

2029A

T-29-27

PNP Epitaxial Planar Silicon Composite Transistor

# Differential Amp Applications

©975C

## Applications

- . Differential amp, current mirror, temperature compensator.

## Features

- . Excellent in thermal equilibrium and suited for use in first-stage differential amp.
- . Matched pair capability.

## Absolute Maximum Ratings at Ta=25°C

			unit
Collector to Base Voltage	V <sub>CB0</sub>	-130	V
Collector to Emitter Voltage	V <sub>CE0</sub>	-120	V
Emitter to Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current	I <sub>C</sub>	-50	mA
Peak Collector Current	i <sub>cp</sub>	-100	mA
Collector Dissipation	P <sub>C</sub>	200	mW
Total Dissipation	P <sub>T</sub>	400	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

1 unit

## Electrical Characteristics at Ta=25°C

			min	typ	max	unit
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =-80V, I <sub>E</sub> =0			-0.1	uA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =-4V, I <sub>C</sub> =0			-0.1	uA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =-6V, I <sub>C</sub> =-1mA	160*		560*	
DC Current Gain Ratio	h <sub>FE</sub> (small/large)	V <sub>CE</sub> =-6V, I <sub>C</sub> =-1mA	0.85	0.98		

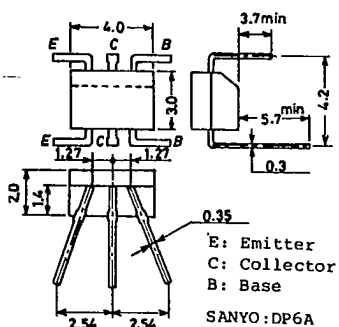
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\* The 2SA1239 is classified by h<sub>FE</sub> (small) as follows:

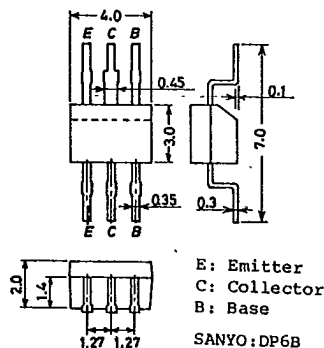
160 F	320	280 G	560
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The 2SA1239 is provided with a surface mounted package.

Case Outline 2029A (unit:mm)



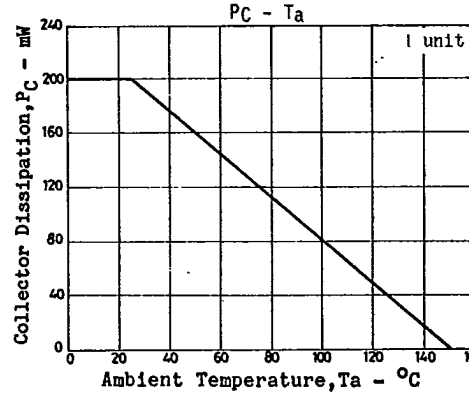
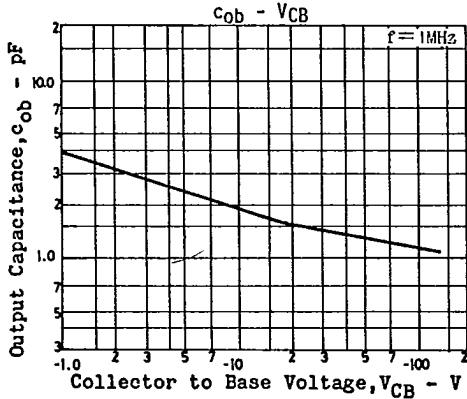
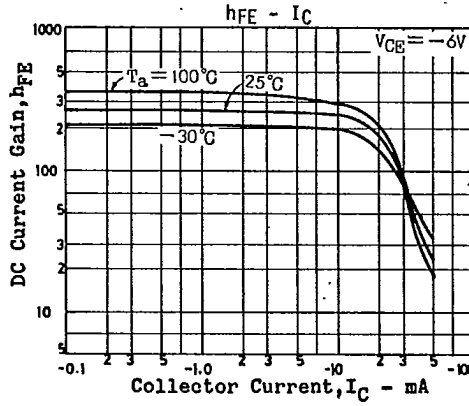
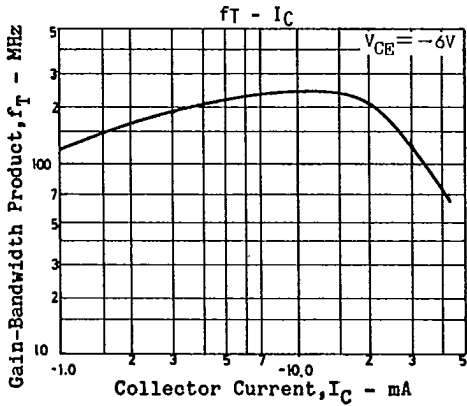
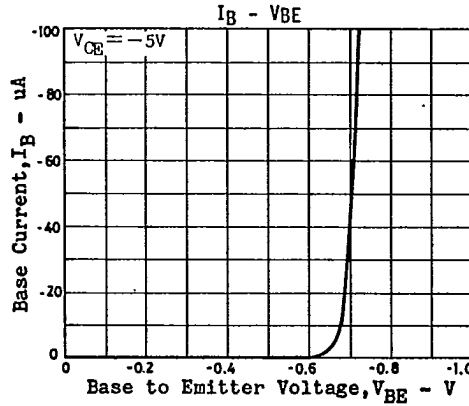
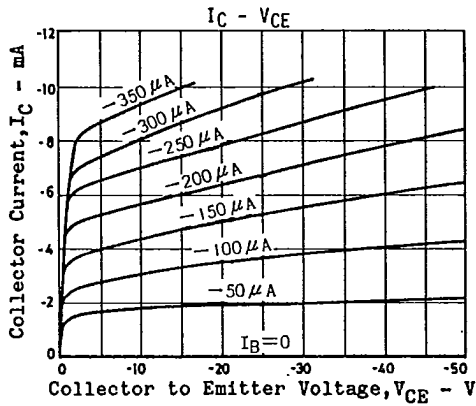
Case Outline 2030A (unit:mm)



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			min	typ	max	unit
Base to Emitter Voltage Drop	$V_{BE(large-small)}$	$V_{CE}=-6V, I_C=-1mA$		1.0	10	mV
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-10mA, I_B=-1mA$			-0.5	V
Gain-Bandwidth Product	$f_T$	$V_{CE}=-6V, I_C=-1mA$		110		MHz
Output Capacitance	$c_{ob}$	$V_{CB}=-10V, f=1MHz$		2.0		pF
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-130			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-120			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	-5			V

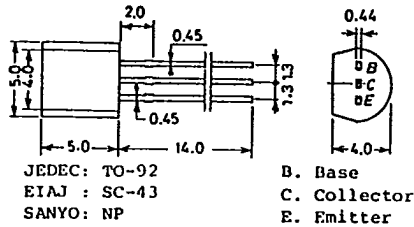


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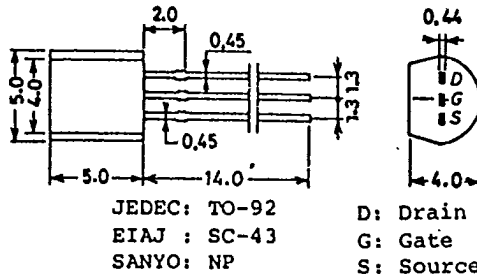
# CASE OUTLINES OF LEAD FORMED SMALL SIGNAL TRANSISTORS

- 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.

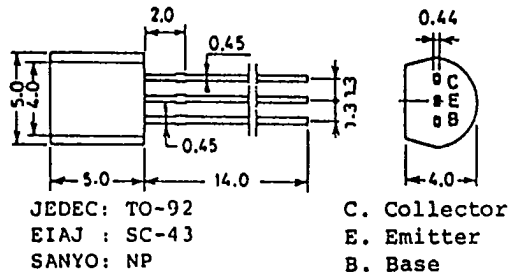
Case Outline-[2003A] unit: mm



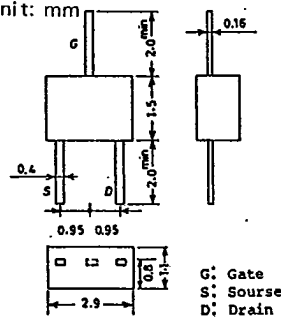
Case Outline-[2019A] unit: mm



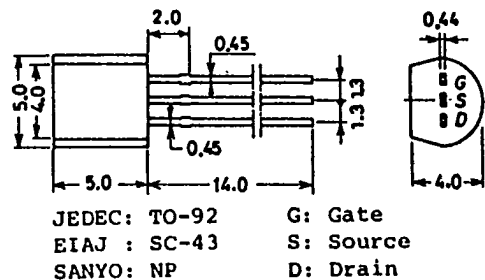
Case Outline-[2004A] unit: mm



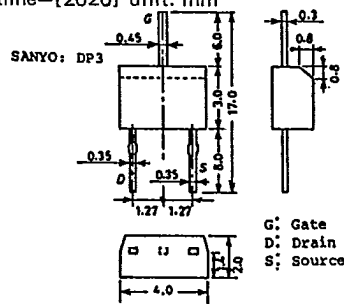
Case Outline-[2025] unit: mm



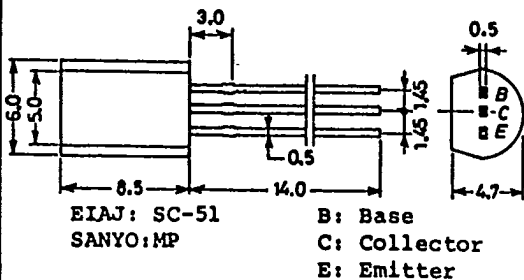
Case Outline-[2005A] unit: mm



Case Outline-[2026] unit: mm



Case Outline-[2006A] unit: mm



Case Outline-[2027A] unit: mm

