



SANYO Semiconductors

## DATA SHEET

# 2SA1011P / 2SC2344P

PNP / NPN Epitaxial Planar Silicon Transistors  
**High-Voltage Switching, AF Power Amp,  
 100W Output Predriver Applications**

**Specifications** ( ) : 2SA1011P

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		(-)180	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)160	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)6	V
Collector Current	I <sub>C</sub>		(-)1.5	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)3	A
Collector Dissipation	P <sub>C</sub>	T <sub>C</sub> =25°C	30	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =(-)120V, I <sub>E</sub> =0A			(-)10	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0A			(-)10	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)300mA	60*		200*	
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		(30)23		pF
Base-to-Emitter Voltage	V <sub>BE</sub>	V <sub>CE</sub> =(-)5A, I <sub>C</sub> =(-)10mA			(-)1.5	V
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =(-)500mA, I <sub>B</sub> =(-)50mA		(-0.5)0.3		V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =(-)1mA, I <sub>E</sub> =0A	(-)180			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =(-)1mA, R <sub>BE</sub> =∞	(-)160			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =(-)1mA, I <sub>C</sub> =0A	(-)6			V

Continued on next page.

\* : The 2SA1011P/2SC2344P are classified by 300mA h<sub>FE</sub> as follows :

Rank	D	E
h <sub>FE</sub>	60 to 120	100 to 200

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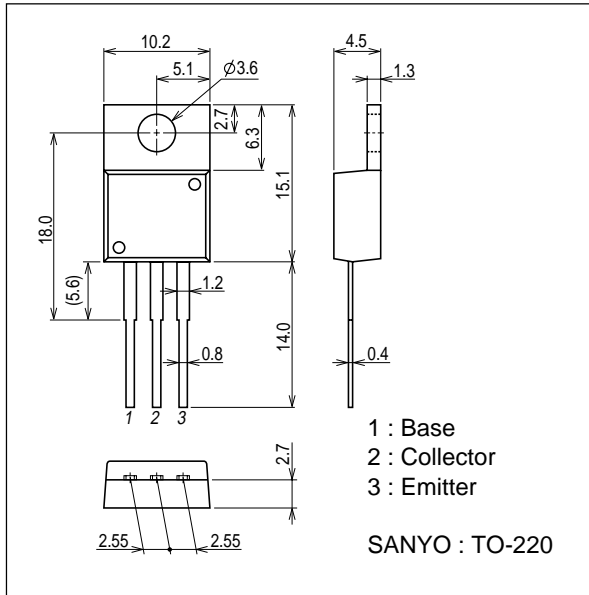
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-On Time	$t_{on}$	See specified Test Circuit.		(0.29)0.15		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit.		(0.48)0.81		$\mu s$
Fall Time	$t_f$	See specified Test Circuit.		(0.19)0.48		$\mu s$

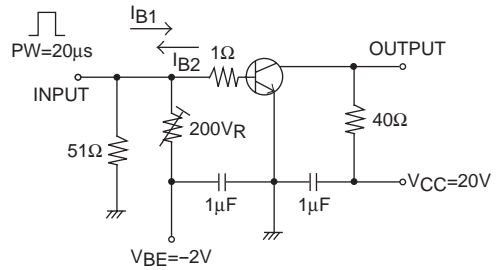
**Package Dimensions**

unit : mm (typ)

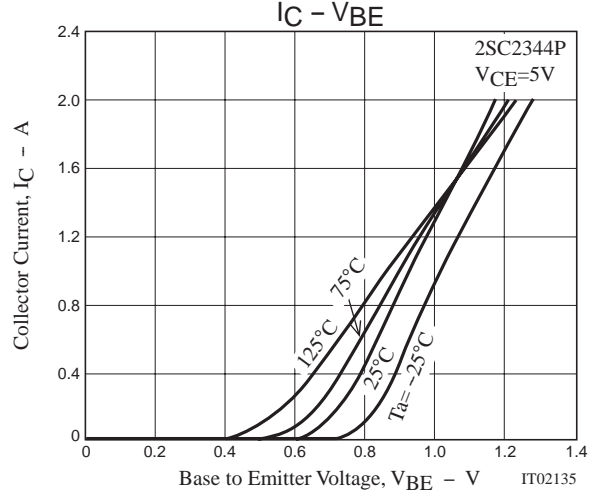
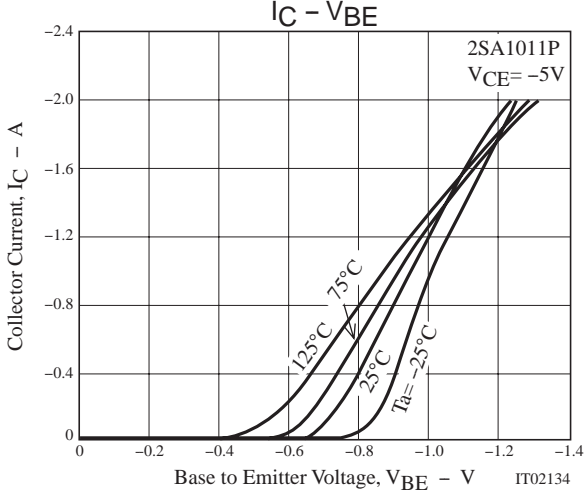
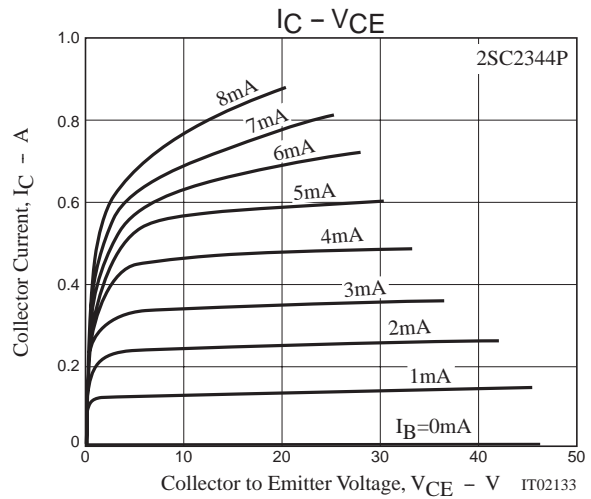
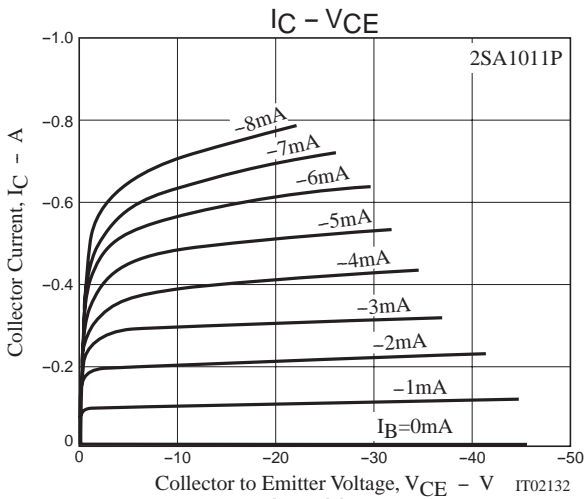
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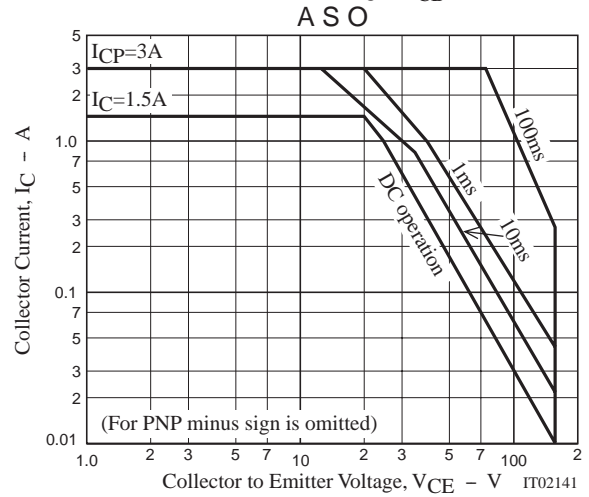
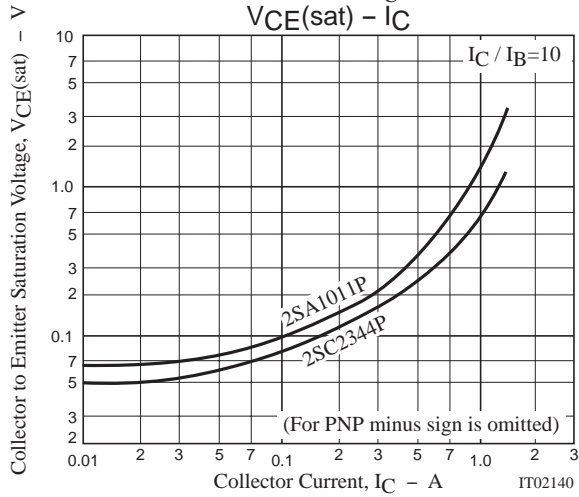
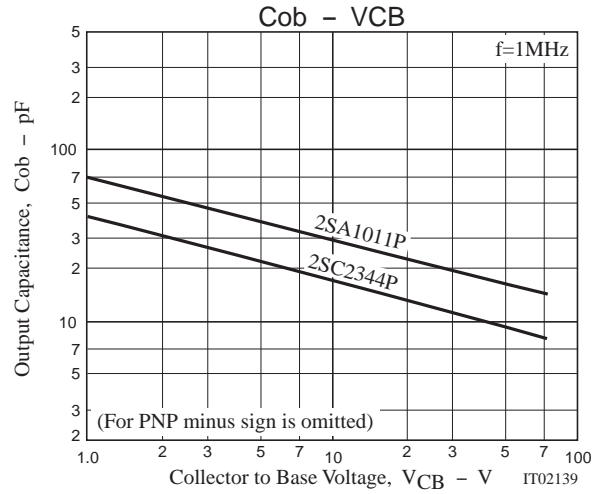
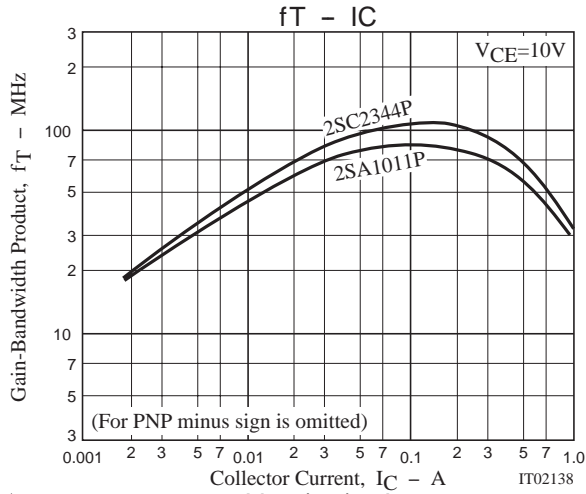
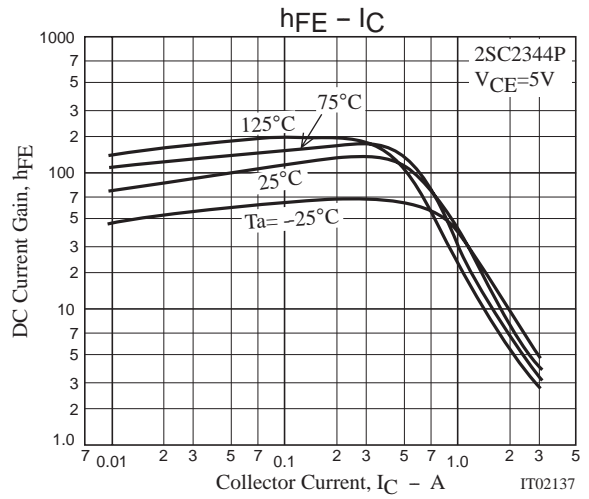
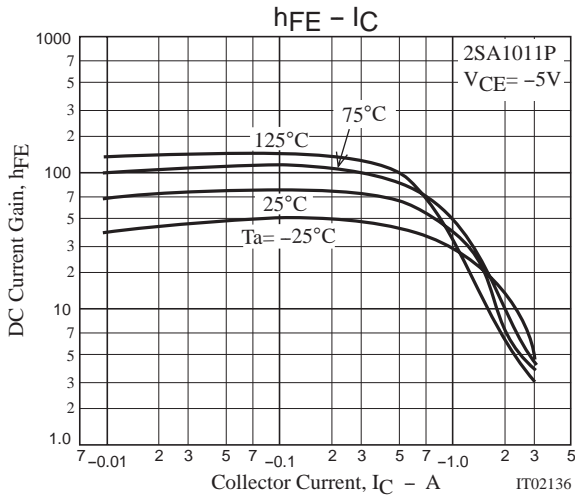


**Switching Time Test Circuit**



$I_C=10I_{B1}=-10I_{B2}=0.5A$   
For PNP, minus sign is omitted.





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