



# 2SA1654/2SC4361

PNP/NPN Epitaxial Planar Silicon Transistors

Switching Applications  
(with Bias Resistance)

### Applications

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

### Features

- On-chip bias resistance (R1 = 4.7kΩ, R2 = 10kΩ)

( ) : 2SA1654

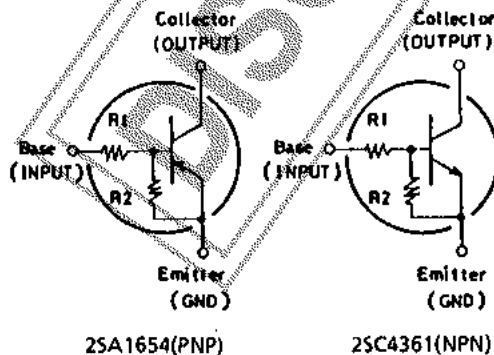
### Absolute Maximum Ratings at Ta = 25°C

			unit
Collector to Base Voltage	V <sub>CBO</sub>	(-) <b>50</b>	V
Collector to Emitter Voltage	V <sub>CEO</sub>	(-) <b>50</b>	V
Emitter to Base Voltage	V <sub>EBO</sub>	(-) <b>6</b>	V
Collector Current	I <sub>C</sub>	(-) <b>100</b>	mA
Collector Current (Pulse)	I <sub>CP</sub>	(-) <b>200</b>	mA
Collector Dissipation	P <sub>C</sub>	<b>300</b>	mW
Junction Temperature	T <sub>J</sub>	<b>150</b>	°C
Storage Temperature	T <sub>stg</sub>	<b>-55 to +150</b>	°C

### Electrical Characteristics at Ta = 25°C

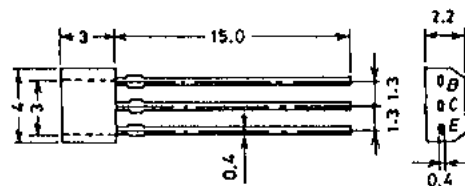
			min	typ	max	unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = (-)40V, I <sub>E</sub> = 0			(-)0.1	μA
Collector Cutoff Current	I <sub>CEO</sub>	V <sub>CE</sub> = (-)40V, I <sub>B</sub> = 0			(-)0.5	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = (-)5V, I <sub>C</sub> = 0	(-)262	(-)340	(-)485	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = (-)5V, I <sub>C</sub> = (-)10mA	<b>50</b>			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = (-)10V, I <sub>C</sub> = (-)5mA		<b>250</b>		MHz
				(200)		MHz
Output Capacitance	c <sub>ob</sub>	V <sub>CB</sub> = (-)10V, f = 1MHz		<b>3.7</b>		pF
				(5.5)		pF
C-E Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = (-)10mA, I <sub>B</sub> = (-)0.5mA		(-)0.1	(-)0.3	V
C-B Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = (-)10μA, I <sub>E</sub> = 0	(-)50			V
C-E Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = (-)100μA, R <sub>BE</sub> = ∞	(-)50			V
Input OFF-State Voltage	V <sub>I(off)</sub>	V <sub>CE</sub> = (-)5V, I <sub>C</sub> = (-)100μA	(-)0.7	(-)0.85	(-)0.95	V
Input ON-State Voltage	V <sub>I(on)</sub>	V <sub>CE</sub> = (-)0.2V, I <sub>C</sub> = (-)10mA	(-)0.95	(-)1.3	(-)2.0	V
Input Resistance	R1		<b>3.3</b>	<b>4.7</b>	<b>6.1</b>	kΩ
Resistance Ratio	R1/R2			<b>0.47</b>		

### Electrical Connection



### Case Outline 2033

(unit: mm)

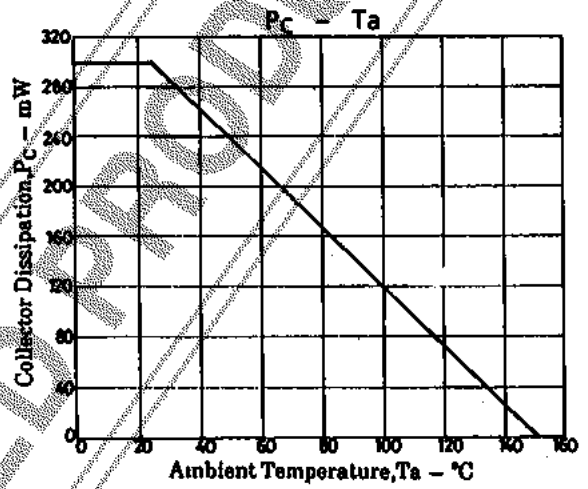
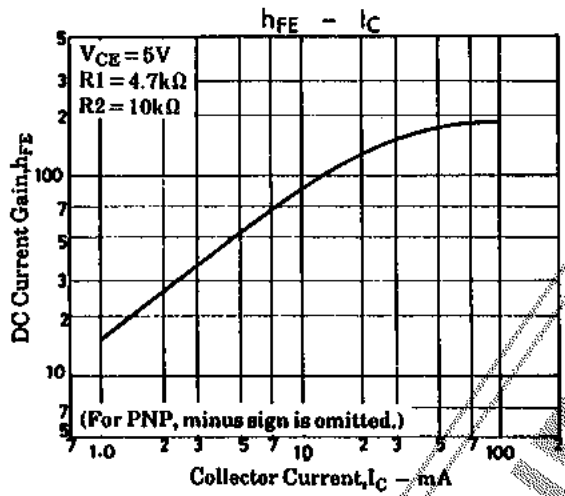
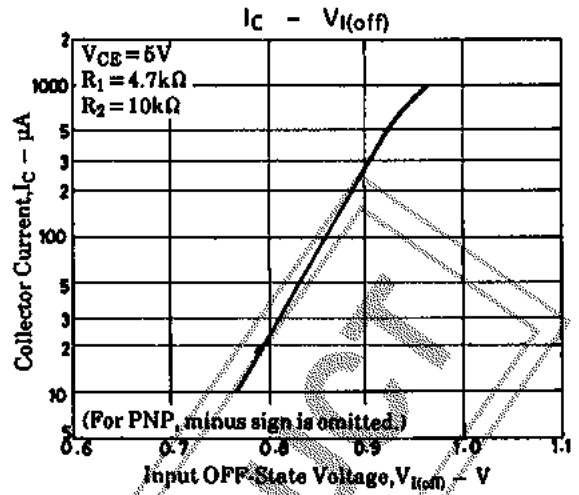
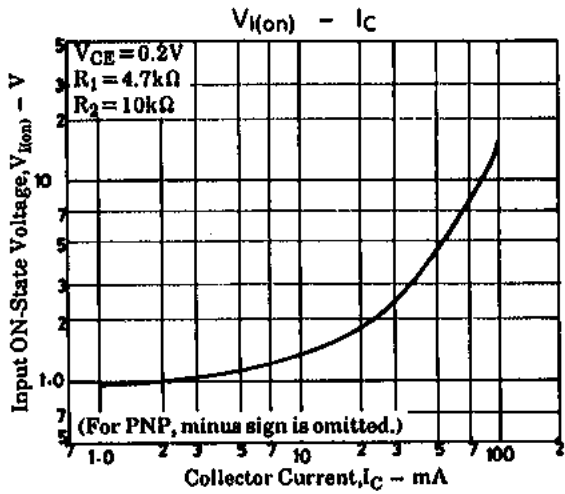


B: Base  
C: Collector  
E: Emitter  
SANYO: SPA

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



DISCONTINUED PRODUCT