

**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

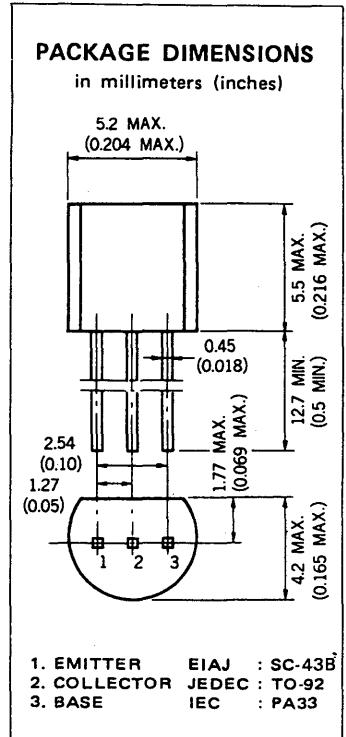
- Storage Temperature . . . . .  $-55\text{ to }+125\text{ }^\circ\text{C}$
- Junction Temperature . . . . .  $+125\text{ }^\circ\text{C Maximum}$

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

- Total Power Dissipation . . . . .  $500\text{ mW}$

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

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



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

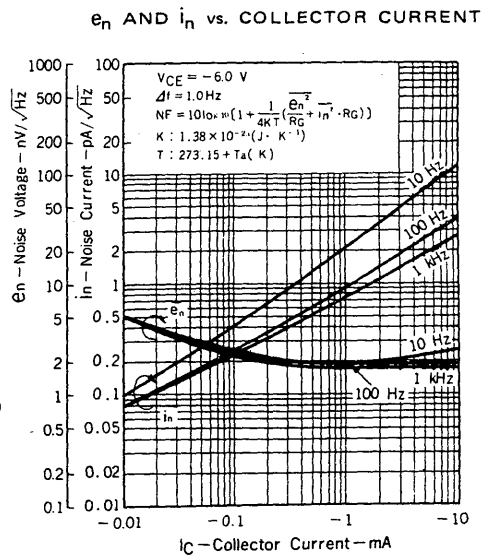
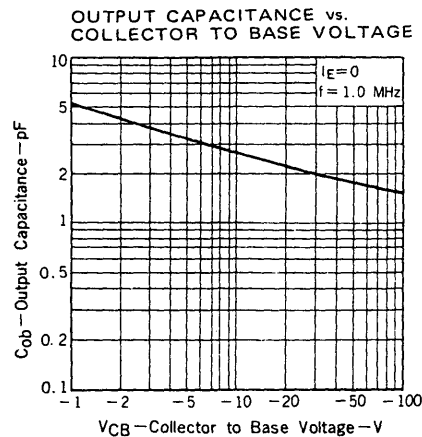
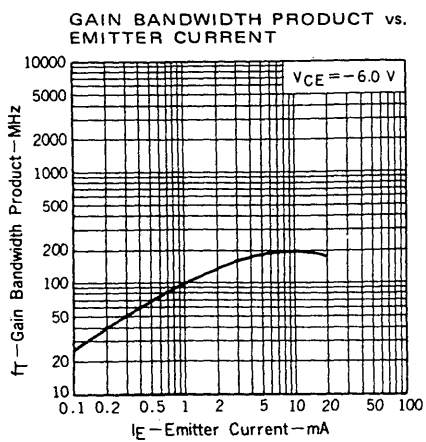
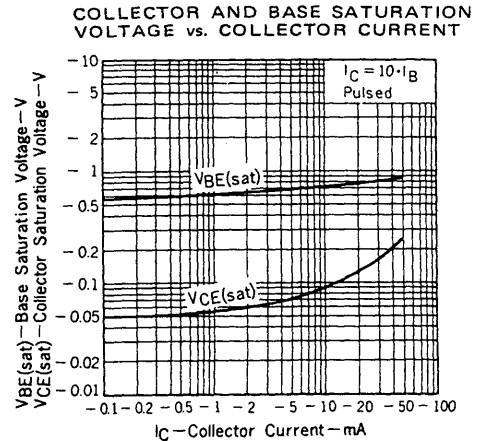
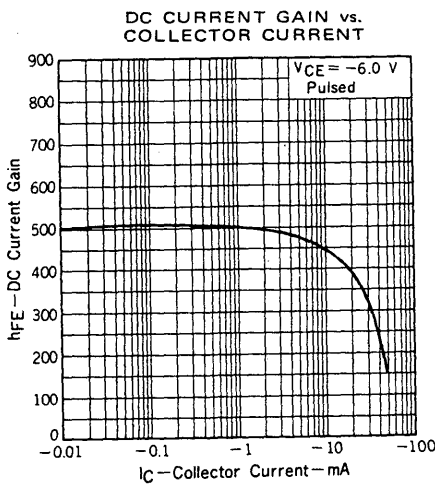
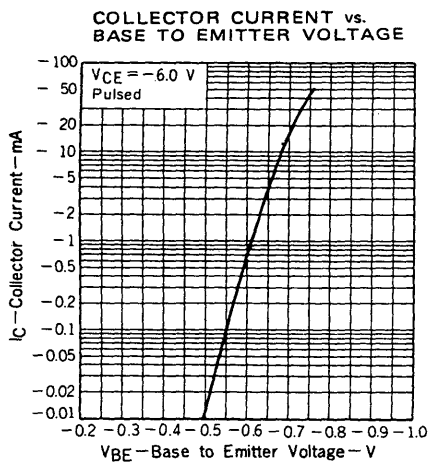
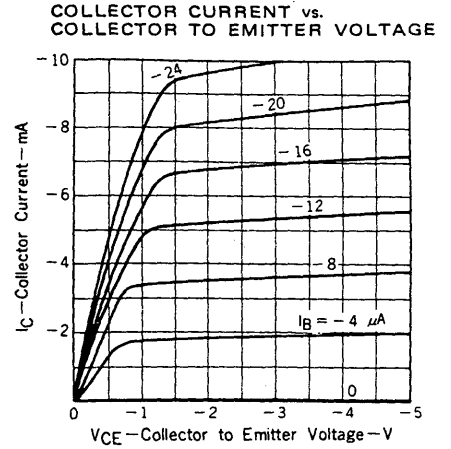
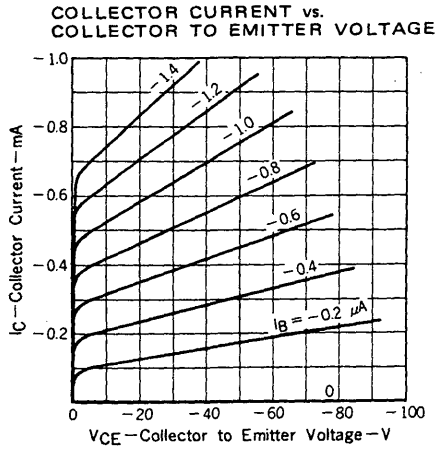
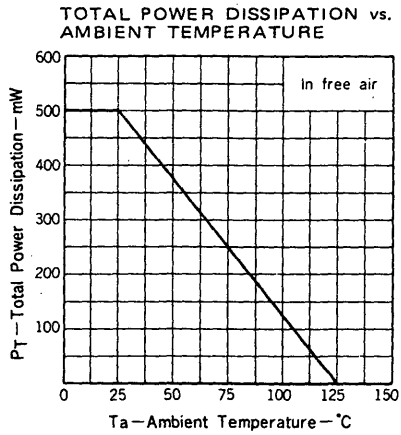
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$h_{FE1}$	DC Current Gain	150	500		—	$V_{CE} = -6.0\text{ V, } I_C = -0.1\text{ mA}$
$h_{FE2}$	DC Current Gain	200	500	800	—	$V_{CE} = -6.0\text{ V, } I_C = -1.0\text{ mA}$
$f_T$	Gain Bandwidth Product	50	100		MHz	$V_{CE} = -6.0\text{ V, } I_E = 1.0\text{ mA}$
$C_{ob}$	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  $h_{FE2}$**

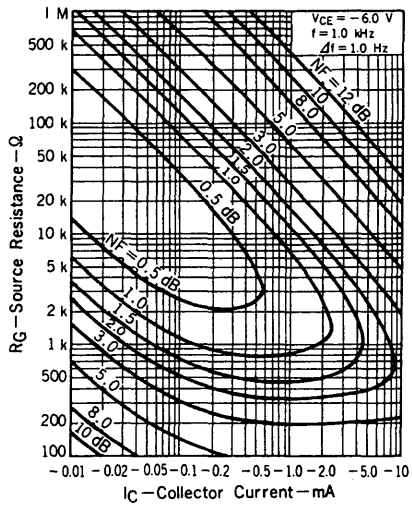
Rank	P	F	E
Range	200 - 400	300 - 600	400 - 800

$h_{FE}$  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

