

DESCRIPTION

Mitsubishi 2SA1299 is silicon PNP epitaxial type transistor designed for low frequency low noise application. Small package for easy mounting.

FEATURE

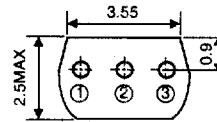
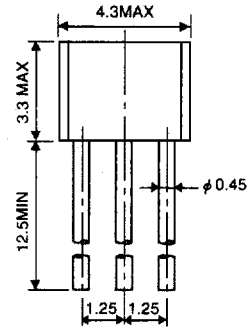
- Low noise NF=0.5dB typ. NVFLAT \leq 150mV
- Excellent linearity of DC forward current gain.
- Low collector saturation voltage.
VCE(sat)=-0.3V max (@IC=-100mA, IB=-10mA)
- Small package

APPLICATION

For low noise voltage amplify, low level voltage amplify. DC forward current amplify application.

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

- ① : EMITTER EIAJ : —
- ② : COLLECTOR JEDEC : —
- ③ : BASE JEDEC : —

Note)
The dimension without tolerance represent central value.

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
Vcbo	Collector to Base Voltage	-50	V
Vebo	Emitter to Base Voltage	-6	V
Vceo	Collector to Emitter Voltage	-50	V
Ic	Collector current	-200	mA
Pc	Collector dissipation(Ta=25°C)	300	mW
Tj	Junction temperature	+125	°C
Tstg	Storage temperature	-50 to +125	°C

MAXIMAUM RATINGS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V(BR)CEO	C to E break down voltage	IC=-100 μA, RBE=∞	-50			V
Icbo	Collector cut off current	VCE=-50V, IE=0			-0.1	μA
Iebo	Emitter cut off current	VEB=-6V, IC=0			-0.1	μA
hFE *	DC forward current gain	VCE=-6V, IC=-1mA	150		800	—
hFE	DC forward current gain	VCE=-6V, IC=-0.1mA	50			—
VCE(sat)	C to E saturation voltage	IC=-100mA, IB=-10mA			-0.3	V
fr	Gain band width product	VCE=-6V, IE=10mA		200		MHz
Cob	Collector output capacitance	VCE=-6V, IE=0, f=1MHz		4.0		pF
NF	Noise figure	VCE=-6V, IE=0.3mA, f=1kHz, RG=10kΩ		0.5		dB
NVFLAT	Low frequency wide band noise voltage(effective value)	VCE=-10V, IE=1mA, RG=100kΩ Gv=80dB, Δf:20Hz to 30kHz(-3dB)			150	mV

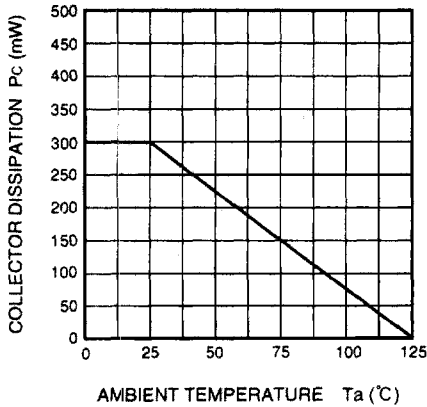
* : It shows hFE classification in right table.

Item	E	F	G
hFE	150 to 300	250 to 500	400 to 800

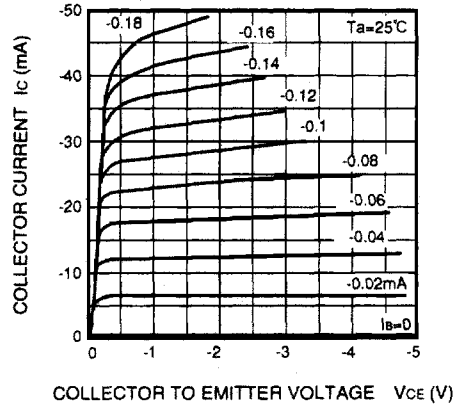
FOR LOW FREQUENCY LOW NOISE AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE

TYPICAL CHARACTERISTICS

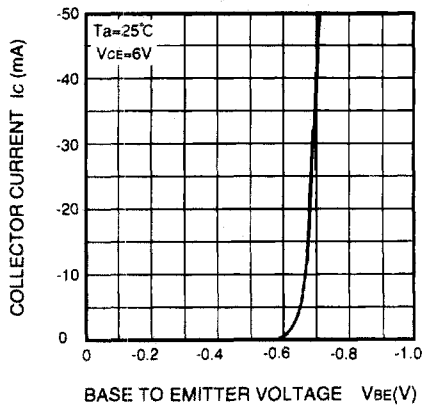
COLLECTOR DISSIPATION
VS. AMBIENT TEMPERATURE



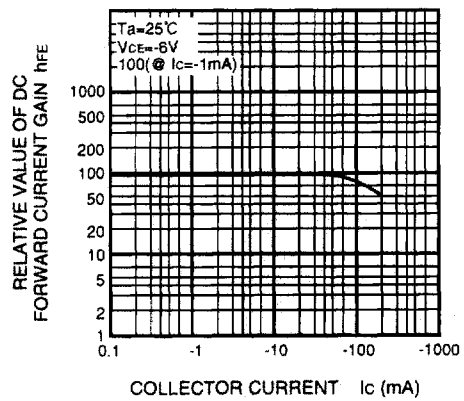
COMMON EMITTER OUTPUT



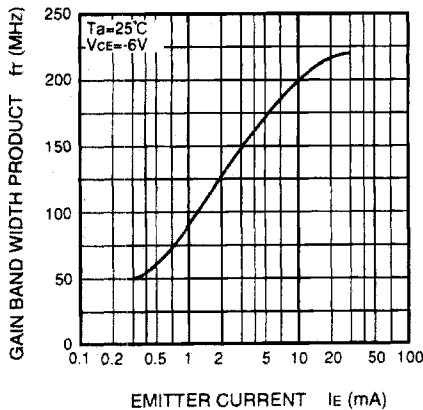
COMMON EMITTER TRANSFER



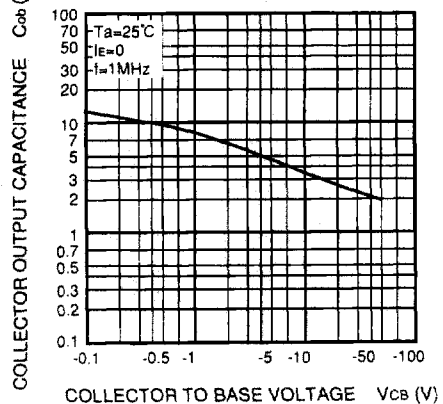
DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



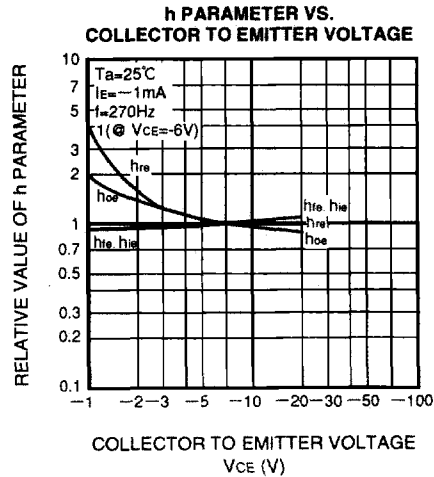
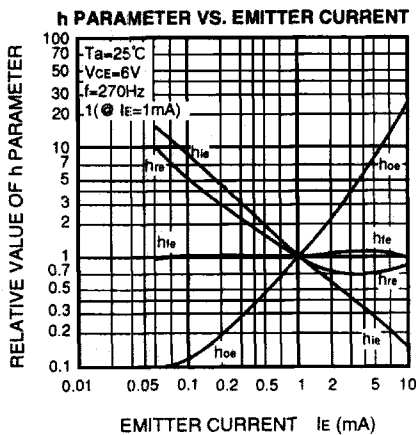
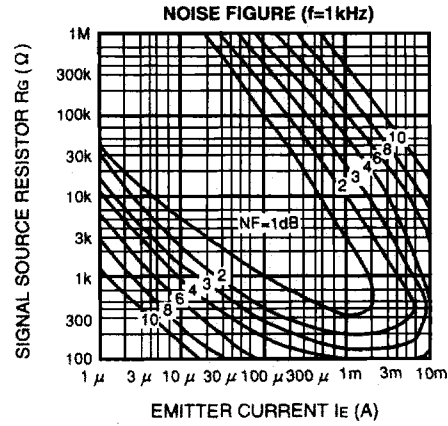
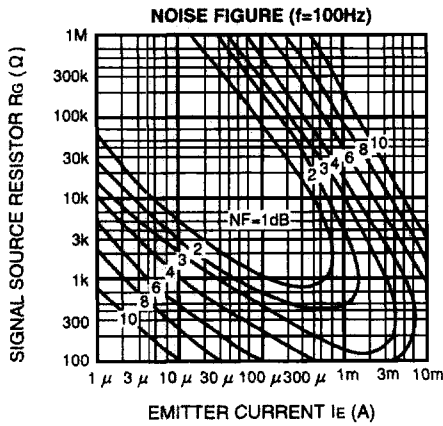
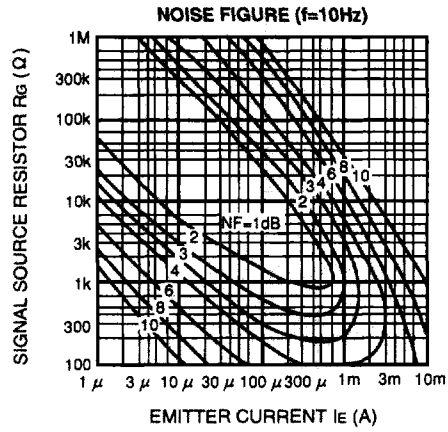
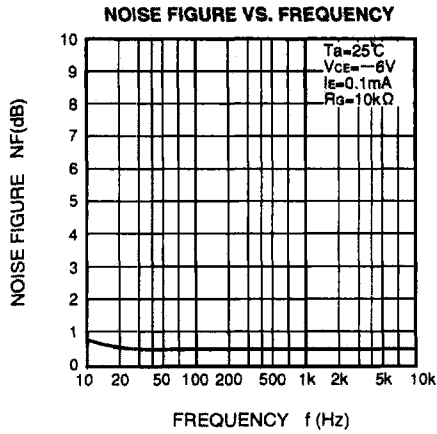
GAIN BAND WIDTH PRODUCT
VS. EMITTER CURRENT



COLLECTOR OUTPUT CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE



FOR LOW FREQUENCY LOW NOISE AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE



**FOR LOW FREQUENCY LOW NOISE AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE**

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

LOW FREQUENCY WIDE BAND NOISE VOLTAGE TESTING CIRCUIT

