

2051

T-37-13

T-35-11

PNP/NPN Epitaxial Planar
Silicon Transistors

Switching Applications

(with Bias Resistances $R_1=10k\Omega$, $R_2=47k\Omega$)

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Applications

- Switching circuit, inverter circuit, interface circuit, driver circuit

Features

- On-chip bias resistance ($R_1=10k\Omega$, $R_2=47k\Omega$)
- Small-sized package
- Special pin assignment (Emitter center)

(): 2SA1565

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

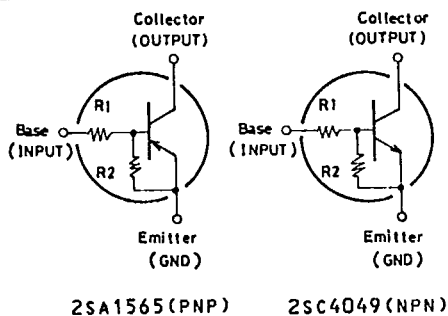
			unit
Collector to Base Voltage	V_{CB0}	(-)50	V
Collector to Emitter Voltage	V_{CE0}	(-)50	V
Emitter to Base Voltage	V_{EB0}	(-)6	V
Collector Current	I_C	(-)100	mA
Peak Collector Current	i_{cp}	(-)200	mA
Collector Dissipation	P_C	300	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

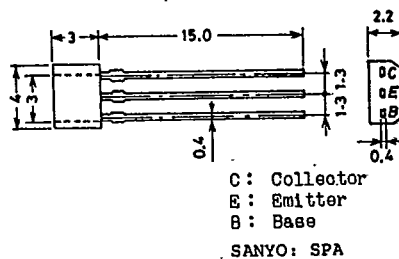
		min	typ	max	unit
Collector Cutoff Current	I_{CB0}	$V_{CB}=(-)40\text{V}, I_E=0$		(-)0.1	μA
Collector Cutoff Current	I_{CE0}	$V_{CE}=(-)40\text{V}, I_B=0$		(-)0.5	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=(-)5\text{V}, I_C=0$	(-)67	(-)88	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)5\text{V}, I_C=(-)5\text{mA}$	70		
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)5\text{mA}$	250		MHz
			(200)		
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$	3.7		pF
			(5.5)		
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)10\text{mA}, I_B=(-)0.5\text{mA}$	(-)0.1	(-)0.3	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-)50		V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)100\mu\text{A}, R_{BE}=\infty$	(-)50		V

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Electrical Connection



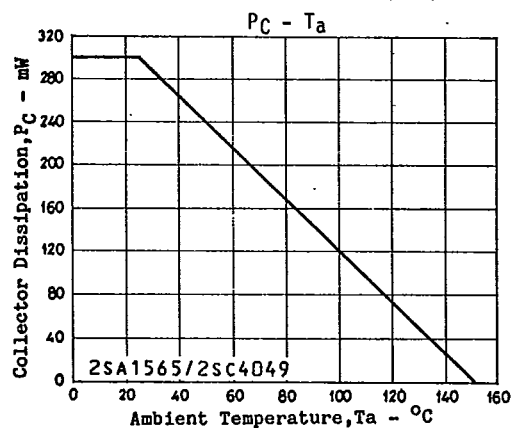
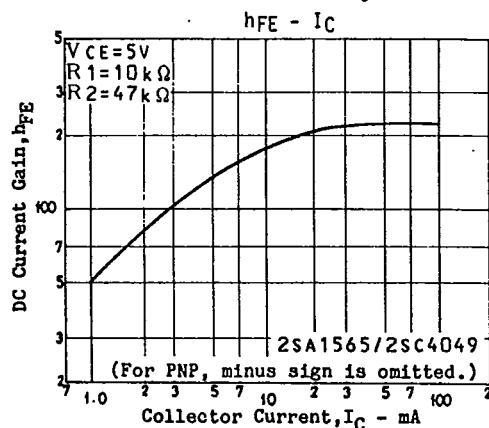
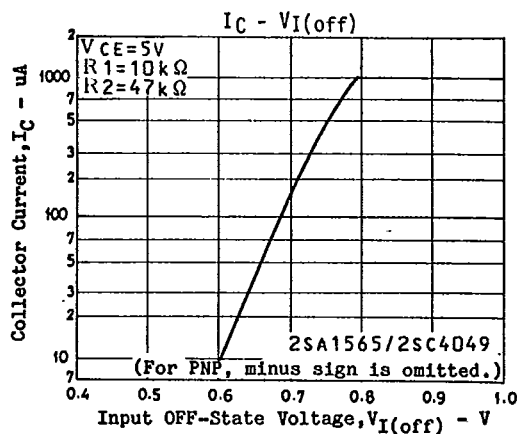
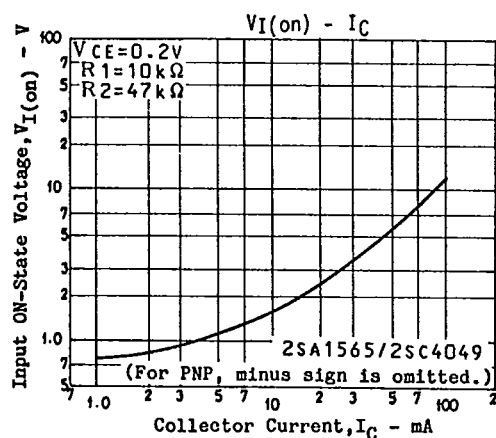
Case Outline 2051 (unit:mm)



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		min	typ	max	unit
Input OFF-State Voltage	$V_{I(off)}$	$V_{CE}=(-)5V, I_C=(-)100\mu A$	$(-)0.5(-)0.7(-)0.9$		V
Input ON-State Voltage	$V_{I(on)}$	$V_{CE}=(-)0.2V, I_C=(-)5mA$	$(-)0.7(-)1.0(-)2.0$		V
Input Resistance	R_1		7	10	kohm
Resistance Ratio	R_1/R_2		0.193	0.213	0.234

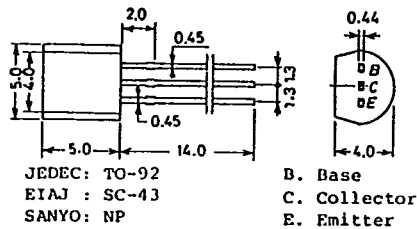


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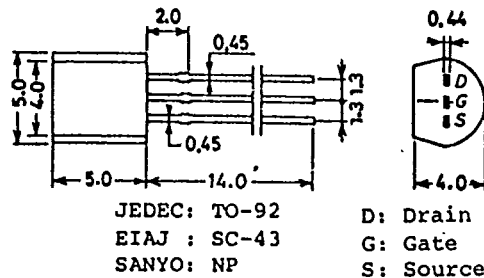
CASE OUTLINES OF LEAD FORMED SMALL SIGNAL TRANSISTORS

- 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.

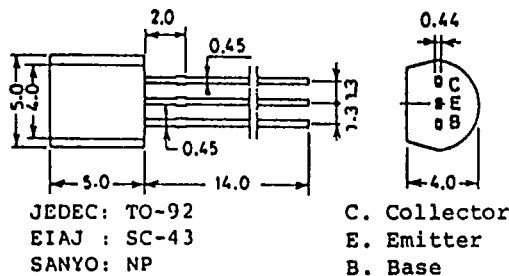
Case Outline—[2003A] unit: mm



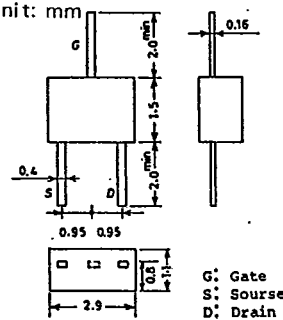
Case Outline—[2019A] unit: mm



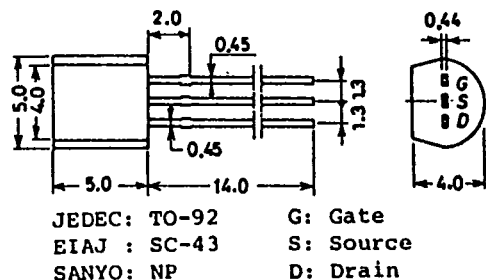
Case Outline—[2004A] unit: mm



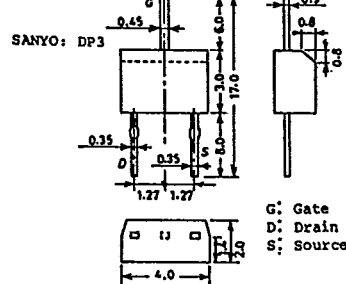
Case Outline—[2025] unit: mm



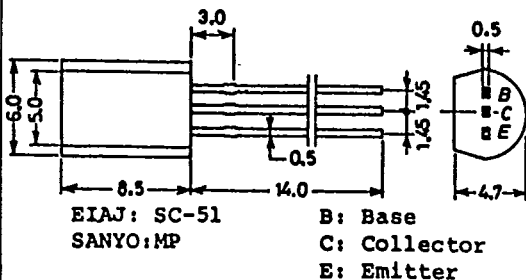
Case Outline—[2005A] unit: mm



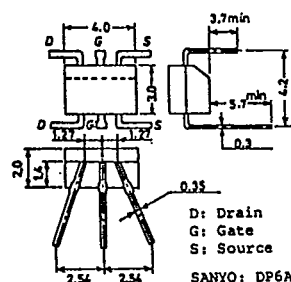
Case Outline—[2026] unit: mm



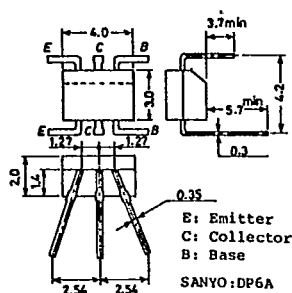
Case Outline—[2006A] unit: mm



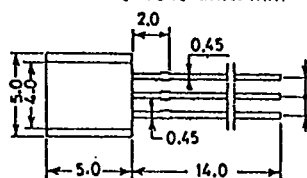
Case Outline—[2027A] unit: mm



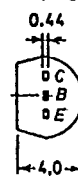
Case Outline—[2029A] unit: mm



Case Outline—[2061] unit: mm

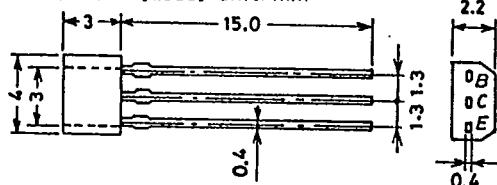


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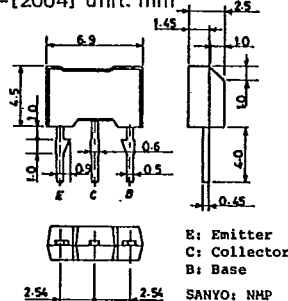


C: Collector
B: Base
E: Emitter
SANYO: NP

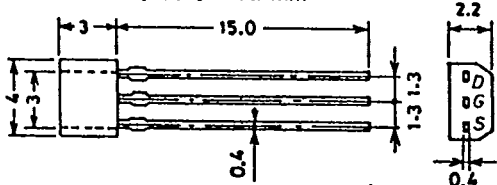
Case Outline—[2033] unit: mm



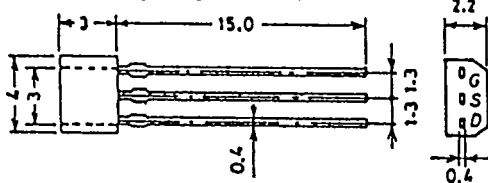
Case Outline—[2064] unit: mm



Case Outline—[2034] unit: mm



Case Outline—[2040] unit: mm



Case Outline—[2051] unit: mm

