

DESCRIPTION

Mitsubishi 2SA999 is a silicon PNP epitaxial type transistor designed for low frequency voltage amplify application.

FEATURE

- Excellent linearity of DC forward current gain
- Low collector saturation voltage

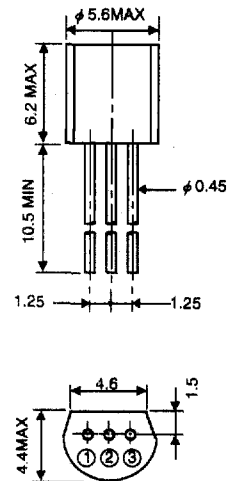
$$V_{CE(sat)} = -0.3V \text{ max} (@I_C = -100mA, I_B = -10mA)$$

APPLICATION

For stereo, tape deck, radio low frequency voltage amplify application.

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

- ① : EMITTER
 - ② : COLLECTOR
 - ③ : BASE
- EIAJ : SC-43
JEDEC : TO-92 resemblance

Note)
The dimension without tolerance represent central value.

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V _{(BR)CEO}	Collector to Base voltage	-50	V
V _{EB0}	Emitter to Base voltage	-6	V
V _{CE0}	Collector to Emitter voltage	-50	V
I _C	Collector current	-200	mA
P _C	Collector dissipation(Ta=25°C)	300	mW
T _j	Junction temperature	+125	°C
T _{stg}	Storage temperature	-55 to +125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

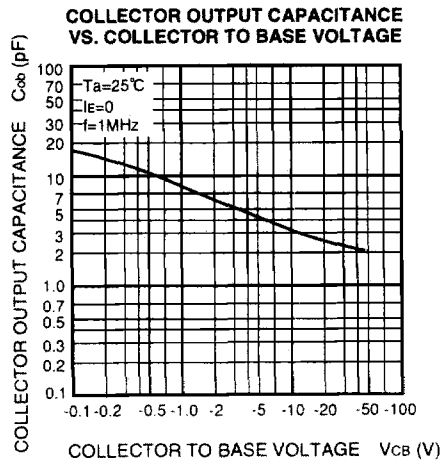
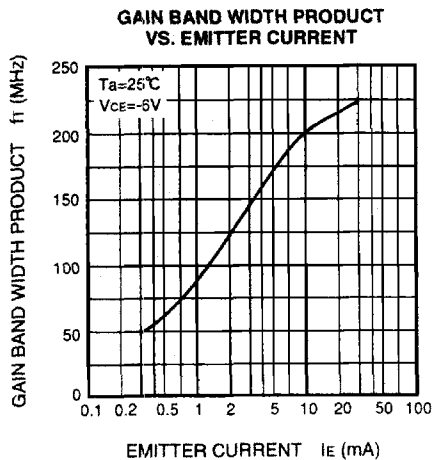
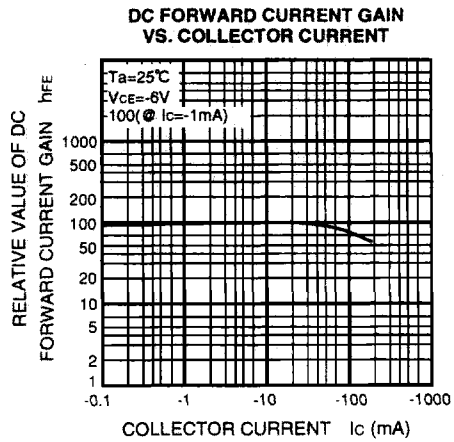
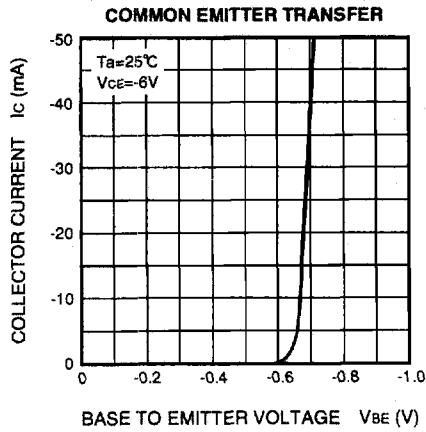
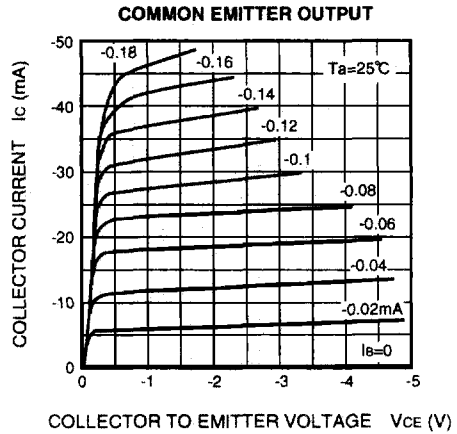
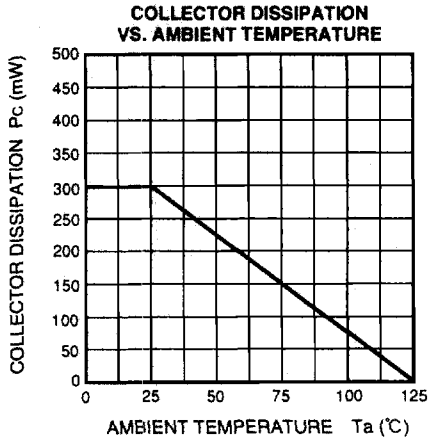
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V _{(BR)CEO}	C to E break down voltage	I _C =-100 μA, R _{BE} =∞	-50			V
I _{CBO}	Collector cut off current	V _{CB} =-50V, I _E =0			-0.1	μA
I _{EB0}	Emitter cut off current	V _{EB} =-6V, I _C =0			-0.1	μA
h _{FE} *	DC forward current gain	V _{CE} =-6V, I _C =-1mA	90		800	—
h _{FE}	DC forward current gain	V _{CE} =-6V, I _C =-0.1mA	50			—
V _{CE(sat)}	C to E saturation voltage	I _C =-100mA, I _B =-10mA			-0.3	V
f _T	Gain band width product	V _{CE} =-6V, I _E =10mA		200		MHz
C _{ob}	Collector output capacitance	V _{CB} =-6V, I _E =0, f=1MHz		4.0		pF
NF	Noise figure	V _{CE} =-6V, I _E =0.3mA, f=100Hz, R _G =10kΩ			20	dB

* : It shows h_{FE} classification in right table.

Item	D	E	F	G
h _{FE}	90 to 180	150 to 300	250 to 500	400 to 800

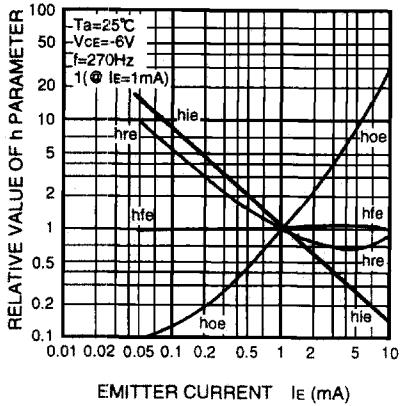
FOR LOW FREQUENCY AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE

TYPICAL CHARACTERISTICS

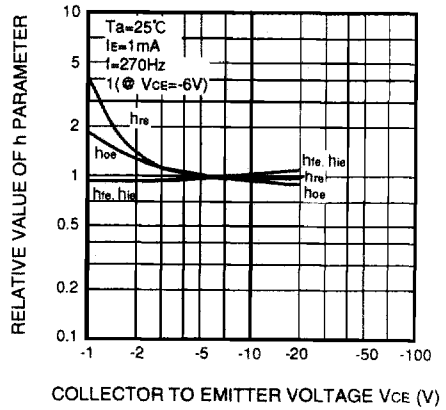


FOR LOW FREQUENCY AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE

**h PARAMETER VS.
EMITTER CURRENT**



**h PARAMETER VS.
COLLECTOR TO EMITTER VOLTAGE**



COMMON EMITTER h PARAMETER (TYPICAL VALUE)

Symbol	Parameter	Test conditions	Limits	Unit
h_{ie}	Closed loop small signal input impedance	$T_a=25^\circ\text{C}$	7.0	$\text{k}\Omega$
h_{re}	Open loop small signal reverse voltage amplification factor	$V_{CE}=-6\text{V}$	0.1	$\times 10^{-3}$
h_{fe}	Closed loop small signal forward current amplification factor	$I_E=1\text{mA}$	250	—
h_{oe}	Open loop small signal output admittance	$f=270\text{Hz}$	18	μS