



2003A

PNP Epitaxial Planar Silicon Transistor

T-29-15

Very Low-Noise Amp Applications

©371D

The 2SA929, 930 are transistors for very low noise AF amp. They are especially suited for use in the first stage of equalizer amp. in high-grade stereo sets. It is possible to form a complementary pair with NPN type 2SC1570.

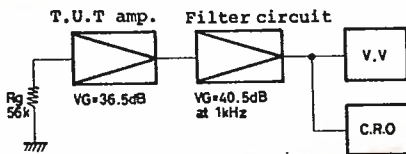
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$		2SA929	2SA930	unit
Collector to Base Voltage	V_{CB0}	-55	-40	V
Collector to Emitter Voltage	V_{CE0}	-50	-35	V
Emitter to Base Voltage	V_{EB0}		-5	V
Collector Current	I_C	-50		mA
Collector Dissipation	P_C		200	mW
Junction Temperature	T_j		125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125		$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=-30\text{V}, I_E=0$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0$			-0.1	μA
Collector to Base Breakdown Voltage	$V_{(BR)CB0}$	$I_C=-10\mu\text{A}, I_E=0$	2SA929	-55		V
Collector to Emitter Breakdown Voltage	$V_{(BR)CE0}$	$I_C=-1\text{mA}, R_{BE}=\infty$	2SA930	-40		V
Emitter to Base Breakdown Voltage	$V_{(BR)EB0}$	$I_E=-10\mu\text{A}, I_C=0$	2SA929	-50		V
			2SA930	-35		V
DC Current Gain	h_{FE}	$V_{CE}=-6\text{V}, I_C=-1\text{mA}$		160*	960*	
Gain-Bandwidth Product	f_T	$V_{CE}=-6\text{V}, I_C=-1\text{mA}$		80		MHz
Output Capacitance	C_{ob}	$V_{CB}=-6\text{V}, f=1\text{MHz}$		5		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-50\text{mA}, I_E=-5\text{mA}$			-0.5	V
Output Noise Voltage	V_{NO}	$V_{CC}=-30\text{V}, I_C=-1\text{mA}, R_g=56\text{k}\Omega, V_G=77\text{dB}(1\text{kHz})$			35	mV
		$V_{NO}(\text{peak})$ Same as above			200	mV

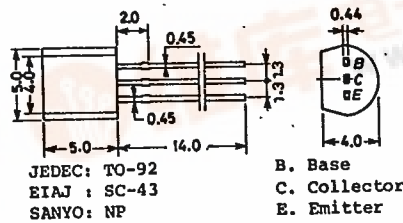
* The 2SA929, 930 are classified as follows according to h_{FE} at 1mA.

160	F	320	280	G	560	480	H	960
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Noise Test Circuit

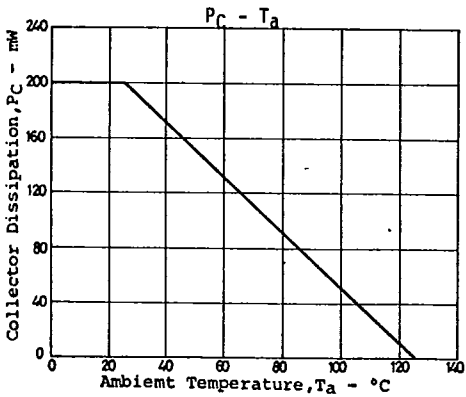
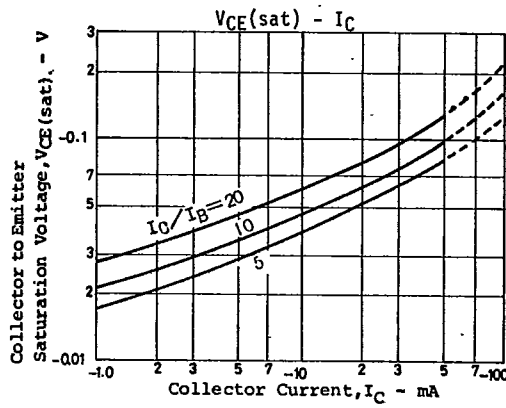
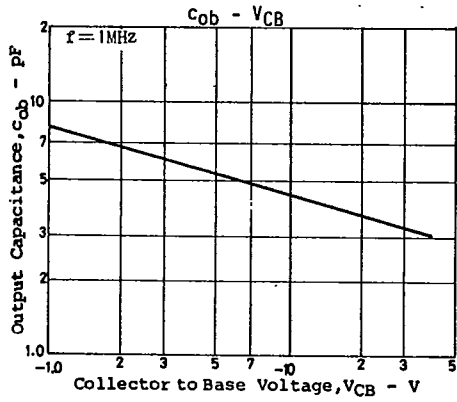
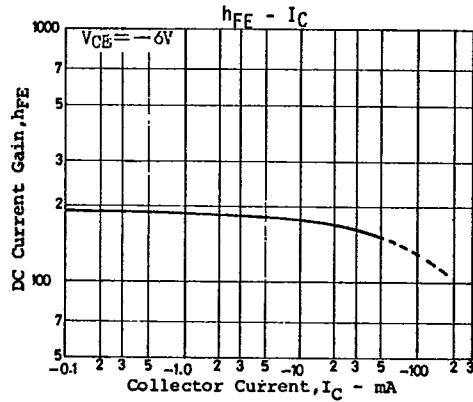
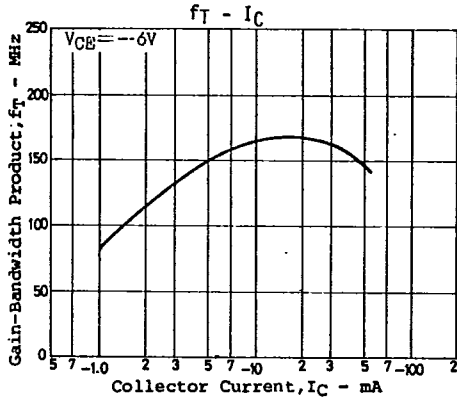
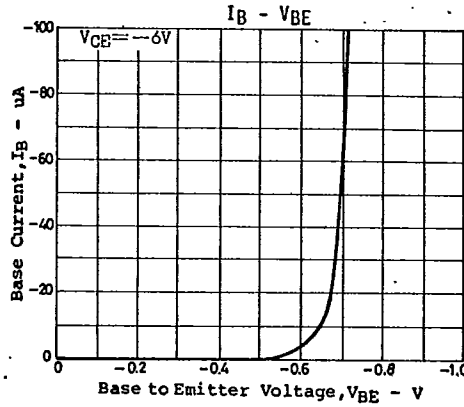
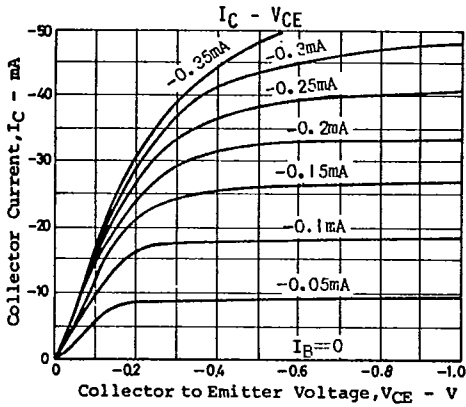


Case Outline 2003A (unit:mm)

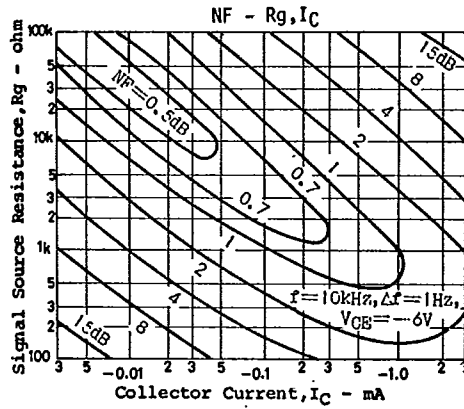
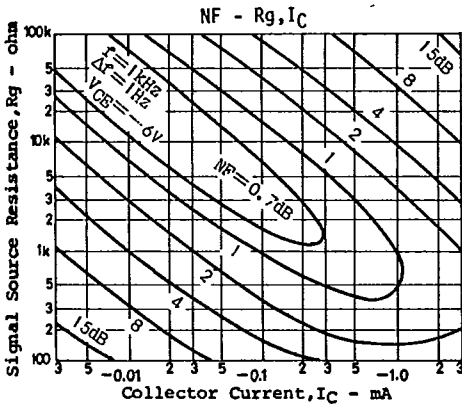
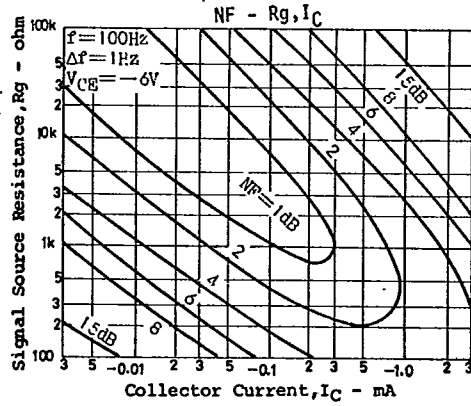
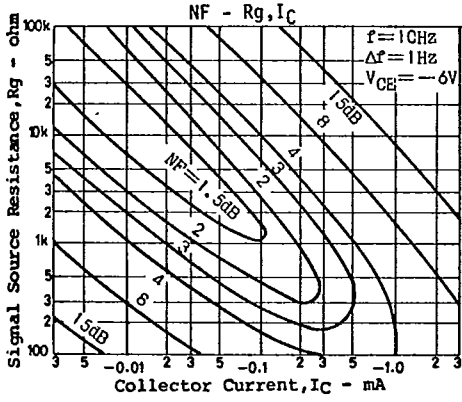


2SA929,930

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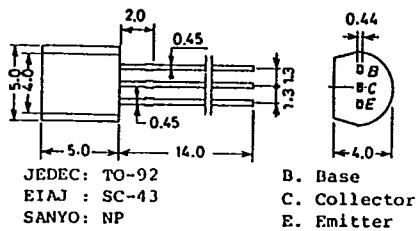


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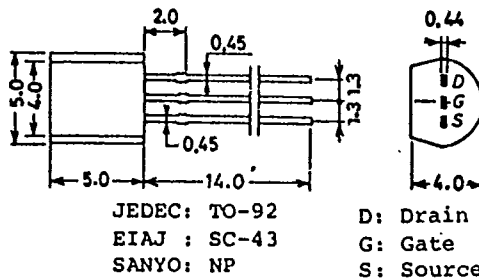
CASE OUTLINES OF LEAD FORMED SMALL SIGNAL TRANSISTORS

- All of Sanyo lead formed small signal transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

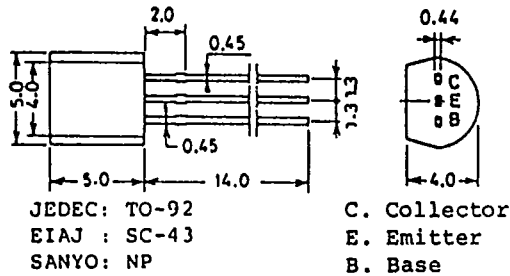
Case Outline-[2003A] unit: mm



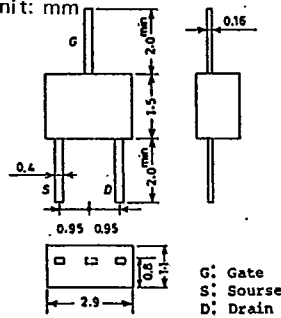
Case Outline-[2019A] unit: mm



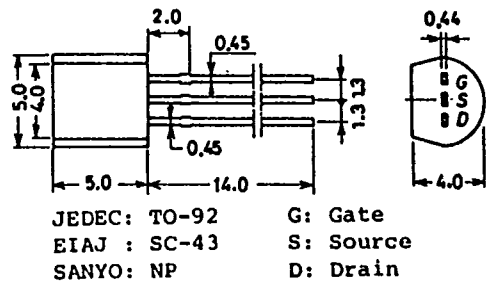
Case Outline-[2004A] unit: mm



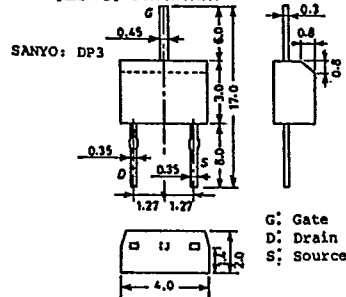
Case Outline-[2025] unit: mm



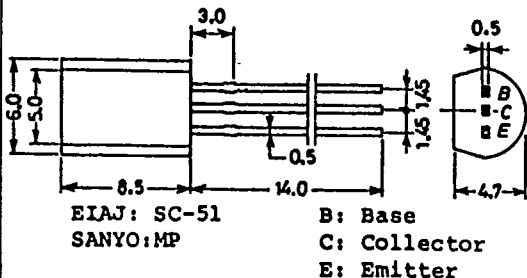
Case Outline-[2005A] unit: mm



Case Outline-[2026] unit: mm



Case Outline-[2006A] unit: mm



Case Outline-[2027A] unit: mm

