T-29-15

2SA929, 930

2003A

PNP Epitaxial Planar Silicon Transistor

Very Low-Noise Amp Applications

E371D

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°C

		2SA929	2SA930	unit
Collector to Base Voltage	V_{CBO}	-55	-40	V
Collector to Emitter Voltage	V_{CEO}	-50	-35	V
Emitter to Base Voltage	V_{EBO}	-5		V
Collector Current	I_C	-50		mA
Collector Dissipation	P_C	200		mW
Junction Temperature	T_j	125		°C
Storage Temperature	T_{stg}	-55 to +125		°C

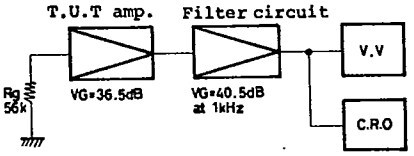
Electrical Characteristics at T_a=25°C

				min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=-30V, I_E=0				-0.1	uA
Emitter Cutoff Current	I_{EBO}	V_{EB}=-4V, I_C=0				-0.1	uA
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=-10uA, I_E=0	2SA929	-55			V
			2SA930	-40			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=-1mA, R_{BE}=∞	2SA929	-50			V
			2SA930	-35			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=-10uA, I_C=0		-5			V
DC Current Gain	h_{FE}	V_{CE}=-6V, I_C=-1mA		160*		960*	
Gain-Bandwidth Product	f_T	V_{CE}=-6V, I_C=-1mA			80		MHz
Output Capacitance	C_{ob}	V_{CB}=-6V, f=1MHz			5		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=-50mA, I_B=-5mA				-0.5	V
Output Noise Voltage	V_{NO}	V_{CC}=-30V, I_C=-1mA, Rg=56kohm, VG=77dB(1kHz)				35	mV
	$V_{NO(peak)}$	Same as above				200	mV

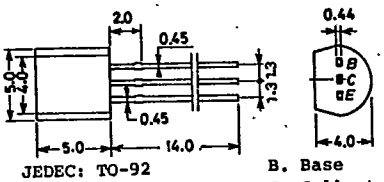
* The 2SA929,930 are classified as follows according to h_{FE} at 1mA.

160 F 320	280 G 560	480 H 960

Noise Test Circuit



Case Outline 2003A (unit:mm)



JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

B. Base
C. Collector
E. Emitter

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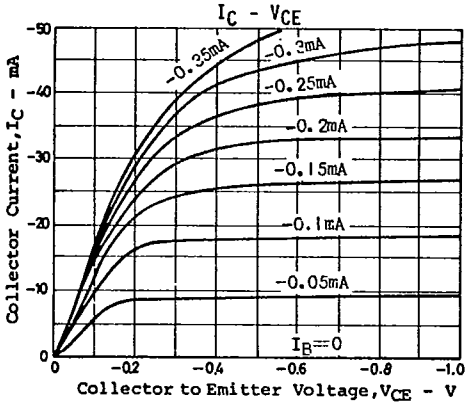
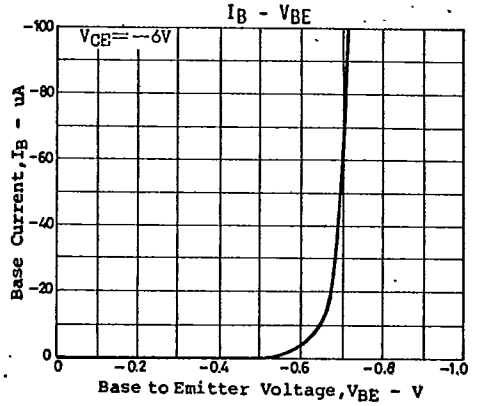
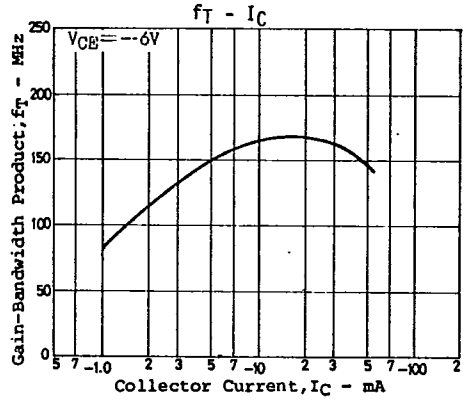
I_C - V_{CE}



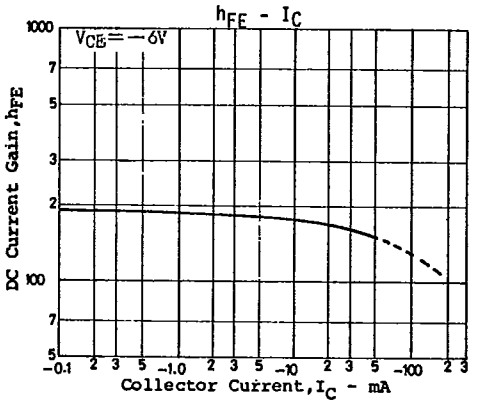
I_B - V_{BE}



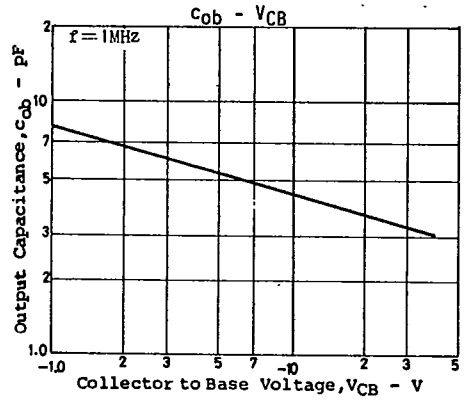
f_T - I_C



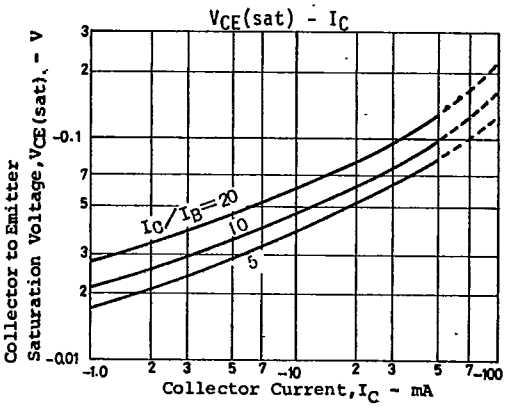
h_{FE} - I_C



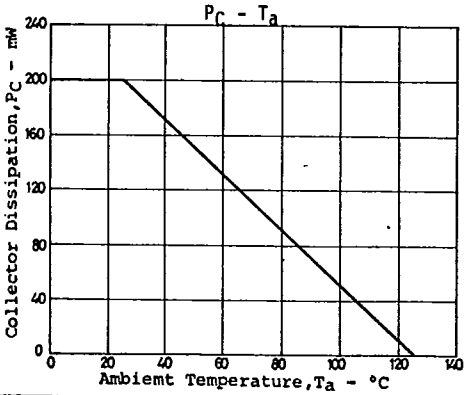
C_{ob} - V_{CB}



V_{CE}(sat) - I_C



P_C - T_a



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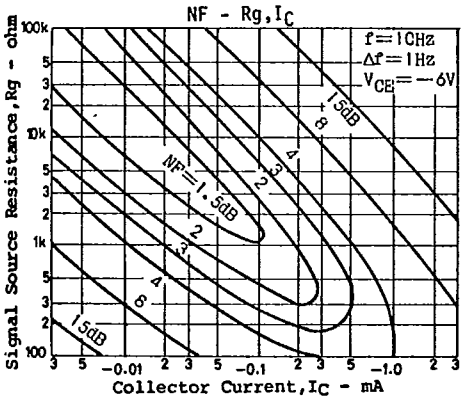

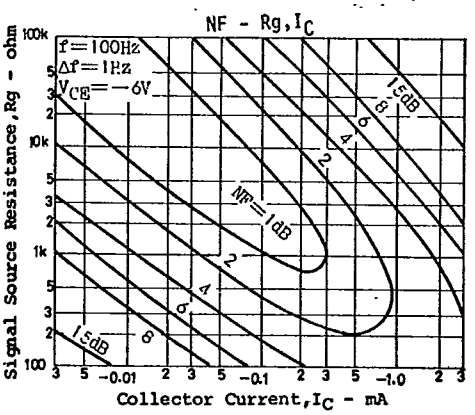

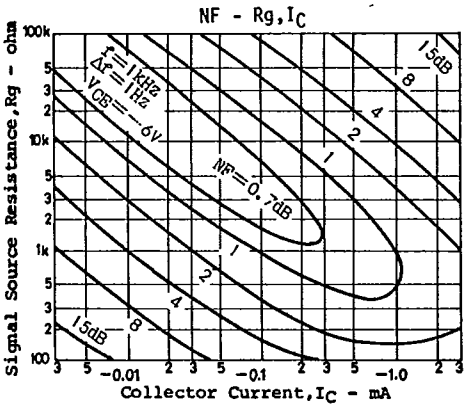

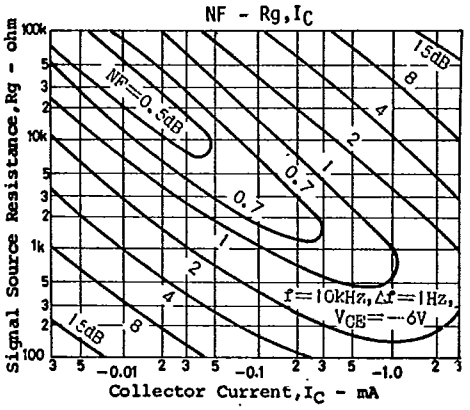

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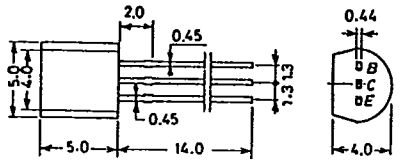
T-91-20

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.

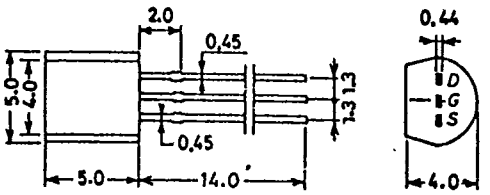
Case Outline—[2003A] unit: mm



JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

B. Base
C. Collector
E. Emitter

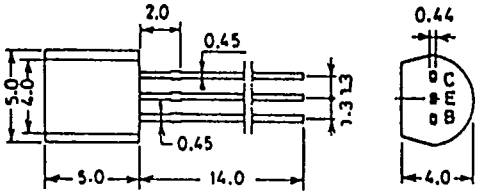
Case Outline—[2019A] unit: mm



JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

D: Drain
G: Gate
S: Source

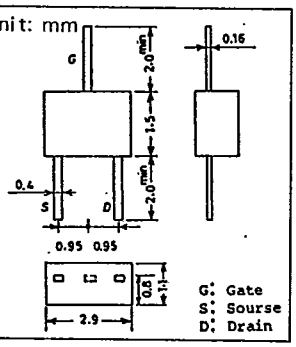
Case Outline—[2004A] unit: mm



JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

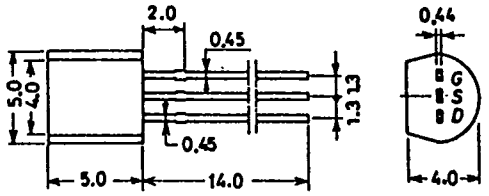
C. Collector
E. Emitter
B. Base

Case Outline—[2025] unit: mm



G: Gate
S: Sourse
D: Drain

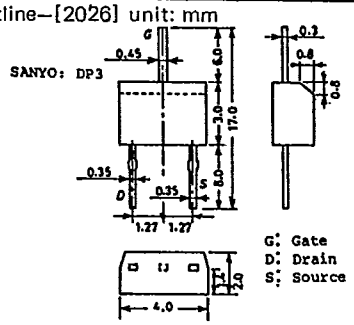
Case Outline—[2005A] unit: mm



JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

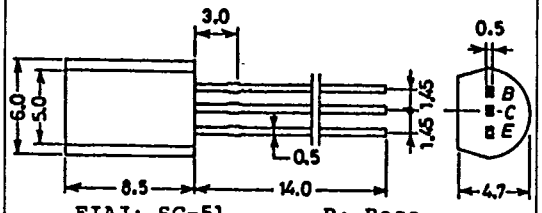
G: Gate
S: Source
D: Drain

Case Outline—[2026] unit: mm



G: Gate
D: Drain
S: Source

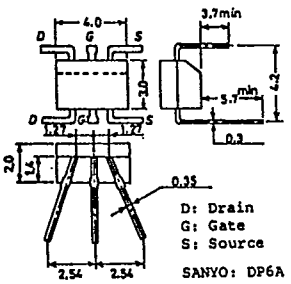
Case Outline—[2006A] unit: mm



EIAJ: SC-51
SANYO:MP

B: Base
C: Collector
E: Emitter

Case Outline—[2027A] unit: mm



D: Drain
G: Gate
S: Source

SANYO: DP6A

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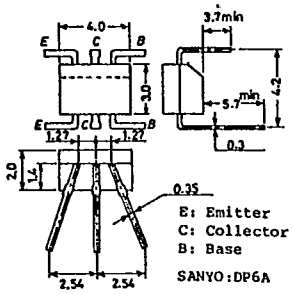
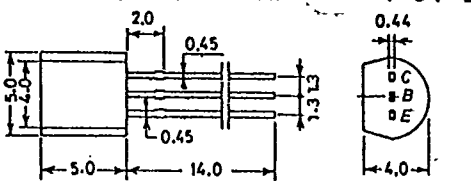
Case Outline—[2029A] unit: mm



E: Emitter
C: Collector
B: Base
SANYO:DP6A

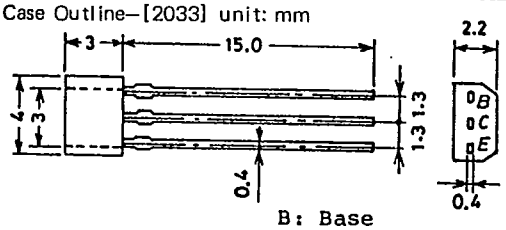
Case Outline—[2061] unit: mm



JEDEC: TO-92
EIAJ : SC-43

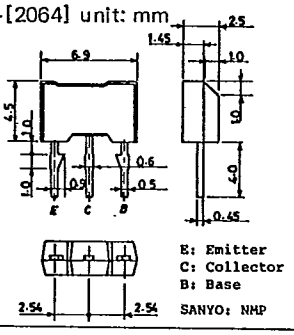
C: Collector
B: Base
E: Emitter
SANYO: NP

Case Outline—[2033] unit: mm



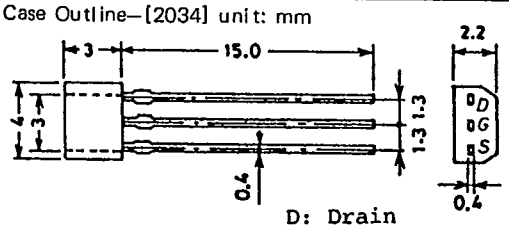
B: Base
C: Collector
E: Emitter
SANYO: SPA

Case Outline—[2064] unit: mm



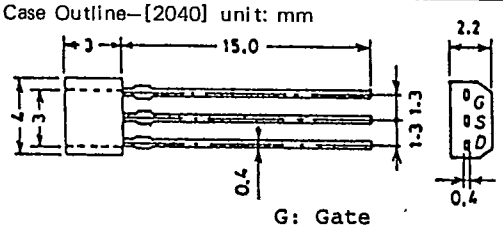
E: Emitter
C: Collector
B: Base
SANYO: NMP

Case Outline—[2034] unit: mm



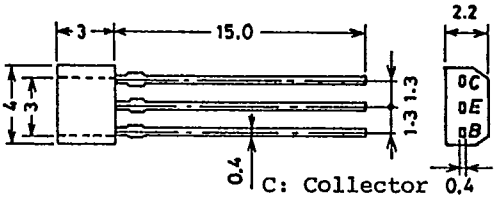
D: Drain
G: Gate
S: Source
SANYO: SPA

Case Outline—[2040] unit: mm



G: Gate
S: Source
D: Drain
SANYO: SPA

Case Outline—[2051] unit: mm



C: Collector
E: Emitter
B: Base
SANYO: SPA

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