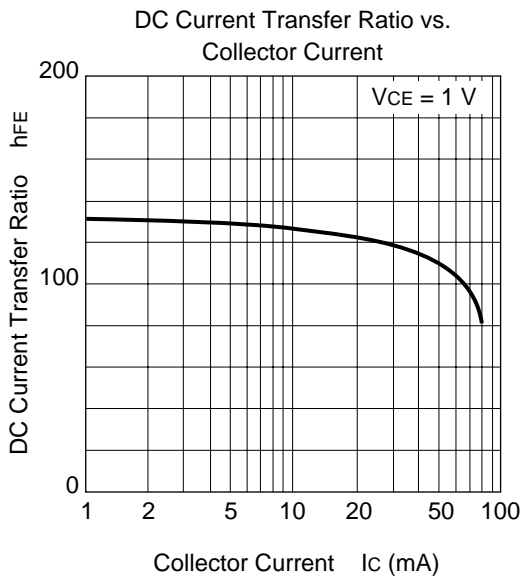
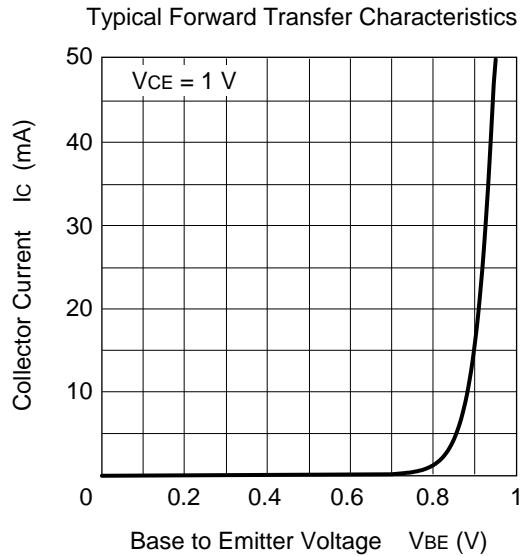
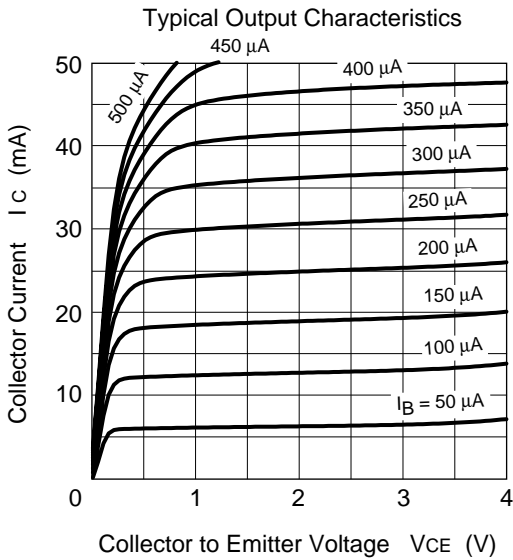
*Value on PCB. (FR-4 (13 x 13 x 0.635 mm))

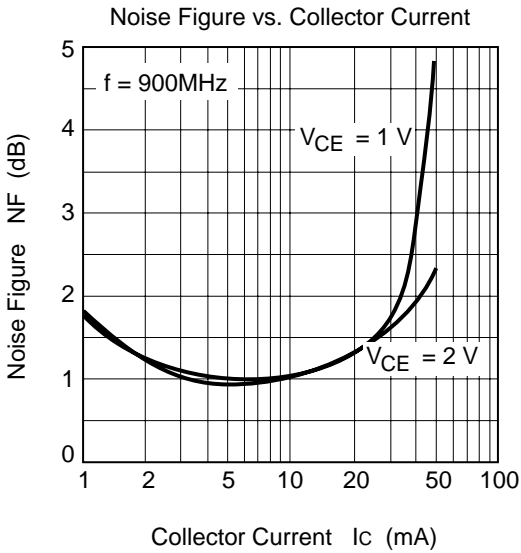
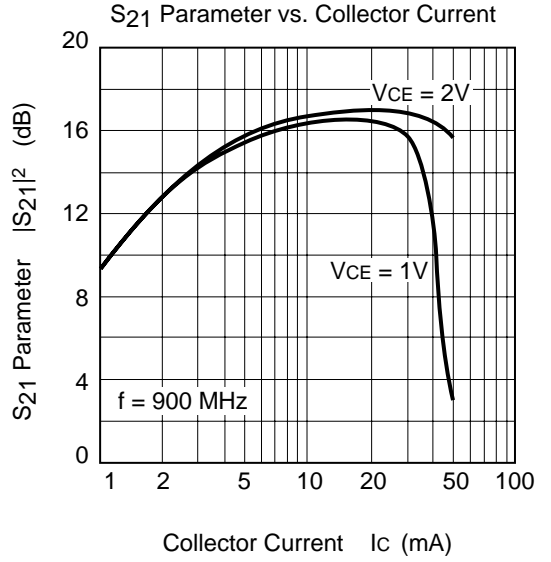
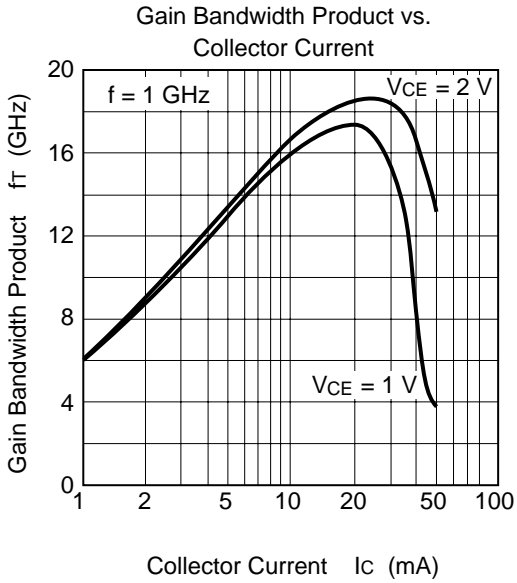
Electrical Characteristics (Q1 and Q2)

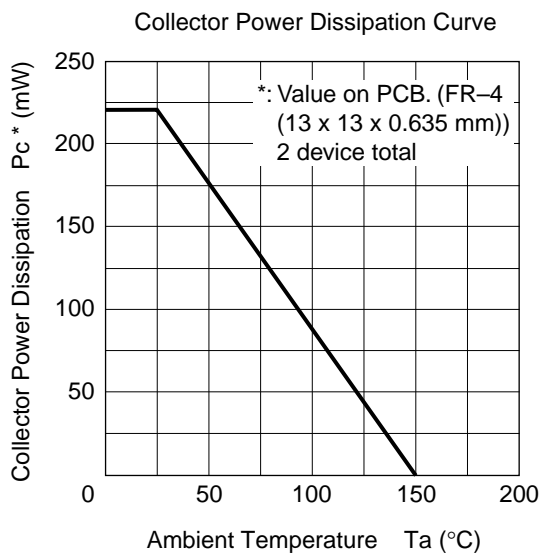
(T_a = 25 °C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|-------------------------------------|--------------------------------|-----|------|------|------|---|
| Collector to base breakdown voltage | V _{(BR)CBO} | 15 | — | — | V | I _C = 10 μA, I _E = 0 |
| Collector cutoff current | I _{CBO} | — | — | 0.1 | mA | V _{CB} = 15 V, I _E = 0 |
| Collector cutoff current | I _{CEO} | — | — | 1 | mA | V _{CE} = 4 V, R _{BE} = infinite |
| Emitter cutoff current | I _{EBO} | — | — | 0.2 | mA | V _{EB} = 0.8 V, I _C = 0 |
| DC current transfer ratio | h _{FE} | 100 | 130 | 170 | — | V _{CE} = 1 V, I _C = 5 mA |
| Reverse transfer capacitance | C _{re} | — | 0.30 | 0.45 | pF | V _{CB} = 1 V, f = 1 MHz Emitter ground |
| Gain bandwidth product | f _T | 10 | 13 | — | GHz | V _{CE} = 1 V, I _C = 5 mA, f = 1 GHz |
| Forward transfer coefficient | S ₂₁ ² | 13 | 16 | — | dB | V _{CE} = 1 V, I _C = 5 mA, f = 900 MHz, |
| Noise figure | NF | — | 1.0 | 2.0 | dB | Γ _S = Γ _L = 50 Ω |

Main Characteristics (Q1 and Q2)



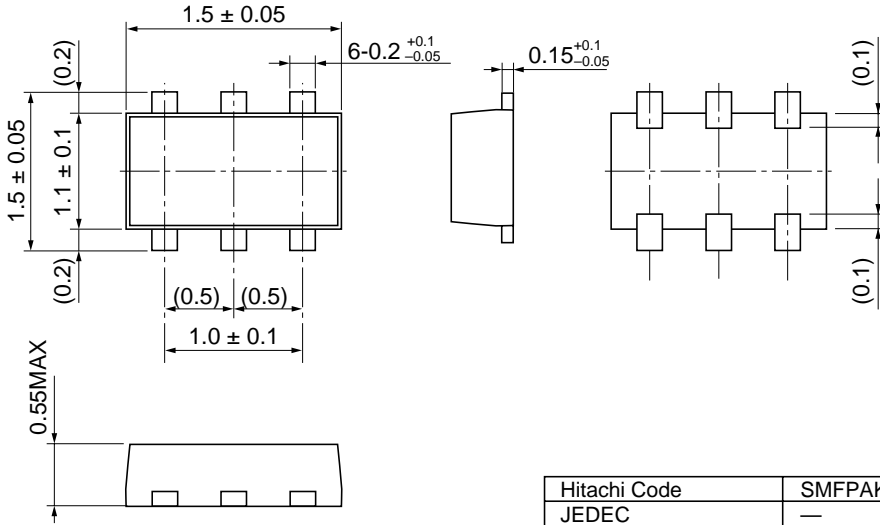




Package Dimensions

As of July, 2001

Unit: mm



| | |
|------------------------|----------|
| Hitachi Code | SMFPAK-6 |
| JEDEC | — |
| JEITA | Conforms |
| Mass (reference value) | 0.0025 g |

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Sales Offices

HITACHI

Hitachi, Ltd.

Semiconductor & Integrated Circuits
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: (03) 3270-2111 Fax: (03) 3270-5109

URL <http://www.hitachisemiconductor.com/>

For further information write to:

Hitachi Semiconductor (America) Inc.
179 East Tasman Drive
San Jose, CA 95134
Tel: <1> (408) 433-1990
Fax: <1> (408) 433-0223

Hitachi Europe Ltd.
Electronic Components Group
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 585200

Hitachi Europe GmbH
Electronic Components Group
Dornacher Straße 3
D-85622 Feldkirchen
Postfach 201, D-85619 Feldkirchen
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Asia Ltd.
Hitachi Tower
16 Collyer Quay #20-00
Singapore 049318
Tel: <65>-538-6533/538-8577
Fax: <65>-538-6933/538-3877
URL: <http://semiconductor.hitachi.com.sg>

Hitachi Asia Ltd.
(Taipei Branch Office)
4/F, No. 167, Tun Hwa North Road
Hung-Kuo Building
Taipei (105), Taiwan
Tel: <886>-(2)-2718-3666
Fax: <886>-(2)-2718-8180
Telex: 23222 HAS-TP
URL: <http://www.hitachi.com.tw>

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon Hong Kong
Tel: <852>-(2)-735-9218
Fax: <852>-(2)-730-0281
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