To our customers,

## Old Company Name in Catalogs and Other Documents

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

April 1st, 2010
Renesas Electronics Corporation

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

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# DATA SHEET

RENESAS

# SILICON TRANSISTOR
# 2SC1623

## NPN SILICON EPITAXIAL TRANSISTOR
## MINI MOLD

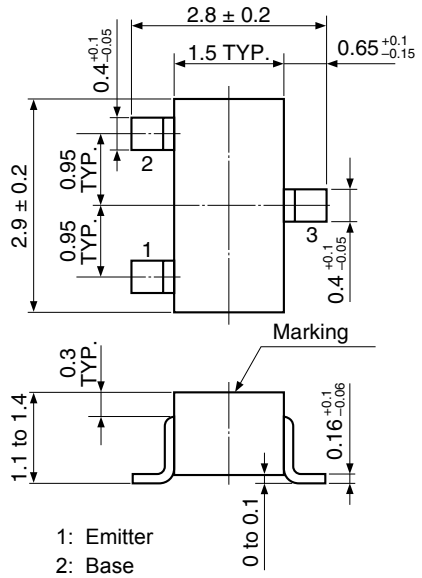
### FEATURES

- High DC Current Gain:
  $h_{FE}$ = 200 TYP. ($V_{CE}$ = 6.0 V, $I_C$ = 1.0 mA)
- High Voltage: $V_{CEO}$ = 50 V

### ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C)

| | | | |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | 60 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | 50 | V |
| Emitter to Base Voltage | $V_{EBO}$ | 5.0 | V |
| Collector Current (DC) | $I_C$ | 100 | mA |
| Total Power Dissipation | $P_T$ | 200 | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_{stg}$ | −55 to +150 | °C |

### <R> PACKAGE DRAWING (Unit: mm)




### ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C)

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Collector Cut-off Current | $I_{CBO}$ | | | 0.1 | μA | $V_{CB}$ = 60 V, $I_E$ = 0 A |
| Emitter Cut-off Current | $I_{EBO}$ | | | 0.1 | μA | $V_{EB}$ = 5.0 V, $I_C$ = 0 A |
| DC Current Gain | $h_{FE}$ | 90 | 200 | 600 | | $V_{CE}$ = 6.0 V, $I_C$ = 1.0 mA[Note] |
| Collector Saturation Voltage | $V_{CE(sat)}$ | | 0.15 | 0.3 | V | $I_C$ = 100 mA, $I_B$ = 10 mA[Note] |
| Base to Saturation Voltage | $V_{BE(sat)}$ | | 0.86 | 1.0 | V | $I_C$ = 100 mA, $I_B$ = 10 mA[Note] |
| Base to Emitter voltage | $V_{BE}$ | 0.55 | 0.62 | 0.65 | V | $V_{CE}$ = 6.0 V, $I_C$ = 1.0 mA[Note] |
| Gain Bandwidth Product | $f_T$ | | 250 | | MHz | $V_{CE}$ = 6.0 V, $I_E$ = −10 mA |
| <R> Output Capacitance | $C_{ob}$ | | 3.0 | | pF | $V_{CB}$ = 6.0 V, $I_E$ = 0 A, f = 1.0 MHz |

**Note** Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2%

### $h_{FE}$ CLASSIFICATION

| Marking | L4 | L5 | L6 | L7 |
|---|---|---|---|---|
| $h_{FE}$ | 90 to 180 | 135 to 270 | 200 to 400 | 300 to 600 |



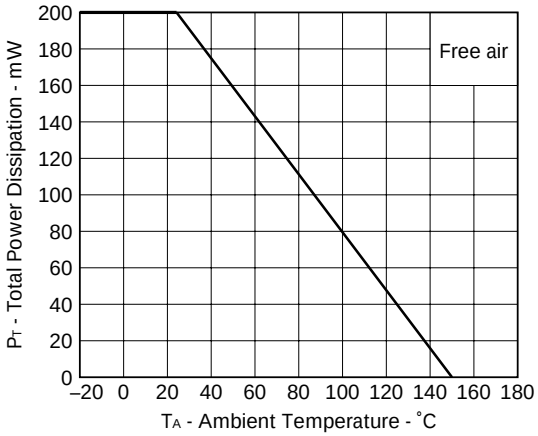

Document No. D17115EJ5V0DS00 (5th edition)
Date Published November 2005 NS CP(K)
Printed in Japan



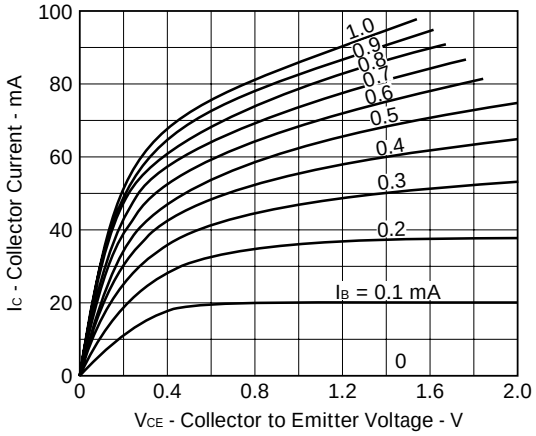

**The mark <R> shows major revised points.**
**The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.**

## <R> TYPICAL CHARACTERISTICS ($T_A$ = 25°C)

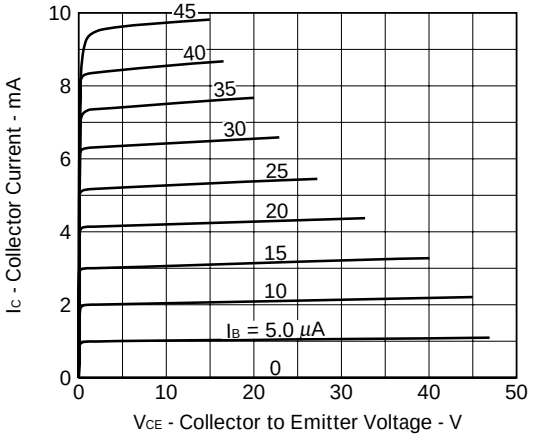
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



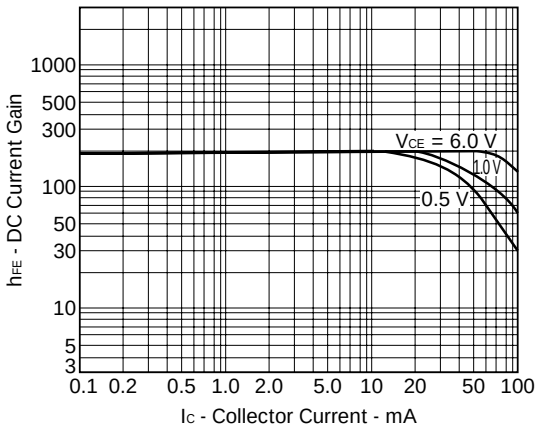

COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



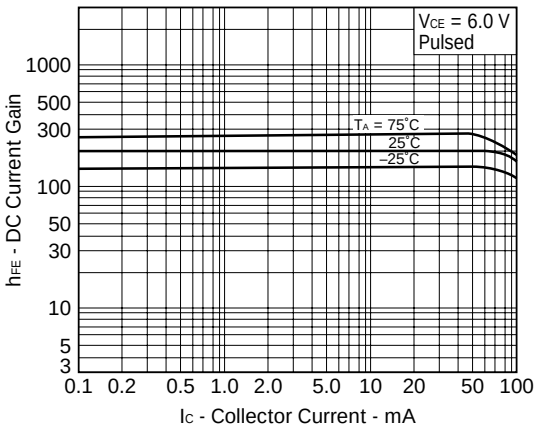

COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



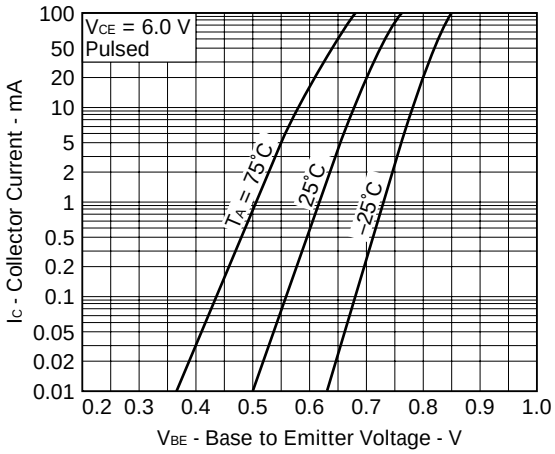

DC CURRENT GAIN vs.
COLLECTOR CURRENT



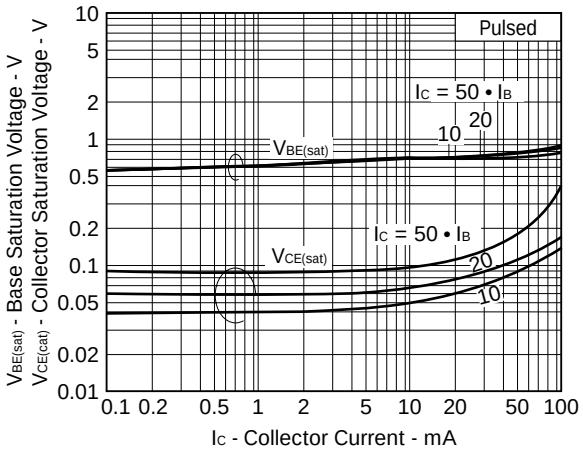

DC CURRENT GAIN vs.
COLLECTOR CURRENT



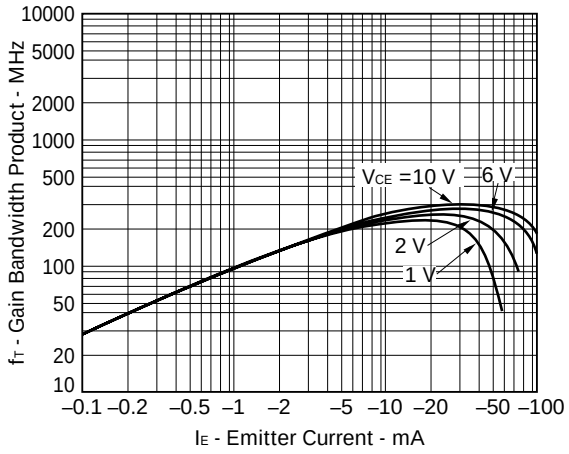
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



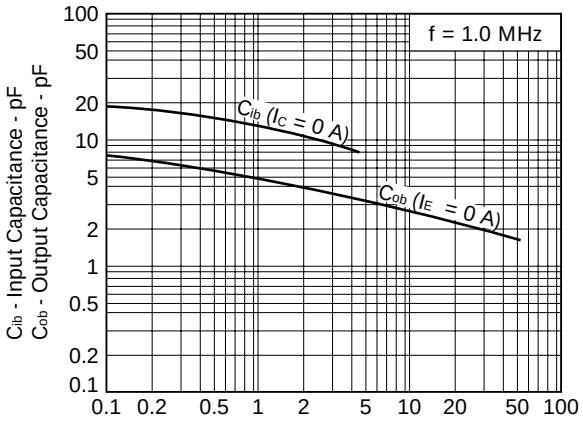

COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



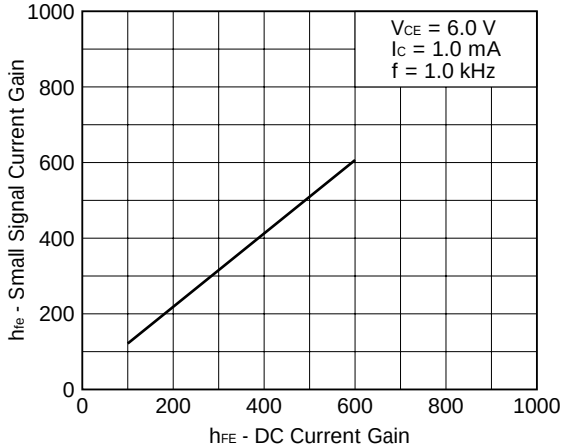

GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



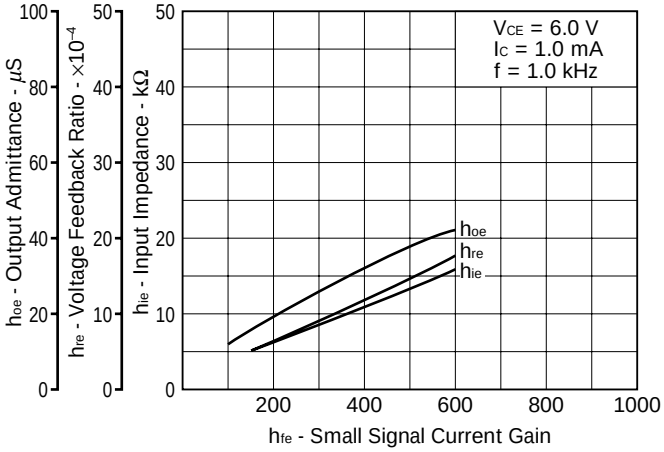

INPUT AND OUTPUT CAPACITANCE
vs. REVERSE VOLTAGE



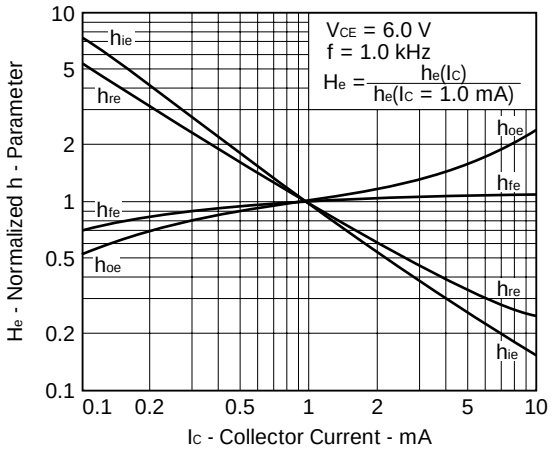

SMALL SIGNAL CURRENT GAIN vs.
DC CURRENT GAIN



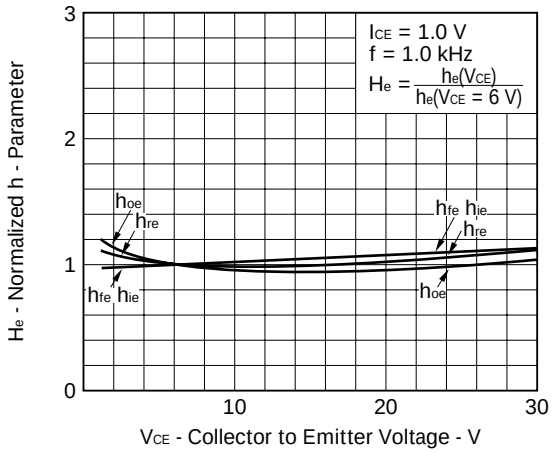

INPUT IMPEDANCE VOLTAGE FEEDBACK
RATIO AND OUTPUT ADMITTANCE vs.
SMALL SIGNAL CURRENT GAIN



NORMALIZED h-PARAMETER vs.
COLLECTOR CURRENT




NORMALIZED h-PARAMETER vs.
COLLECTOR TO EMITTER VOLTAGE



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M8E 02. 11-1