

SANYO

No.1334C

2SA1319/2SC3332

PNP/NPN Epitaxial Planar Silicon Transistors

High-Voltage Switching Applications**Features**

- High breakdown voltage.
- Excellent h_{FE} linearity.
- Wide ASO and highly resistant to breakdown.
- Adoption of MBIT process.

(): 2SA1319

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

			unit
Collector to Base Voltage	V_{CBO}	(-)180	V
Collector to Emitter Voltage	V_{CEO}	(-)160	V
Emitter to Base Voltage	V_{EBO}	(-)6	V
Collector Current	I_C	(-)0.7	A
Collector Current(Pulse)	I_{CP}	(-)1.5	A
Collector Dissipation	P_C	700	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

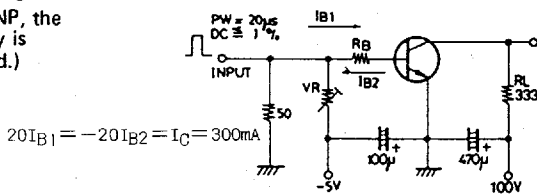
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)120\text{V}, I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)0.1	μA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=(-)5\text{V}, I_C=(-)100\text{mA}$	100*		400*	
	$h_{FE}(2)$	$V_{CE}=(-)5\text{V}, I_C=(-)10\text{mA}$	80			
Gain-bandwidth product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$		120		MHz
Common Base Output Capacitance	c_{ob}	$V_{CB}=(-)10\text{V}$		(11)8		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$		0.12	0.4	V
				(0.20)	(0.5)	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$		(-)0.85	(-)1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-)180			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-)160			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0$	(-)6			V
Turn-on Time	t_{on}	At specified test circuit		(60)50		ns
Storage Time	t_{stg}	"		(900)1000		ns
Fall Time	t_f	"		(60)60		ns

*: The 2SA1319/2SC3332 are classified by 100mA h_{FE} as follows:

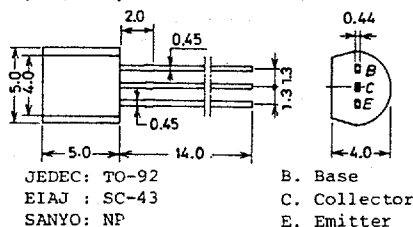
100	R	200	140	S	280	200	T	400
-----	---	-----	-----	---	-----	-----	---	-----

Switching Time Test Circuit

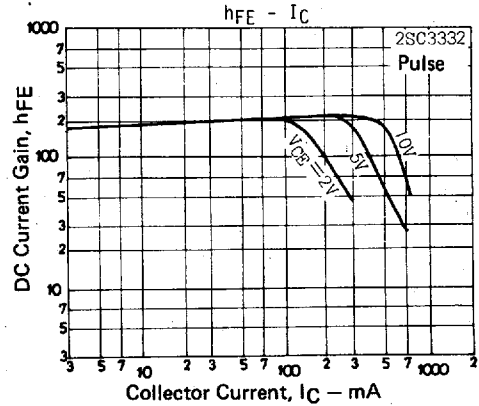
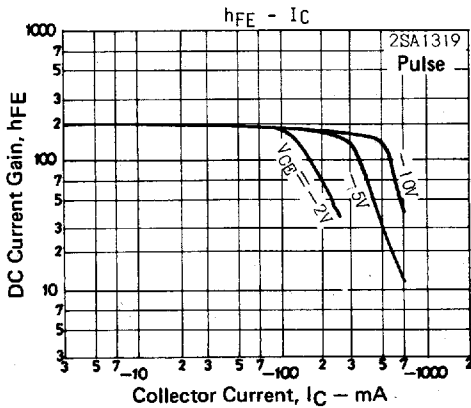
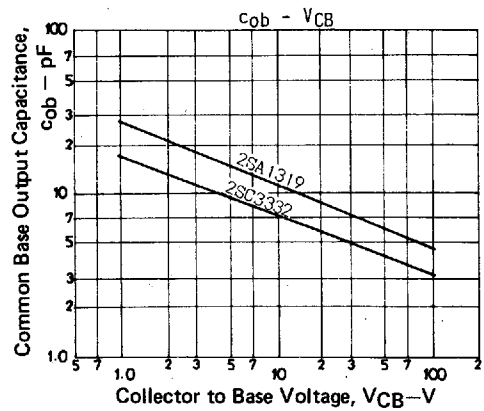
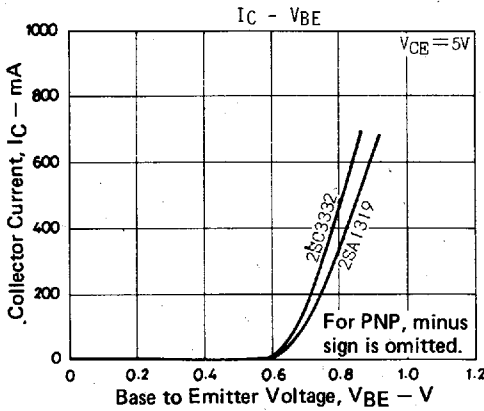
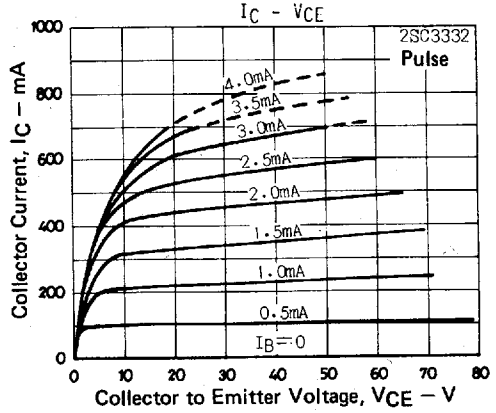
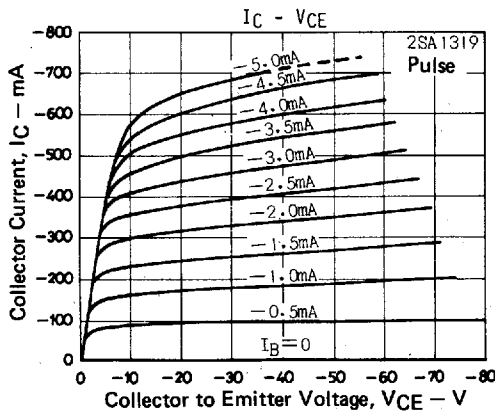
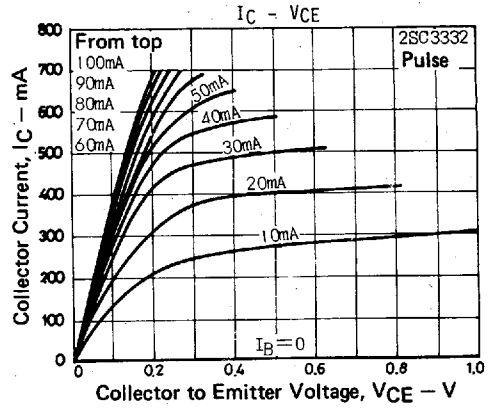
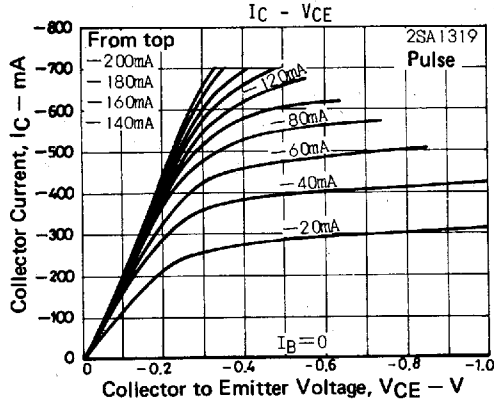
(For PNP, the polarity is reversed.)

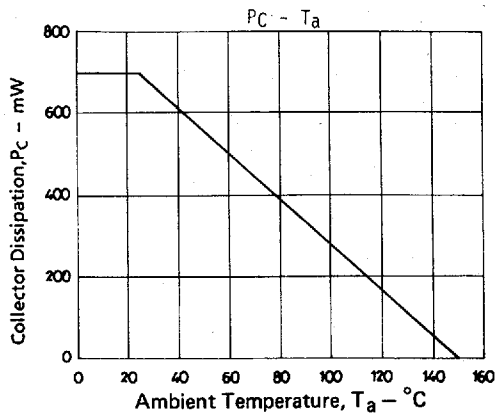
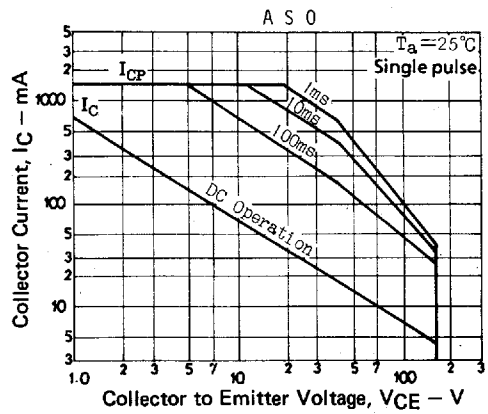
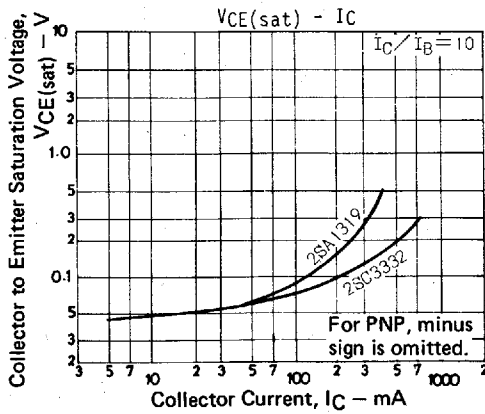
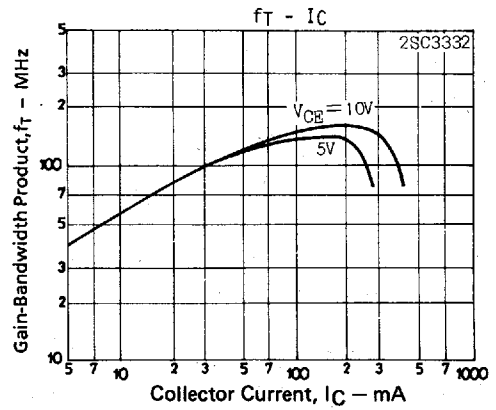
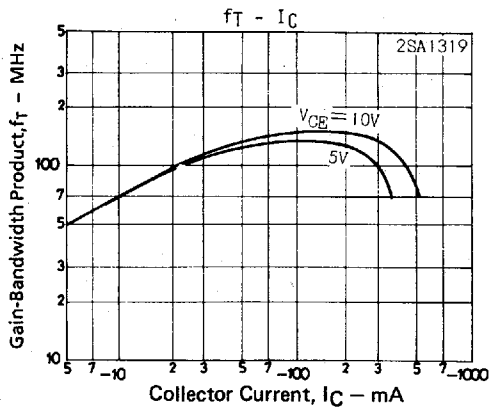
Unit(Resistance: Ω , Capacitance: F)

Specifications and information herein are subject to change without notice.

**Case Outline 2003A
(unit: mm)****SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

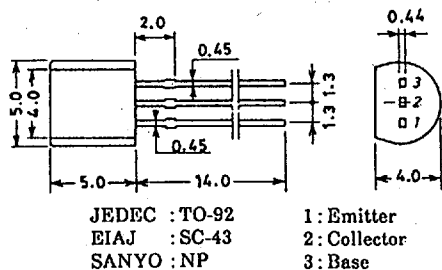




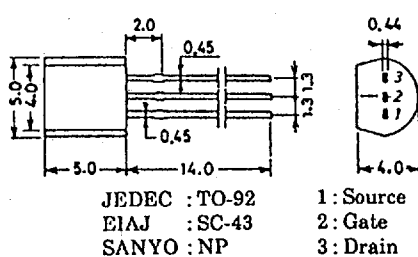
CASE OUTLINES OF LEAD FORMED SMALL SIGNAL TRANSISTORS

- 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.

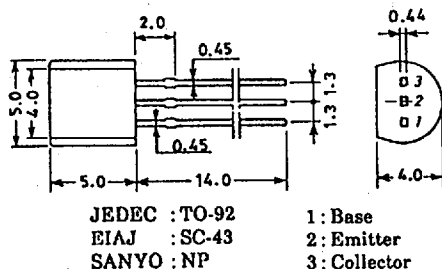
Case Outline 2003A/2003B (unit : mm)



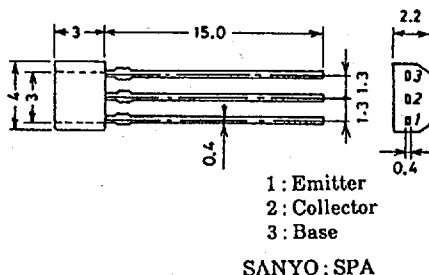
Case Outline 2019A/2019B (unit : mm)



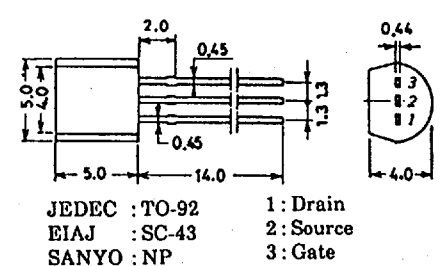
Case Outline 2004A (unit : mm)



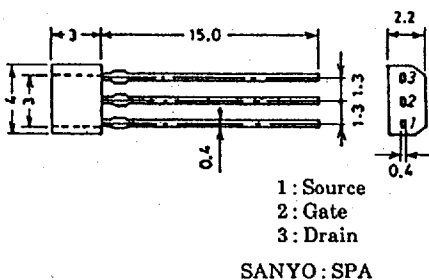
Case Outline 2033 (unit : mm)



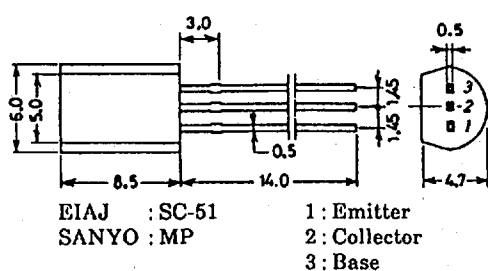
Case Outline 2005A (unit : mm)



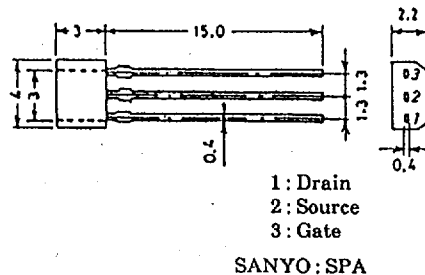
Case Outline 2034/2034A (unit : mm)



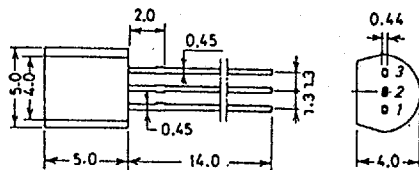
Case Outline 2006A (unit : mm)



Case Outline 2040 (unit : mm)



Case Outline 2061 (unit : mm)



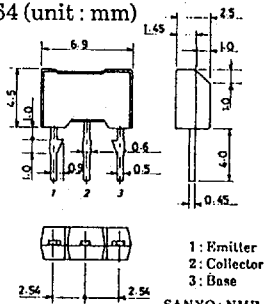
JEDEC : TO-92

EIAJ : SC-43

SANYO : NP

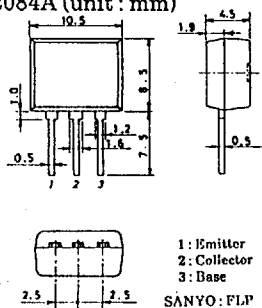
- 1: Emitter
- 2: Base
- 3: Collector

Case Outline 2064 (unit : mm)



- 1: Emitter
 - 2: Collector
 - 3: Base
- SANYO : NMP

Case Outline 2084A (unit : mm)



- 1: Emitter
 - 2: Collector
 - 3: Base
- SANYO : FLP