

General Purpose Transistor

(−50V, −100mA)

2SA2199

●Applications

Small signal low frequency amplifier

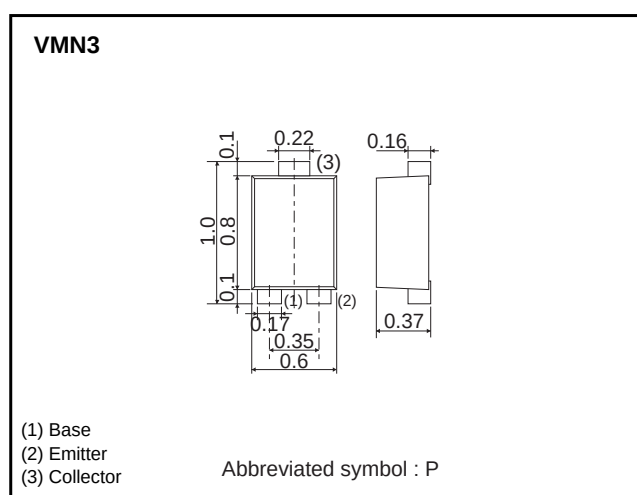
●Features

- 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 $P_w=1$ ms Single pulse

*2 Each terminal mounted on a recommended land

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	-50	-	-	V	$I_C = -1\text{mA}$
Collector-base breakdown voltage	BV_{CBO}	-50	-	-	V	$I_C = -50\mu\text{A}$
Emitter-base breakdown voltage	BV_{EBO}	-5	-	-	V	$I_E = -50\mu\text{A}$
Collector cutoff current	I_{CBO}	-	-	-0.1	μA	$V_{CB} = -50\text{V}$
Emitter cutoff current	I_{EBO}	-	-	-0.1	μA	$V_{EB} = -5\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	-0.3	V	$I_C/I_B = -25\text{mA}/-2.5\text{mA}$
DC current gain	h_{FE}	120	-	390	-	$V_{CE} = -6\text{V}$, $I_C = -2\text{mA}$
Transition frequency	f_r	-	110	-	MHz	$V_{CE} = -10\text{V}$, $I_E = 1\text{mA}$, $f = 100\text{MHz}$
Output capacitance	C_{ob}	-	2.0	-	pF	$V_{CB} = -10\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$

 h_{FE} RANK

Rank	Q	R
h_{FE}	120 to 270	180 to 390

●Electrical characteristic curves

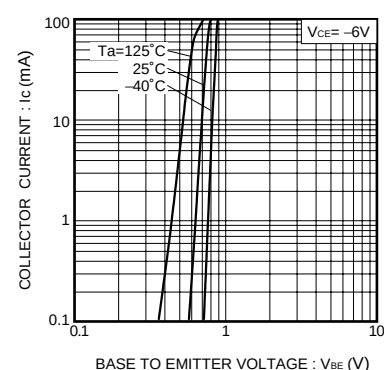


Fig.1 Grounded emitter propagation characteristics

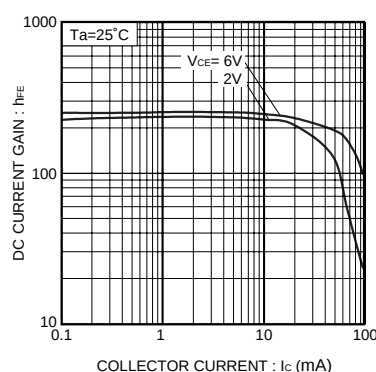


Fig.2 DC current gain vs. collector current (I)

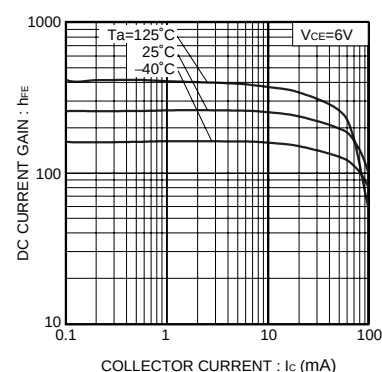


Fig.3 DC current gain vs. collector current (II)

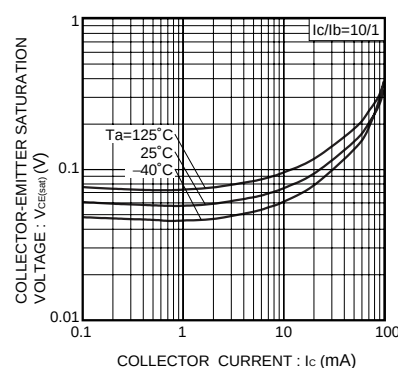


Fig.4 Collector-emitter saturation voltage vs. collector current

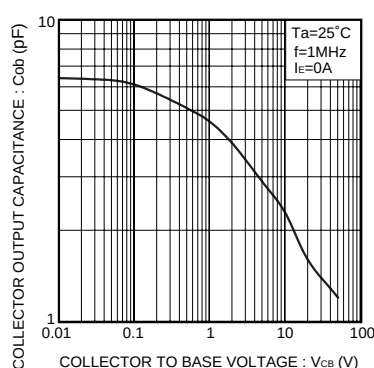


Fig.5 Collector output capacitance

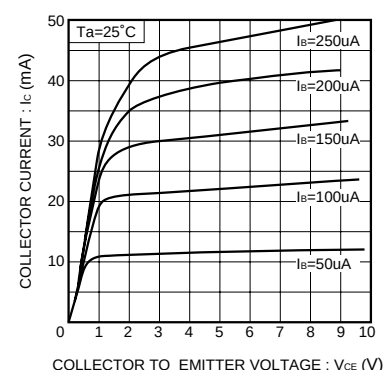


Fig.6 Typical output characteristics

Transistors

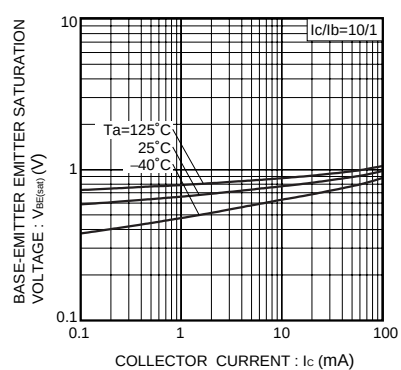


Fig.7 Base-emitter saturation voltage vs. collector current

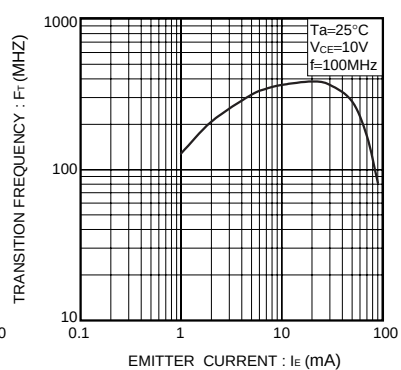


Fig.8 Transition frequency

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