

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>)

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

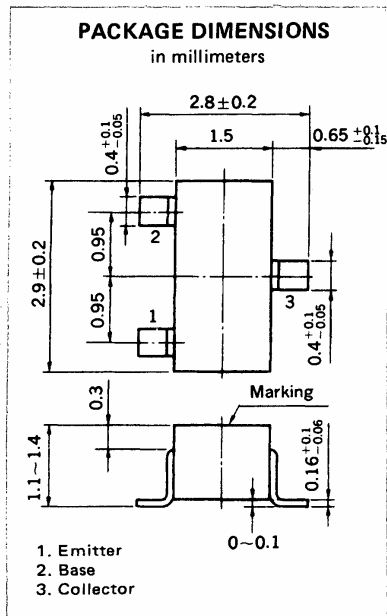
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HIGH VOLTAGE AMPLIFIER AND SWITCHING
NPN SILICON EPITAXIAL TRANSISTOR
MINI MOLD



FEATURES

- High Voltage $V_{CEO} = 200$ V
- High DC Current Gain $h_{FE} = 90$ to 450
- Complementary to 2SA1330

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

| | | | |
|------------------------------|-----------|-------------|------------------|
| Collector to Base Voltage | V_{CBO} | 200 | V |
| Collector to Emitter Voltage | V_{CEO} | 200 | V |
| Emitter to Base Voltage | V_{EBO} | 5 | V |
| Collector Current (DC) | I_C | 100 | mA |
| Total Power Dissipation | P_T | 200 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|------------------------------|-----------------|------|------|------|---------------|--|
| Collector Cutoff Current | I_{CBO} | | | 100 | nA | $V_{CB} = 200$ V, $I_E = 0$ |
| Emitter Cutoff Current | I_{EBO} | | | 100 | nA | $V_{EB} = 5.0$ V, $I_C = 0$ |
| DC Current Gain | h_{FE1}^* | 90 | 200 | 450 | | $V_{CE} = 10$ V, $I_C = 10$ mA |
| DC Current Gain | h_{FE2}^* | 50 | 200 | | | $V_{CE} = 10$ V, $I_C = 50$ mA |
| Base to Emitter Voltage | V_{BE}^* | 0.6 | 0.64 | 0.7 | V | $V_{CE} = 10$ V, $I_C = 10$ mA |
| Collector Saturation Voltage | $V_{CE(sat)}^*$ | | 0.1 | 0.3 | V | $I_C = 50$ mA, $I_B = 5$ mA |
| Base Saturation Voltage | $V_{BE(sat)}^*$ | | 0.8 | 1.2 | V | $I_C = 50$ mA, $I_B = 5$ mA |
| Output Capacitance | C_{ob} | | 2.8 | | pF | $V_{CB} = 30$ V, $I_E = 0$, $f = 1.0$ MHz |
| Gain Bandwidth Product | f_T | | 160 | | MHz | $V_{CE} = 10$ V, $I_E = -10$ mA |
| Turn-on Time | t_{on} | | 0.15 | | μs | $I_C = 10$ mA, $I_{B1} = -I_{B2} = 1$ mA |
| Turn-off Time | t_{off} | | 1.6 | | μs | $V_{CC} = 10$ V |

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* Pulsed: $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$

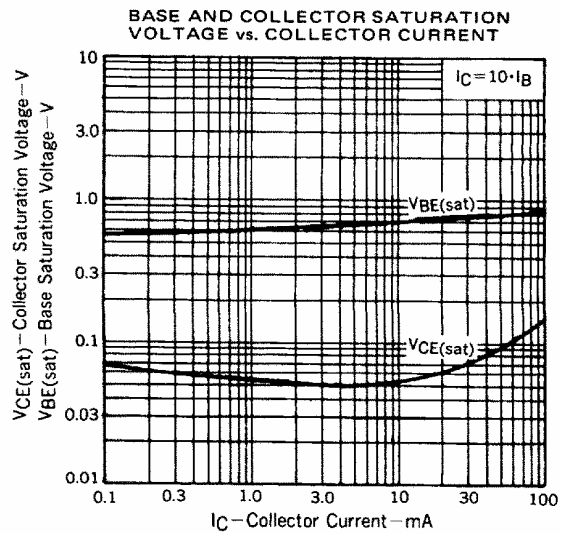
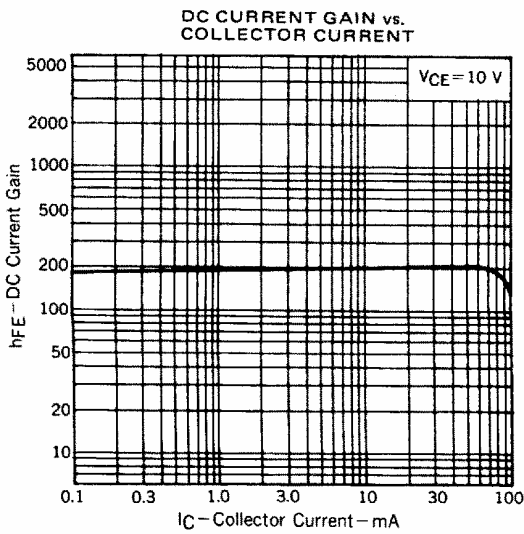
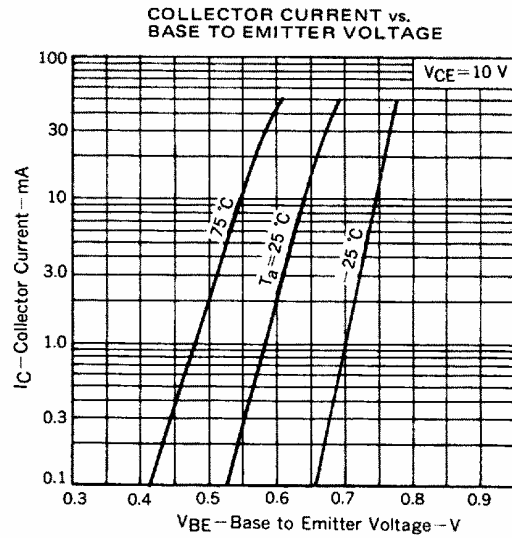
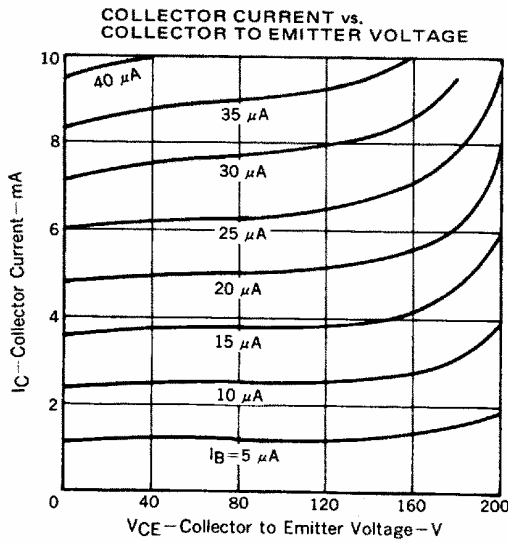
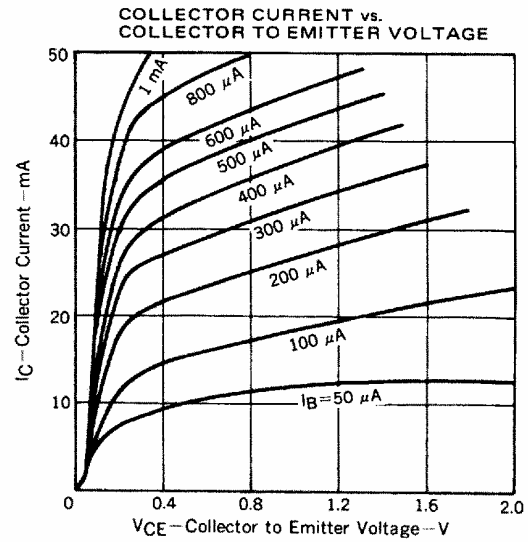
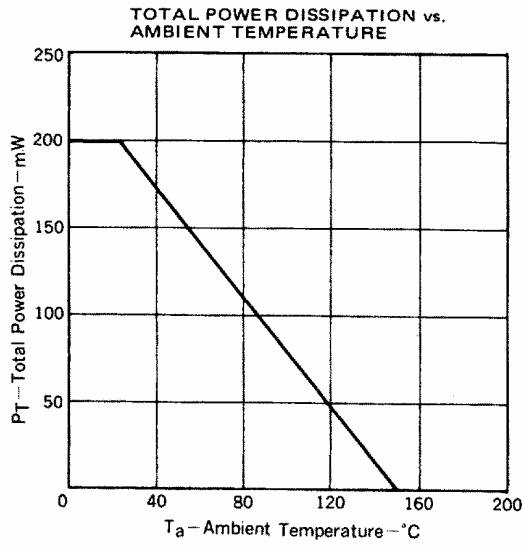
h_{FE} Classification

| Marking | N15 | N16 | N17 |
|-----------|-----------|------------|------------|
| h_{FE1} | 90 to 180 | 135 to 270 | 200 to 450 |

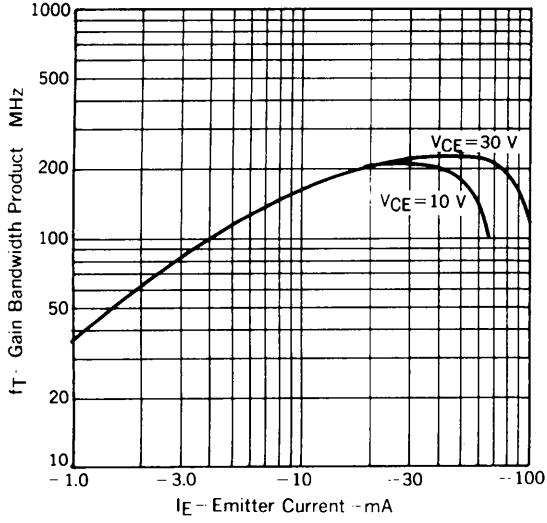
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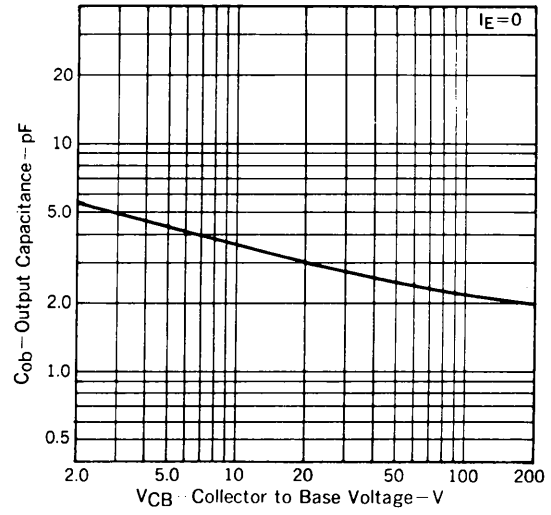
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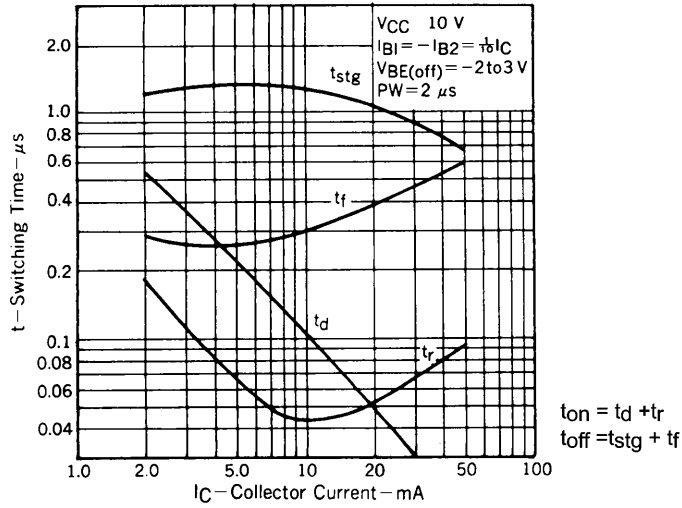
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



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