

<b>SANYO</b>	No.1599A	<b>2SA1317/2SC3330</b>
		PNP/NPN Epitaxial Planar Silicon Transistors
<b>AF Amp Applications</b>		

**Use**

. Capable of being used in the low frequency to high frequency range.

**Features**

. Large current capacity and wide ASO.

( ): 2SA1317

**Absolute Maximum Ratings at Ta=25°C**

			unit
Collector to Base Voltage	V <sub>CB0</sub>	(-)60	V
Collector to Emitter Voltage	V <sub>CEO</sub>	(-)50	V
Emitter to Base Voltage	V <sub>EBO</sub>	(-)6	V
Collector Current	I <sub>C</sub>	(-)200	mA
Collector Current (Pulse)	I <sub>CP</sub>	(-)400	mA
Collector Dissipation	P <sub>C</sub>	300	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

**Electrical Characteristics at Ta=25°C**

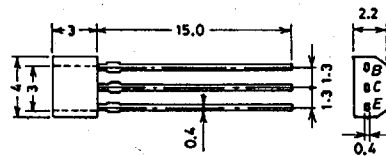
		min	typ	max	unit
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0		(-)0.1	μA
Emitter Cutoff Current	I <sub>EB0</sub>	V <sub>EB</sub> =(-)5V, I <sub>C</sub> =0		(-)0.1	μA
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> =(-)6V, I <sub>C</sub> =(-)1mA	100*	800*	
			(100)	(560)	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)6V, I <sub>C</sub> =(-)0.1mA	70		
			200		MHz
Output Capacitance	c <sub>ob</sub>	V <sub>CE</sub> =(-)6V, f=1MHz	3.0		pF
			(4.0)		

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\* The 2SA1317/2SC3330 are classified by 1mA h<sub>FE</sub> as follows:

2SA1317	100	R	200	140	S	280	200	T	400	280	U	560			
2SC3330	100	R	200	140	S	280	200	T	400	280	U	560	400	V	800

**Case Outline 2033**  
(unit:mm)



SANYO: SPA

B: Base  
C: Collector  
E: Emitter

Specifications and information herein are subject to change without notice.

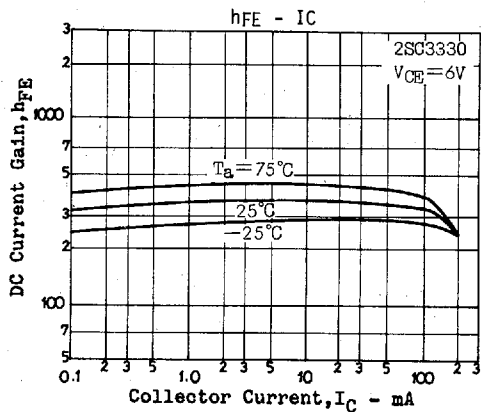
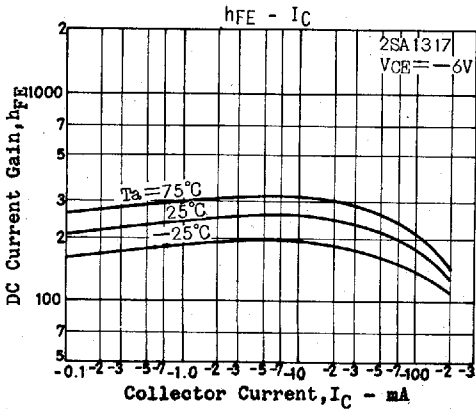
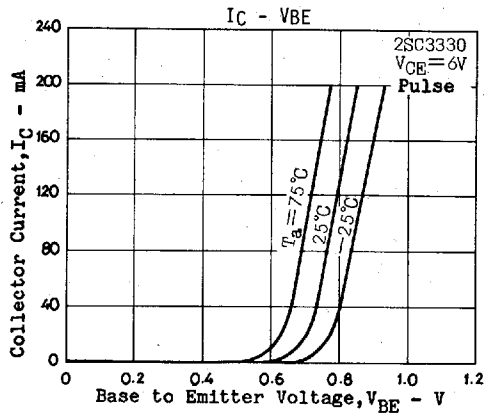
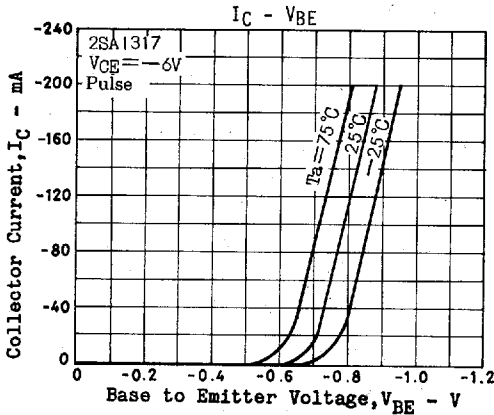
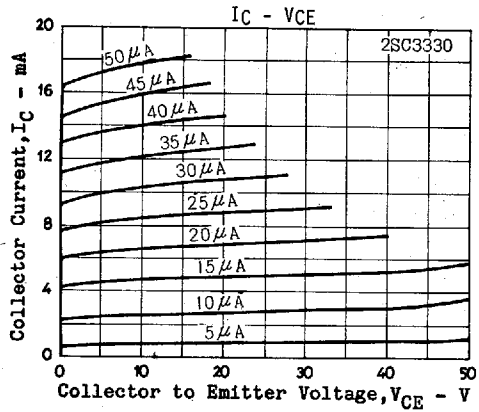
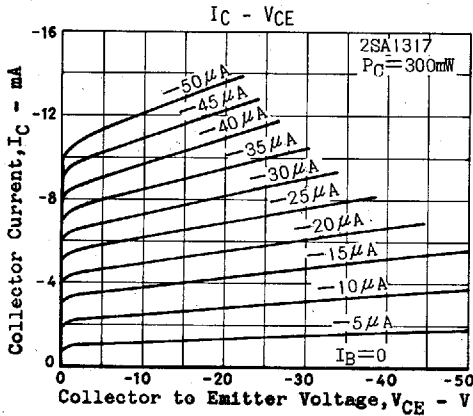
**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

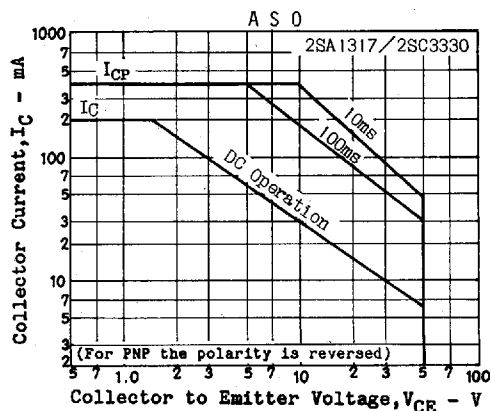
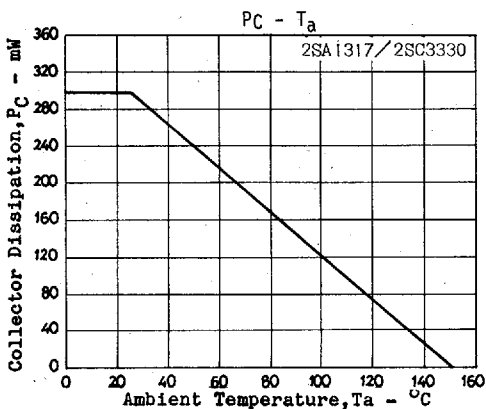
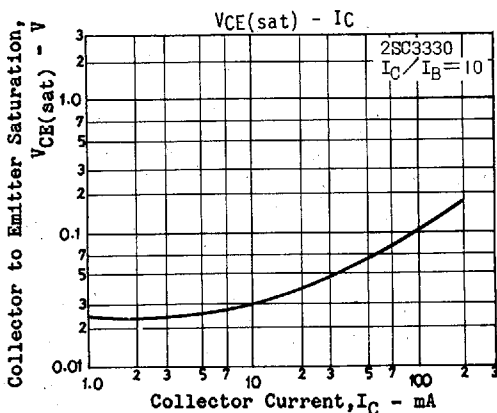
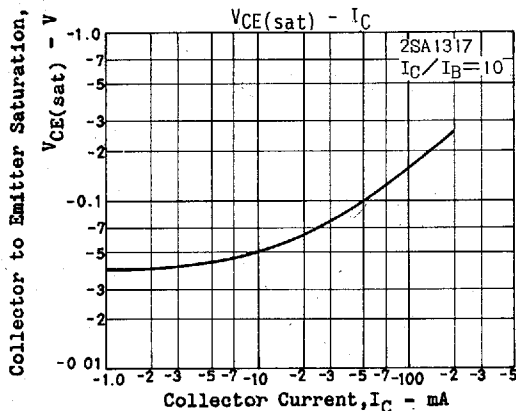
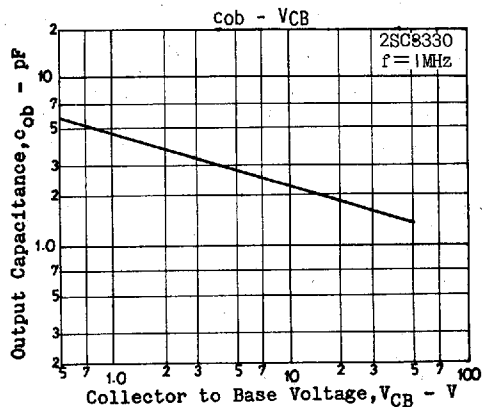
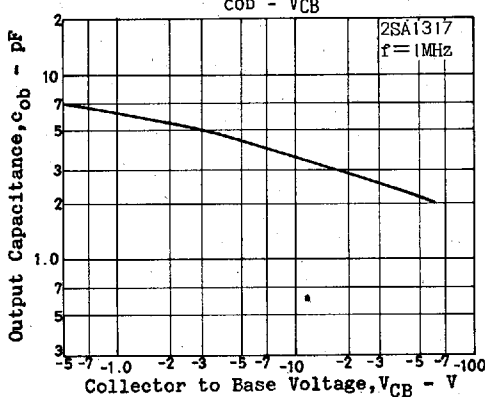
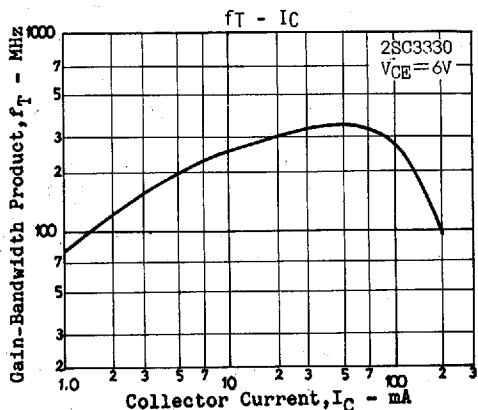
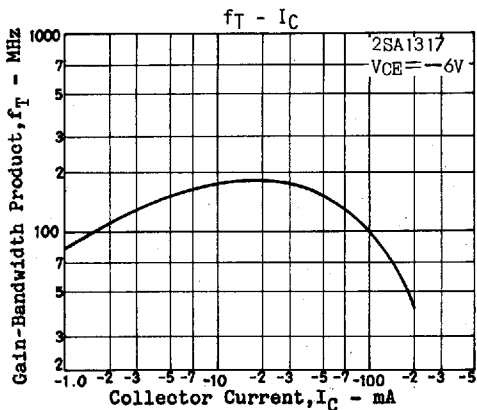
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2SA1317/2SC3330

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			min	typ	max	unit
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)100mA, I_B = (-)10mA$			(-)0.3	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)100mA, I_B = (-)10mA$			(-)1.0	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)60			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)50			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	(-)6			V

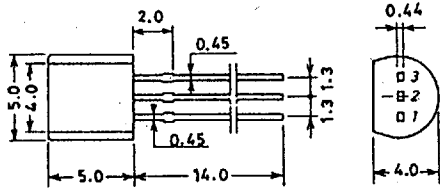




# CASE OUTLINES OF LEAD FORMED SMALL SIGNAL TRANSISTORS

- 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.

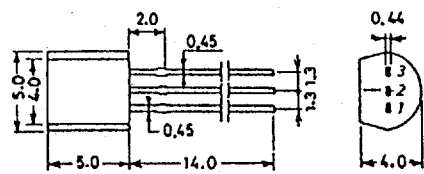
Case Outline 2003A/2003B (unit : mm)



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

1 : Emitter  
2 : Collector  
3 : Base

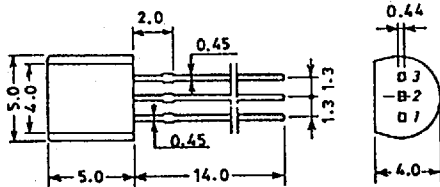
Case Outline 2019A/2019B (unit : mm)



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

1 : Source  
2 : Gate  
3 : Drain

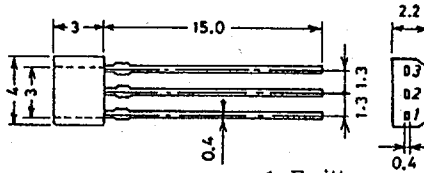
Case Outline 2004A (unit : mm)



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

1 : Base  
2 : Emitter  
3 : Collector

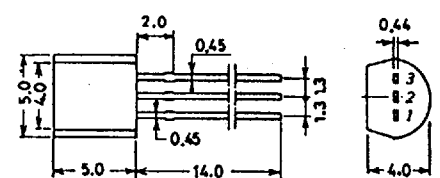
Case Outline 2033 (unit : mm)



1 : Emitter  
2 : Collector  
3 : Base

SANYO : SPA

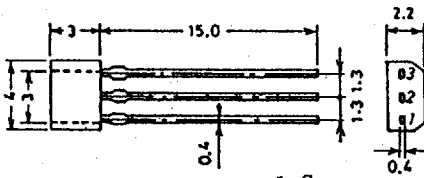
Case Outline 2005A (unit : mm)



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

1 : Drain  
2 : Source  
3 : Gate

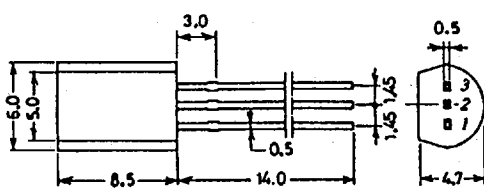
Case Outline 2034/2034A (unit : mm)



1 : Source  
2 : Gate  
3 : Drain

SANYO : SPA

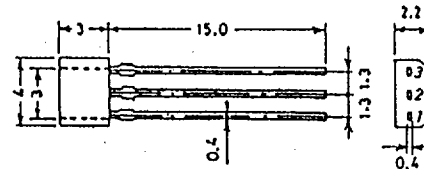
Case Outline 2006A (unit : mm)



EIAJ : SC-51  
SANYO : MP

1 : Emitter  
2 : Collector  
3 : Base

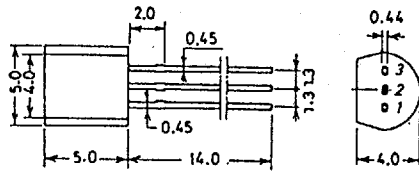
Case Outline 2040 (unit : mm)



1 : Drain  
2 : Source  
3 : Gate

SANYO : SPA

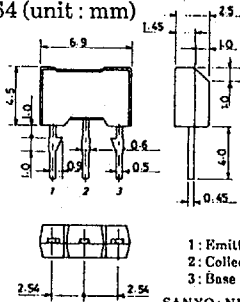
Case Outline 2061 (unit : mm)



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

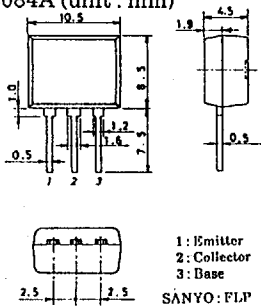
1: Emitter  
2: Base  
3: Collector

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