General Purpose Transistor (–50V, –100mA)

2SA2199

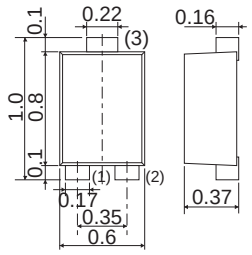
●**Applications**
Small signal low frequency amplifier

●**Features**
1) Excellent h_{FE} linearity.
2) Complements the 2SC6114.

●**Structure**
PNP silicon epitaxial
planar transistor

●**Dimensions** (Unit : mm)

VMN3



(1) Base
(2) Emitter
(3) Collector

Abbreviated symbol : P

●**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	Tj	150	°C
Range of storage temperature	Tstg	–55 to +150	°C

*1 Pw=1ms Single pulse
*2 Each terminal mounted on a recommended land

●**Electrical characteristics** (Ta=25°C)

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

h_{FE} RANK

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

●**Electrical characterristic curves**

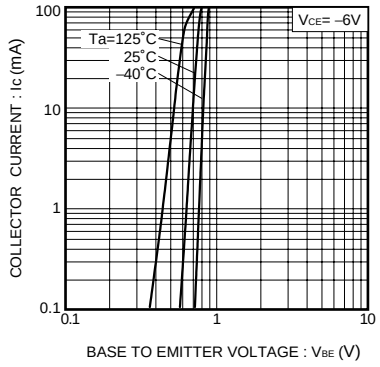


Fig.1 Grounded emitter propagation characteristics

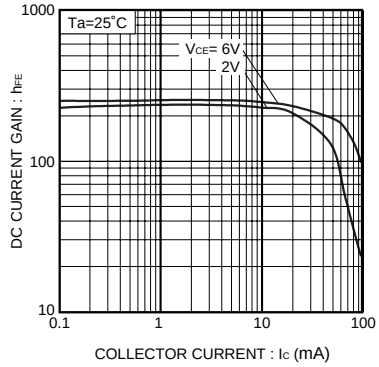


Fig.2 DC current gain vs. collector current (I)

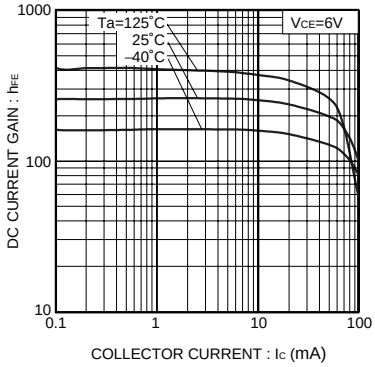


Fig.3 DC current gain vs. collector current (II)

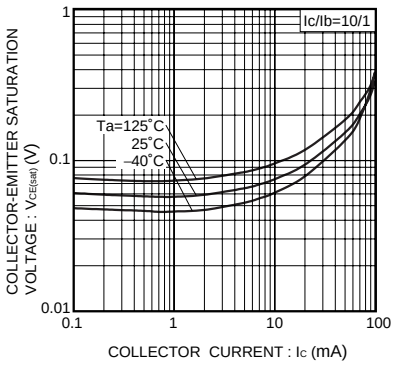


Fig.4 Collector-emitter saturation voltage vs. collector current

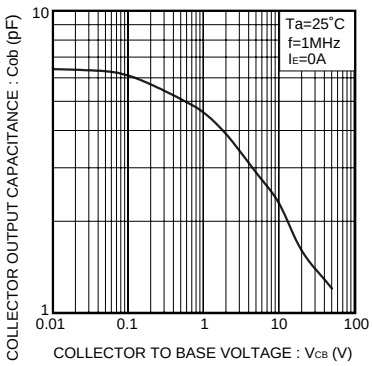


Fig.5 Collector output capacitance

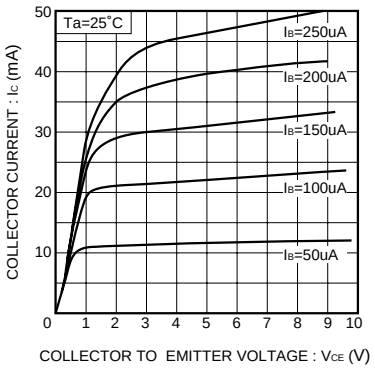


Fig.6 Typical output characteristics

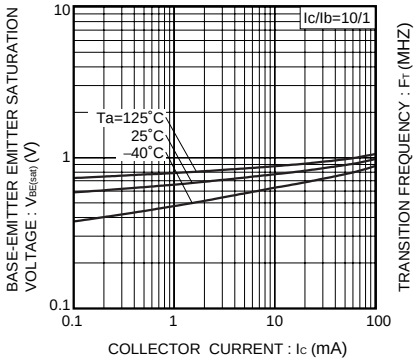


Fig.7 Base-emitter saturation voltage vs. collector current

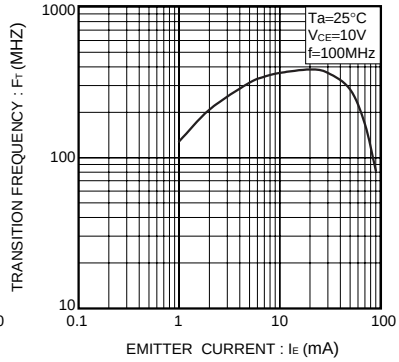


Fig.8 Transition frequency

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