

# General Purpose Transistor

## (-50V, -100mA)

### 2SA2199

#### ●Applications

Small signal low frequency amplifier

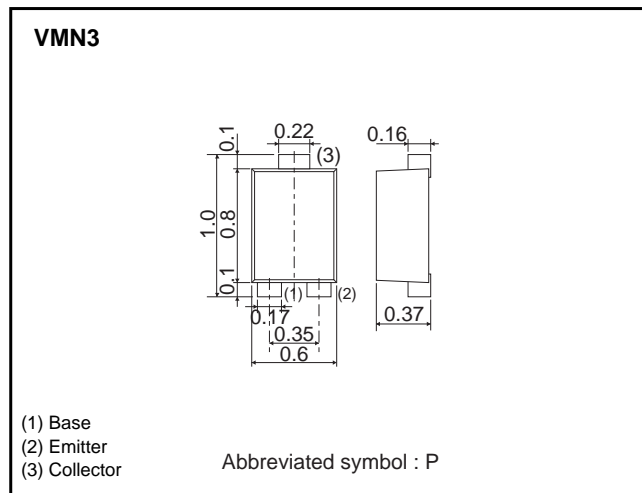
#### ●Features

- 1) Excellent  $h_{FE}$  linearity.
- 2) Complements the 2SC6114.

#### ●Structure

PNP silicon epitaxial  
planar transistor

#### ●Dimensions (Unit : mm)



#### ●Absolute maximum (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	-50	V
Collector-emitter voltage	$V_{CEO}$	-50	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-100	mA
	$I_{CP}$ *1	-200	
Power dissipation	$P_D$ *2	150	mW
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C

\*1  $P_w=1ms$  Single pulse

\*2 Each terminal mounted on a recommended land

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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	-50	-	-	V	I <sub>C</sub> =-1mA
Collector-base breakdown voltage	BV <sub>CBO</sub>	-50	-	-	V	I <sub>C</sub> =-50μA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	-5	-	-	V	I <sub>E</sub> =-50μA
Collector cutoff current	I <sub>CBO</sub>	-	-	-0.1	μA	V <sub>CB</sub> =-50V
Emitter cutoff current	I <sub>EBO</sub>	-	-	-0.1	μA	V <sub>EB</sub> =-5V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-	-0.3	V	I <sub>C</sub> /I <sub>B</sub> =-25mA/-2.5mA
DC current gain	h <sub>FE</sub>	120	-	390	-	V <sub>CE</sub> =-6V, I <sub>C</sub> =-2mA
Transition frequency	f <sub>r</sub>	-	110	-	MHz	V <sub>CE</sub> =-10V, I <sub>E</sub> =1mA, f=100MHz
Output capacitance	C <sub>ob</sub>	-	2.0	-	pF	V <sub>CB</sub> =-10V, I <sub>E</sub> =0A, f=1MHz

h<sub>FE</sub> RANK

Rank	Q	R
h <sub>FE</sub>	120 to 270	180 to 390

●Electrical characteristic curves

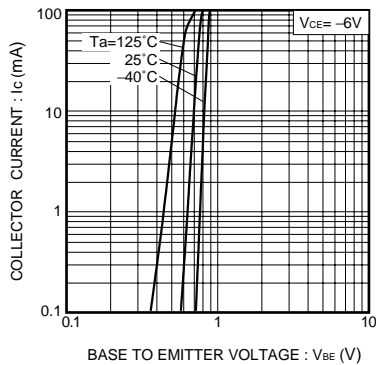


Fig.1 Grounded emitter propagation characteristics

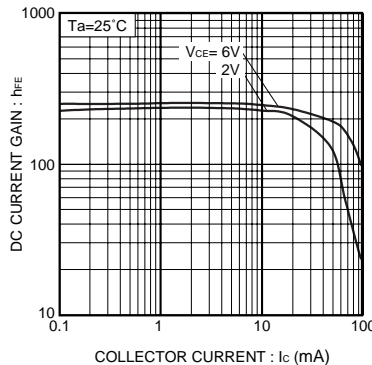


Fig.2 DC current gain vs. collector current (I)

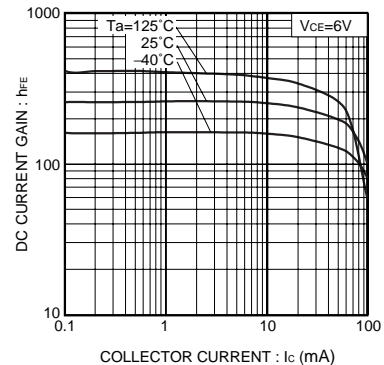


Fig.3 DC current gain vs. collector current (II)

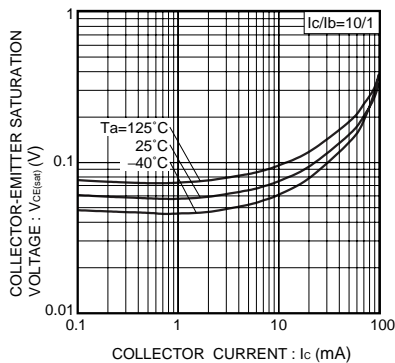


Fig.4 Collector-emitter saturation voltage vs. collector current

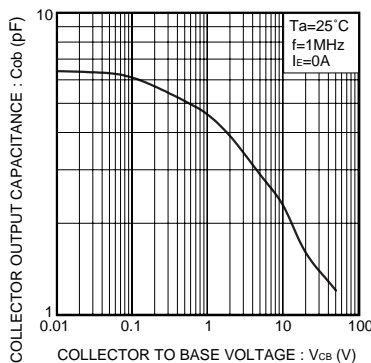


Fig.5 Collector output capacitance

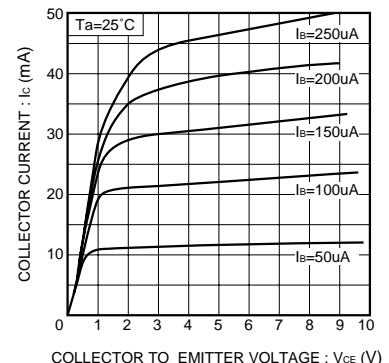


Fig.6 Typical output characteristics

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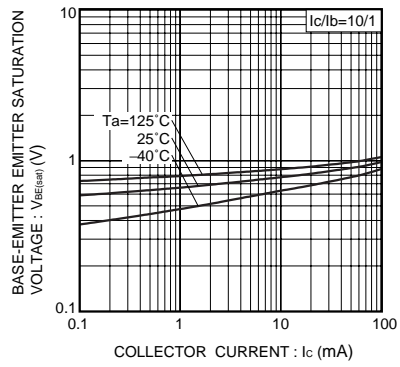


Fig.7 Base-emitter saturation voltage vs. collector current

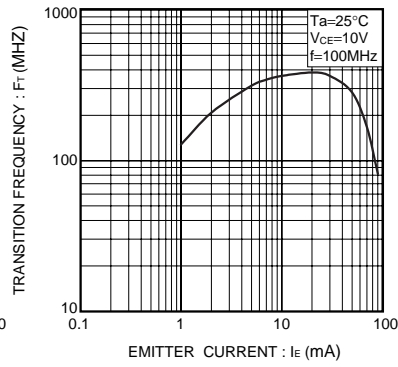


Fig.8 Transition frequency

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