

DESCRIPTION The 2SA992 is best for use as the middle range amplifier in Hi-Fi stereo control amplifiers, power amplifiers, and etc.

- FEATURES**
- High Voltage. $V_{CEO} : -120 \text{ V}$
 - Low Output Capacitance. $C_{ob} : 2.0 \text{ pF TYP. } (V_{CB} = -30 \text{ V})$
 - High h_{FE} . $h_{FE} : 500 \text{ TYP. } (V_{CE} = -6.0 \text{ V, } I_C = -1.0 \text{ mA})$
 - Super Low Noise. $NV : 25 \text{ mV TYP. (See test circuit.)}$
 - Complementary to 2SC1845.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

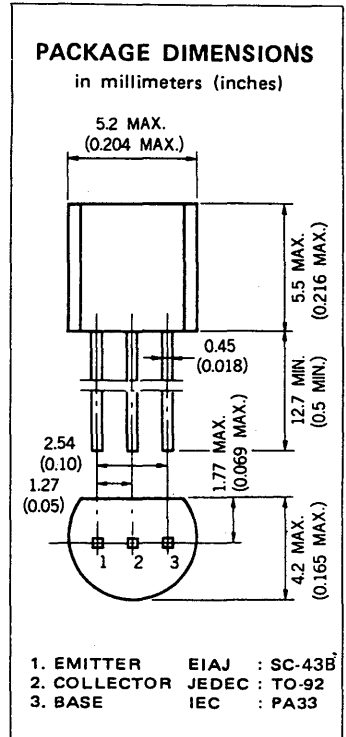
- Storage Temperature $-55 \text{ to } +125 \text{ }^\circ\text{C}$
- Junction Temperature $+125 \text{ }^\circ\text{C Maximum}$

Maximum Power Dissipation ($T_a = 25 \text{ }^\circ\text{C}$)

- Total Power Dissipation 500 mW

Maximum Voltages and Currents ($T_a = 25 \text{ }^\circ\text{C}$)

- V_{CBO} Collector to Base Voltage -120 V
- V_{CEO} Collector to Emitter Voltage -120 V
- V_{EBO} Emitter to Base Voltage -5.0 V
- I_C Collector Current -50 mA
- I_B Base Current -10 mA



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

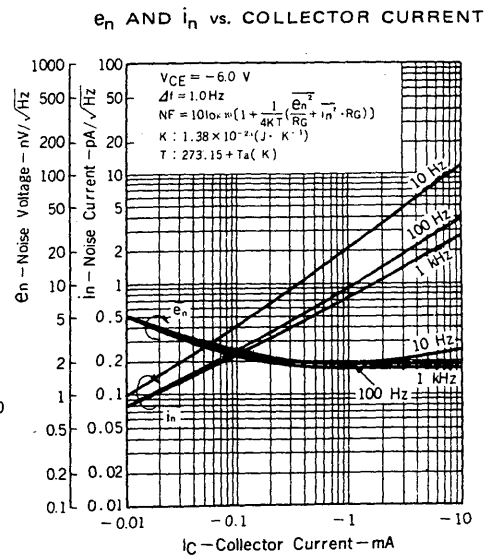
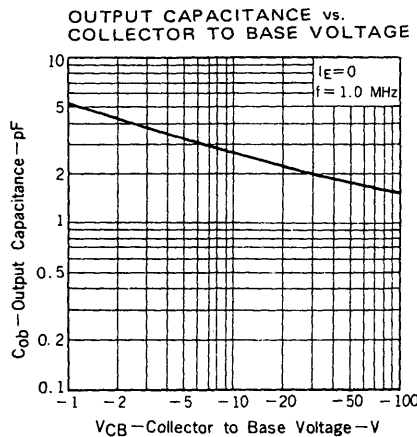
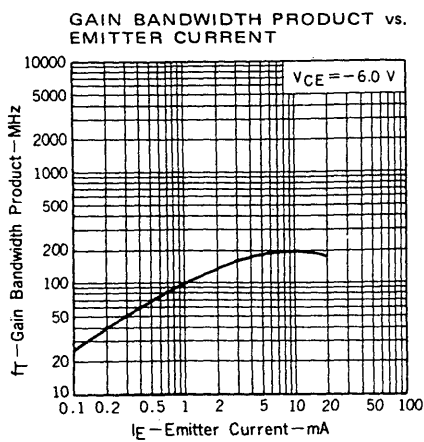
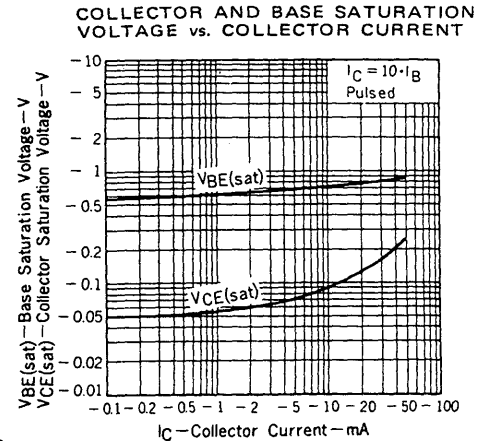
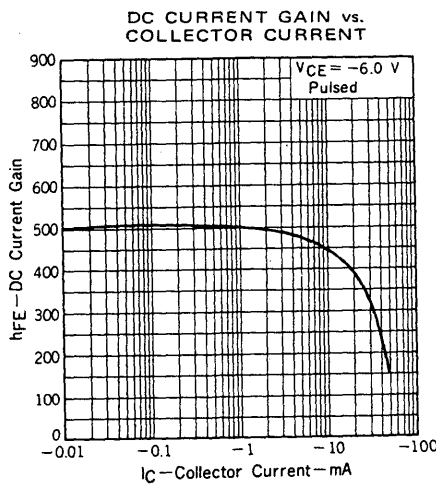
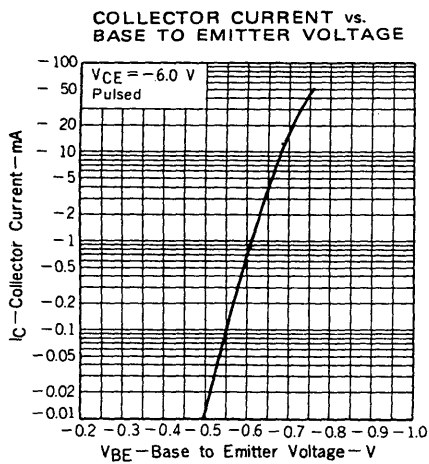
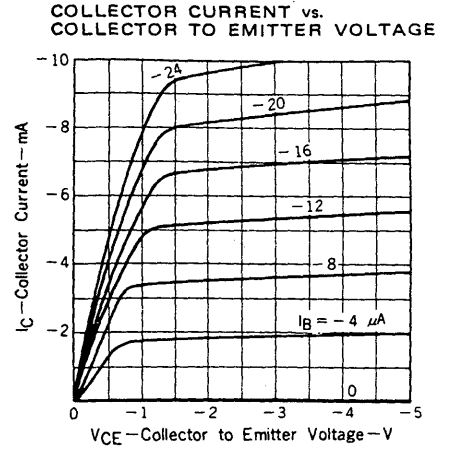
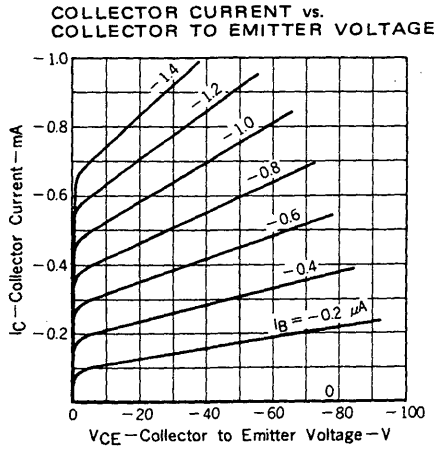
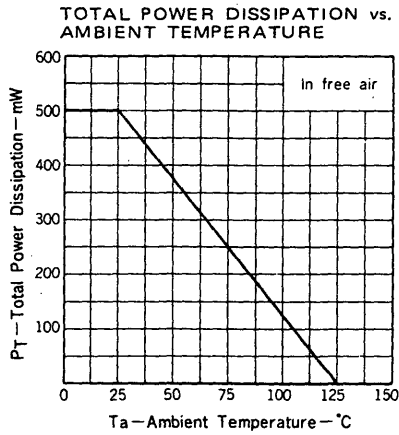
| SYMBOL | CHARACTERISTIC | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|---------------|------------------------------|-------|-------|-------|------|--|
| h_{FE1} | DC Current Gain | 150 | 500 | | — | $V_{CE} = -6.0 \text{ V, } I_C = -0.1 \text{ mA}$ |
| h_{FE2} | DC Current Gain | 200 | 500 | 800 | — | $V_{CE} = -6.0 \text{ V, } I_C = -1.0 \text{ mA}$ |
| f_T | Gain Bandwidth Product | 50 | 100 | | MHz | $V_{CE} = -6.0 \text{ V, } I_E = 1.0 \text{ mA}$ |
| C_{ob} | Output Capacitance | | 2.0 | 3.0 | pF | $V_{CB} = -30 \text{ V, } I_E = 0, f = 1.0 \text{ MHz}$ |
| NV | Noise Voltage | | 25 | 40 | mV | $V_{CE} = -5.0 \text{ V, } I_C = -1.0 \text{ mA, } R_G = 100 \text{ k}\Omega$ $G_v = 80 \text{ dB, } f = 10 \text{ Hz to } 1.0 \text{ kHz}$ |
| I_{CBO} | Collector Cutoff Current | | | -50 | nA | $V_{CB} = -120 \text{ V, } I_E = 0$ |
| I_{EBO} | Emitter Cutoff Current | | | -50 | nA | $V_{EB} = -5.0 \text{ V, } I_C = 0$ |
| V_{BE} | Base to Emitter Voltage | -0.55 | -0.61 | -0.65 | V | $V_{CE} = -6.0 \text{ V, } I_C = -1.0 \text{ mA}$ |
| $V_{CE(sat)}$ | Collector Saturation Voltage | | -0.09 | -0.30 | V | $I_C = -10 \text{ mA, } I_B = -1.0 \text{ mA}$ |

Classification of h_{FE2}

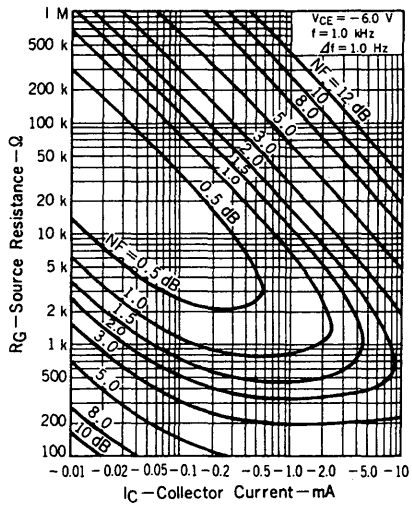
| Rank | P | F | E |
|-------|-----------|-----------|-----------|
| Range | 200 - 400 | 300 - 600 | 400 - 800 |

h_{FE} Test Conditions : $V_{CE} = -6.0 \text{ V, } I_C = -1.0 \text{ mA}$

TYPICAL CHARACTERISTICS (Ta = 25 °C unless otherwise noted)



NOISE FIGURE MAP.



NOISE VOLTAGE TEST CIRCUIT

