



SANYO Semiconductors

DATA SHEET

2SA1604
2SC4156

PNP/NPN Epitaxial Planar Type Silicon Transistors

High-Speed Switching Applications

Features

- . Adoption of FBET process
- . High breakdown voltage ($V_{CEO} = (-)50V$)
- . Large current capacity and high f_T
- . Small-sized package (DP6) permitting sets to be made smaller and slimmer

(): 2SA1604

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

			unit
Collector to Base Voltage	V_{CBO}	(-)60	V
Collector to Emitter Voltage	V_{CEO}	(-)50	V
Emitter to Base Voltage	V_{EBO}	(-)5	V
Collector Current	I_C	(-)500	mA
Peak Collector Current	i_{cp}	(-)800	mA
Collector Dissipation	P_C	1 unit	200 mW
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to +150	$^\circ C$

Electrical Characteristics at $T_a = 25^\circ C$

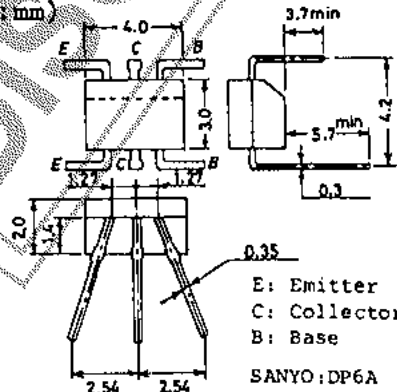
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)40V, I_E = 0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = (-)5V, I_C = (-)10mA$	100*		560*	
DC Current Gain Ratio	$h_{FE}^{(small/large)}$	$V_{CE} = (-)5V, I_C = (-)10mA$	0.8		1.0	
Base to Emitter Voltage Difference	$V_{BE}^{(large-small)}$	$V_{CE} = (-)5V, I_C = (-)10mA$		1.0	10	mV
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10V, I_C = (-)50mA$		300		MHz
				(200)		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10V, f = 1MHz$		3.7		pF
				(5.6)		pF

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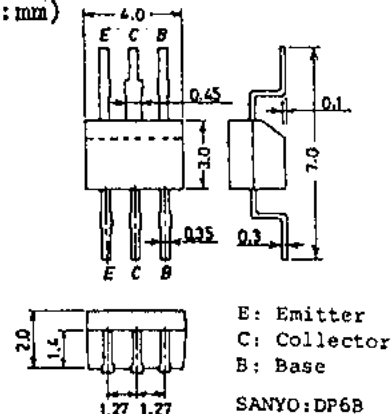
*: The 2SA1604/2SC4156 are classified by 10mA $h_{FE}^{(small)}$ as follows:

100	R	200	140	S	280	200	T	400	280	U	560
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Case Outline 2029A
(unit: mm)



Case Outline 2030A
(unit: mm)



Specifications and information hereof are subject to change without notice.

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			min	typ	max	unit
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-) 100mA, I_B = (-) 10mA$		0.1	0.3	V
				(0.15)	(0.4)	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-) 100mA, I_B = (-) 10mA$		0.8	1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-) 10uA, I_E = 0$	(-)60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100uA, R_{BE} = \infty$	(-)50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-) 10uA, I_C = 0$	(-)5			V

The application circuit diagrams and circuit constants herein are included as an example and provide no guarantee for designing equipment to be mass-produced.
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