

**SANYO**

No.326H

**2SB560/2SD438**

PNP/NPN Epitaxial Planar Silicon Transistors

Low-Frequency Power Amp Applications

The 2SB560/2SD438 are epitaxial planar transistors for complementary push-pull pair having high reverse voltage and low saturation voltage, and suitable universal AF power amplifier use.

( ):2SB560

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

			unit
Collector to Base Voltage	V <sub>CB0</sub>	(-)100	V
Collector to Emitter Voltage	V <sub>CE0</sub>	(-)80	V
Emitter to Base Voltage	V <sub>EB0</sub>	(-)5	V
Collector Current	I <sub>C</sub>	(-)0.7	A
Collector Current(Pulse)	I <sub>CP</sub>	(-)1.0	A
Collector Dissipation	P <sub>C</sub>	900	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**

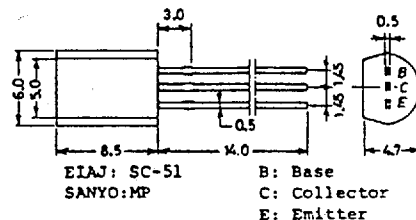
			min	typ	max	unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =(-)20V, I <sub>E</sub> =0			(-)1.0	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			(-)1.0	μA
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)50mA	60*		560*	
	h <sub>FE</sub> (2)	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)0.5A	30			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)50mA		100		MHz
Output Capacitance	c <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(15)		pF
				10		pF
C-B Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =10μA			(-)100	V
C-E Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞			(-)80	V
E-B Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =(-)10μA, I <sub>C</sub> =0			(-)5	V
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =(-)500mA, I <sub>B</sub> =(-)50mA		(-0.3)	(-0.8)	V
				0.2	0.6	V
B-E Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =(-)500mA, I <sub>B</sub> =(-)50mA		(-)0.85	(-)1.2	V

\* The 2SB560/2SD438 are classified by 50mA h<sub>FE</sub> as follows.

60	D	120	100	E	200	160	F	320	280	G	560
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**Case Outline 2006A**

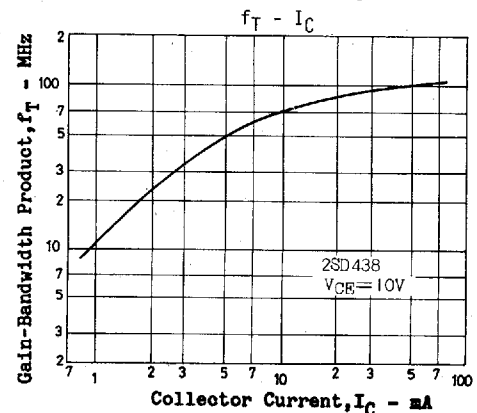
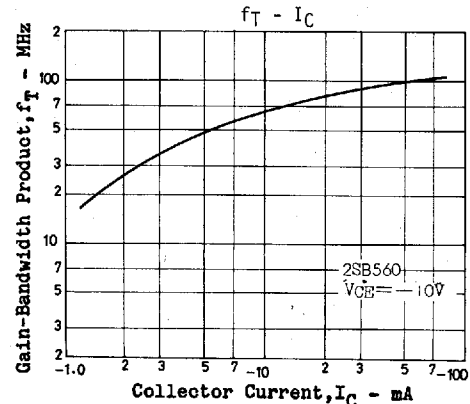
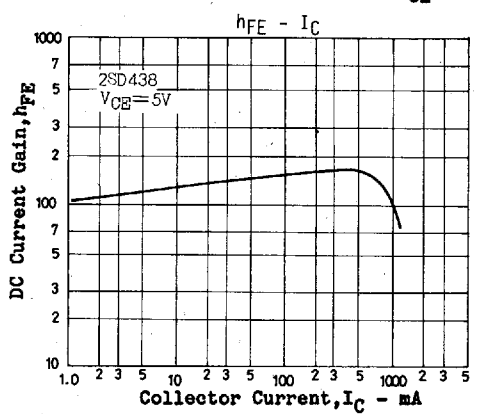
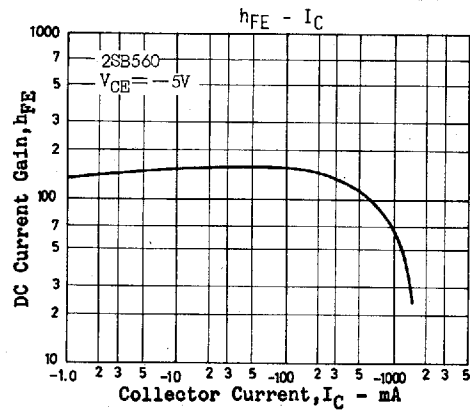
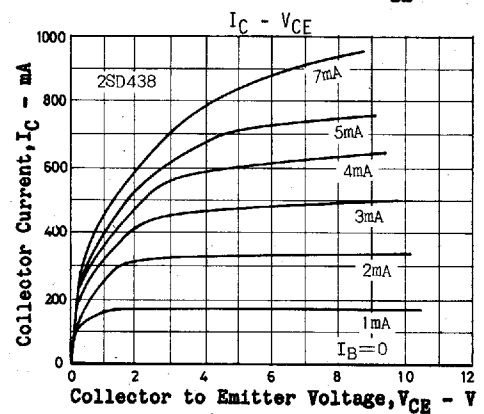
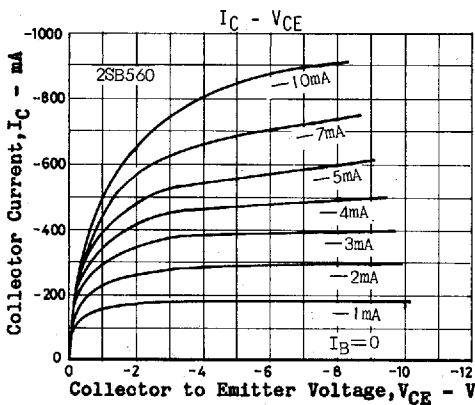
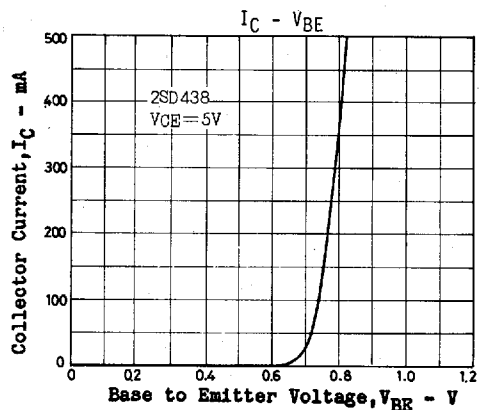
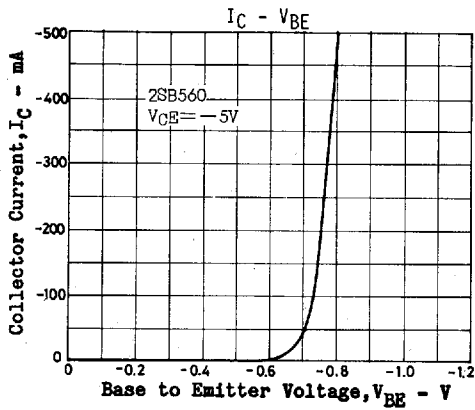
(unit:mm)



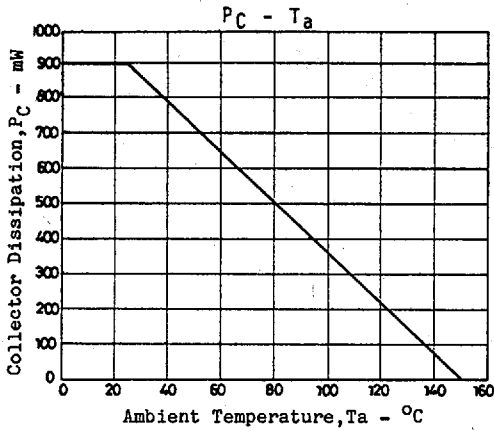
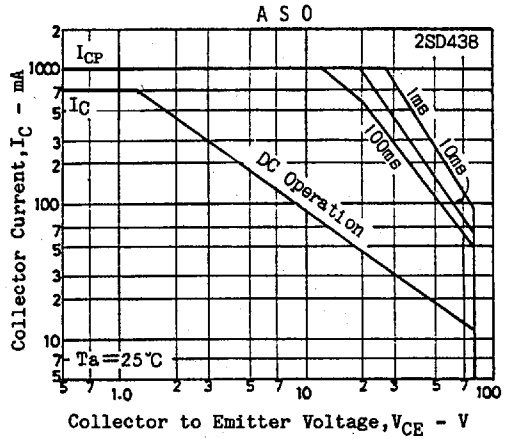
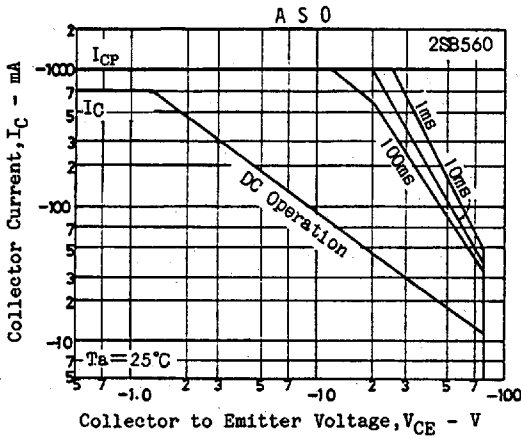
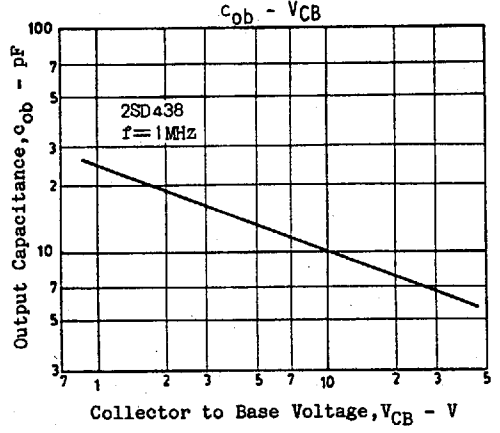
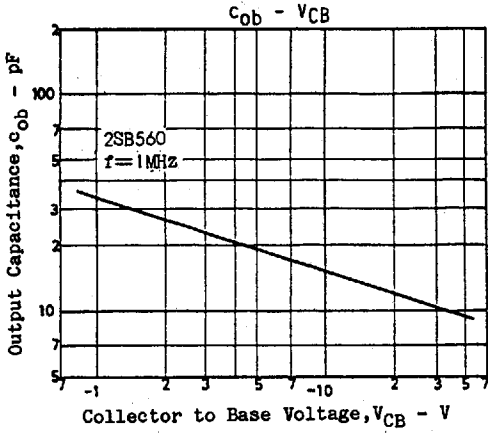
Specifications and information herein are subject to change without notice.

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

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



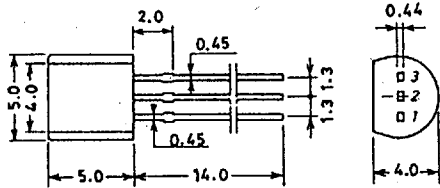
2SB560/2SD438



# 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.

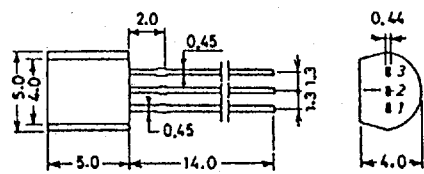
Case Outline 2003A/2003B (unit : mm)



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

1 : Emitter  
2 : Collector  
3 : Base

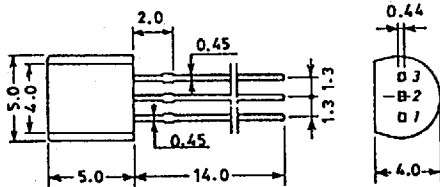
Case Outline 2019A/2019B (unit : mm)



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

1 : Source  
2 : Gate  
3 : Drain

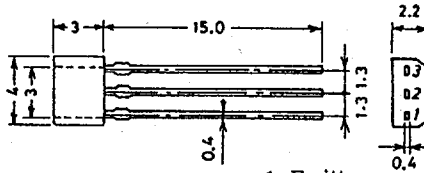
Case Outline 2004A (unit : mm)



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

1 : Base  
2 : Emitter  
3 : Collector

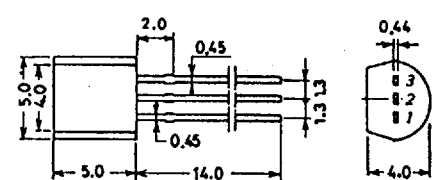
Case Outline 2033 (unit : mm)



1 : Emitter  
2 : Collector  
3 : Base

SANYO : SPA

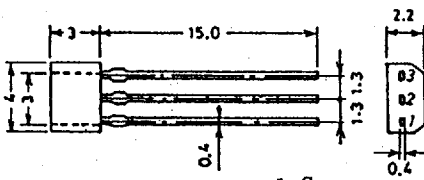
Case Outline 2005A (unit : mm)



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

1 : Drain  
2 : Source  
3 : Gate

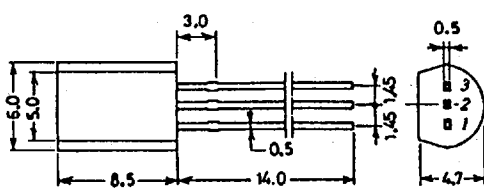
Case Outline 2034/2034A (unit : mm)



1 : Source  
2 : Gate  
3 : Drain

SANYO : SPA

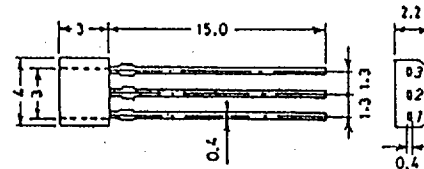
Case Outline 2006A (unit : mm)



EIAJ : SC-51  
SANYO : MP

1 : Emitter  
2 : Collector  
3 : Base

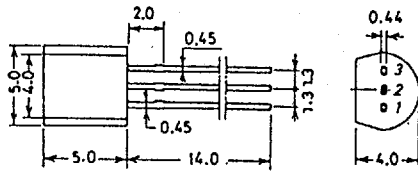
Case Outline 2040 (unit : mm)



1 : Drain  
2 : Source  
3 : Gate

SANYO : SPA

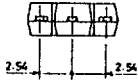
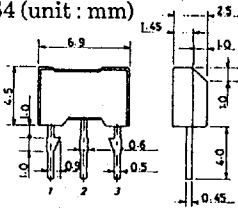
Case Outline 2061 (unit : mm)



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

1: Emitter  
2: Base  
3: Collector

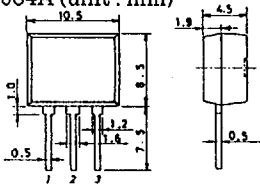
Case Outline 2064 (unit : mm)



1: Emitter  
2: Collector  
3: Base

SANYO : NMP

Case Outline 2084A (unit : mm)



1: Emitter  
2: Collector  
3: Base

SANYO : FLP