

2SA1602

FOR LOW FREQUENCY AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE(Super mini type)

DESCRIPTION

2SA1602 is a super mini package resin sealed silicon PNP epitaxial transistor, It is designed for low frequency voltage application.

FEATURE

- Small collector to emitter saturation voltage.
 $V_{CE(sat)} = -0.3V \text{ max (@} I_C = -100mA, I_B = -10mA \text{)}$
- Excellent linearity of DC forward gain.
- Super mini package for easy mounting

APPLICATION

For Hybrid IC, small type machine low frequency voltage Amplify application.

MAXIMUM RATINGS (Ta=25°C)

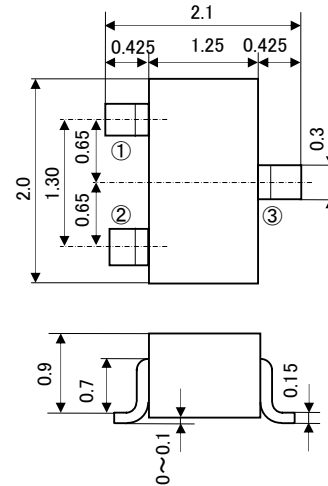
Symbol	Parameter	Ratings	Unit
V_{CBO}	Collector to Base voltage	-50	V
V_{CEO}	Collector to Emitter voltage	-50	V
V_{EBO}	Emitter to Base voltage	-6	V
I_C	Collector current	-200	mA
P_c	Collector dissipation	200	mW
T_j	Junction temperature	+150	°C
T_{stg}	Storage temperature	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test conditions	Limits			Unit
			Min	Typ	Max	
C to E break down voltage	$V(BR)_{CEO}$	$I_C = -100 \mu A, R_{BE} = \infty$	-50	-	-	V
Collector cut off current	I_{CBO}	$V_{CB} = -50V, I_E = 0mA$	-	-	-0.1	μA
Emitter cut off current	I_{EBO}	$V_{EB} = -6V, I_C = 0mA$	-	-	-0.1	μA
DC forward current gain	hFE	$V_{CE} = -6V, I_C = -1mA$	※	150	-	800
DC forward current gain	hFE	$V_{CE} = -6V, I_C = -0.1mA$	90	-	-	
C to E Saturation Vlotage	$V_{CE(sat)}$	$I_C = -100mA, I_B = -10mA$	-	-	-0.3	V
Gain bandwidth product	fT	$V_{CE} = -6V, I_E = 10mA$	-	200	-	MHz
Collector output capacitance	Cob	$V_{CB} = -6V, I_E = 0, f = 1MHz$	-	4	-	pF
Noise figure	NF	$V_{CE} = -6V, I_E = 0.3mA, f = 100Hz, R_G = 10k \Omega$	-	-	20	dB

OUTLINE DRAWING

Unit: mm



JEITA: SC-70

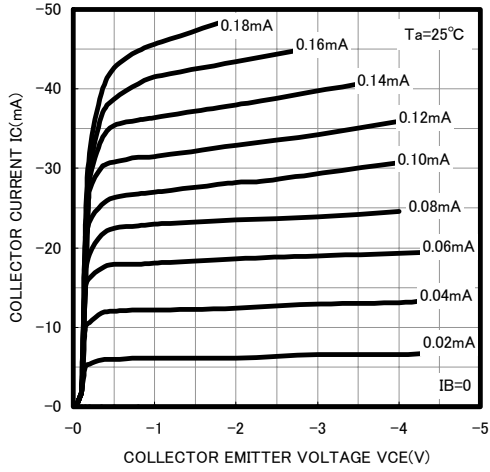
TERMINAL CONNECTER

- ①: BASE
- ②: EMITTER
- ③: COLLECTOR

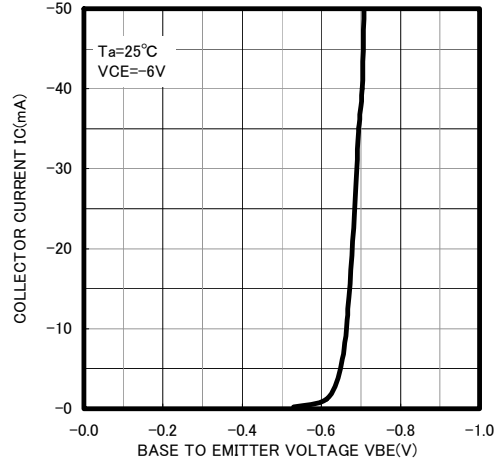
※) It shows hFE classification in below table.

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

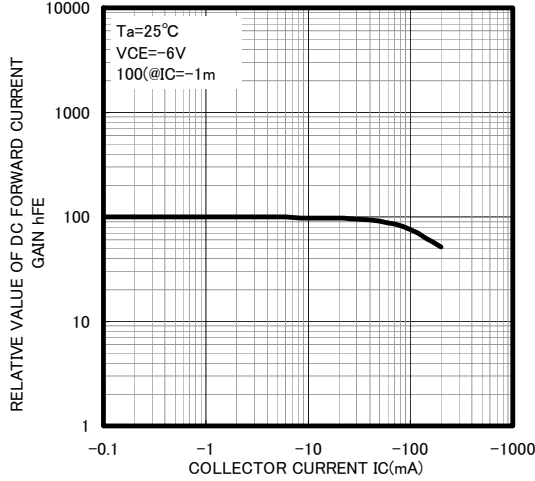
COMMON EMITTER OUTPUT



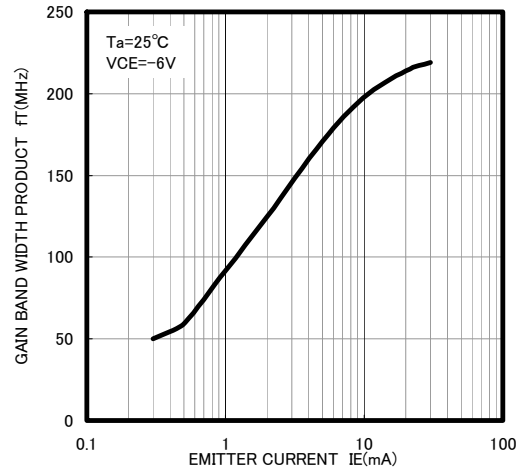
COMMON EMITTER TRANSFER



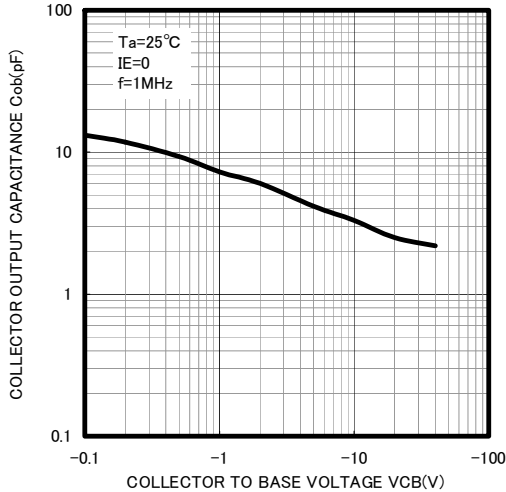
DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



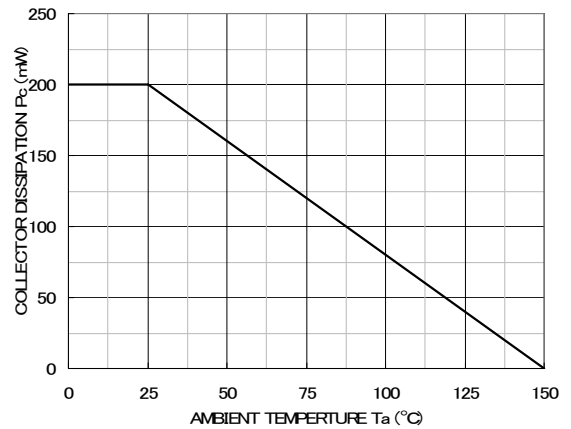
GAIN BAND WIDTH PRODUCT
VS. EMITTER CURRENT



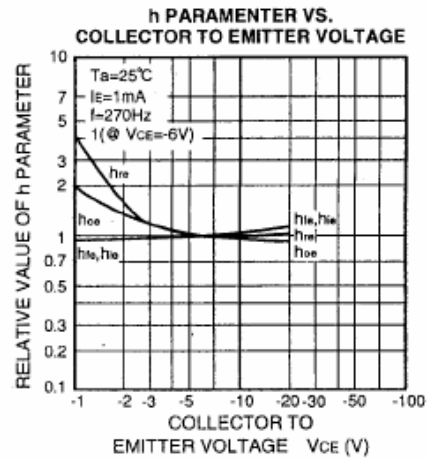
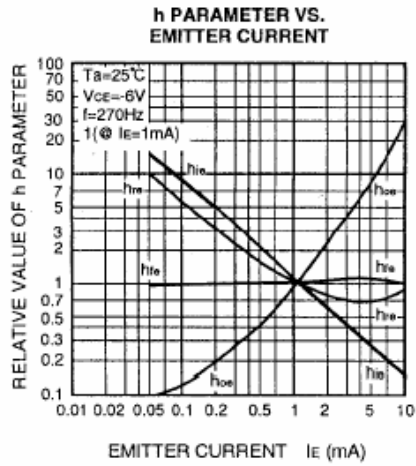
COLLECTOR OUTPUT CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE



COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



FOR LOW FREQUENCY AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE(Super mini 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	k Ω
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



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