

**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.  
VCE(sat)=-0.3V max
- 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 )**

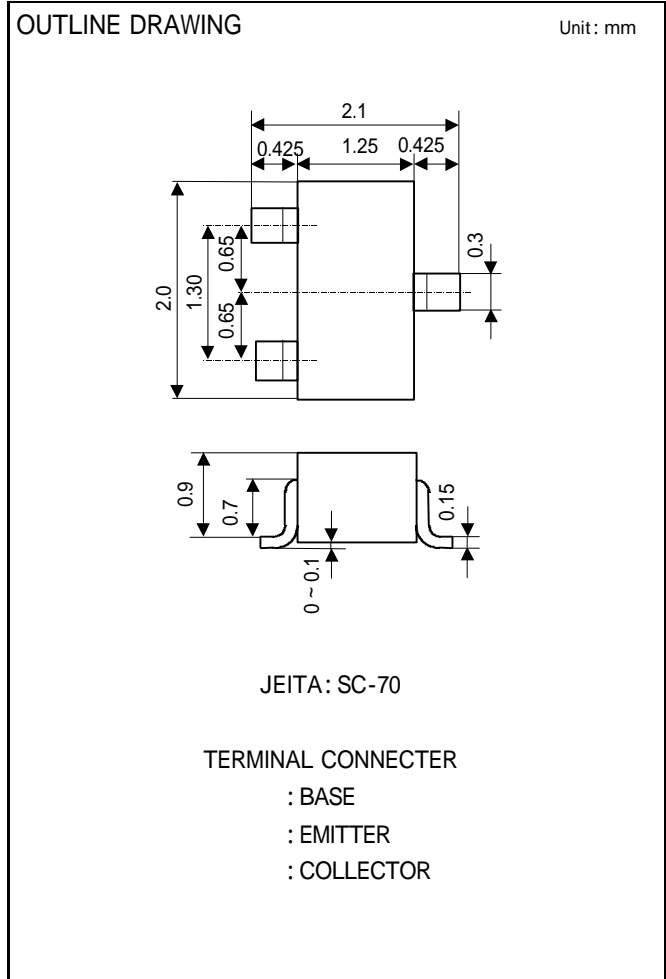
Symbol	Parameter	Ratings	Unit
V <sub>CBO</sub>	Collector to Base voltage	-50	V
V <sub>CEO</sub>	Collector to Emitter voltage	-50	V
V <sub>EBO</sub>	Emitter to Base voltage	-6	V
I <sub>O</sub>	Collector current	-200	mA
P <sub>C</sub>	Collector dissipation	150	mW
T <sub>j</sub>	Junction temperature	+ 125	
T <sub>stg</sub>	Storage temperature	-55 ~ + 125	

**ELECTRICAL CHARACTERISTICS(Ta=25 )**

Parameter	Symbol	Test conditions	Limits			Unit
			Min	Typ	Max	
C to E break down voltage	V(BR) <sub>CEO</sub>	I <sub>C</sub> =-100 μA, R <sub>BE</sub> =	-50	-	-	V
Collector cut off current	ICBO	V <sub>CB</sub> =-50V, I <sub>E</sub> =0mA	-	-	-0.1	μA
Emitter cut off current	IEBO	V <sub>EB</sub> =-6V, I <sub>C</sub> =0mA	-	-	-0.1	μA
DC forward current gain	hFE	V <sub>CE</sub> =-6V, I <sub>C</sub> =-1mA	150	-	800	
DC forward current gain	hFE	V <sub>CE</sub> =-6V, I <sub>C</sub> =-0.1mA	90	-	-	
C to E Saturation Vlotage	VCE(sat)	I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA	-	-	-0.3	V
Gain bandwidth product	fT	V <sub>CE</sub> =-6V, I <sub>E</sub> =-10mA	-	200	-	MHz
Collector output capacitance	Cob	V <sub>CB</sub> =-6V, I <sub>E</sub> =0,f=1MHz	-	4.0	-	pF

) It shows hFE classification in below table.

Item	E	F	G
h F E Item	150-300	250-500	400-800

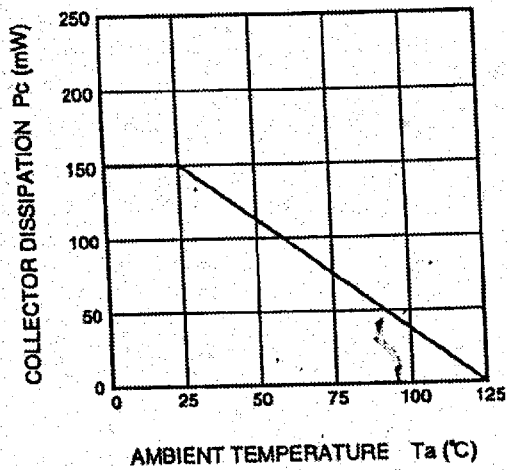


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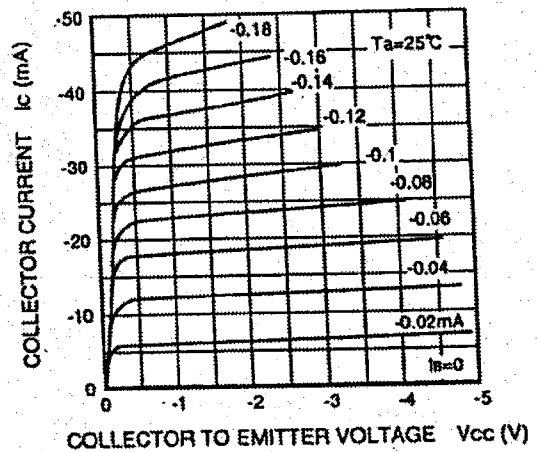
For Low Frequency Amplify Application  
Silicon PNP Epitaxial Type (Super Mini type)

## TYPICAL CHARACTERISTICS

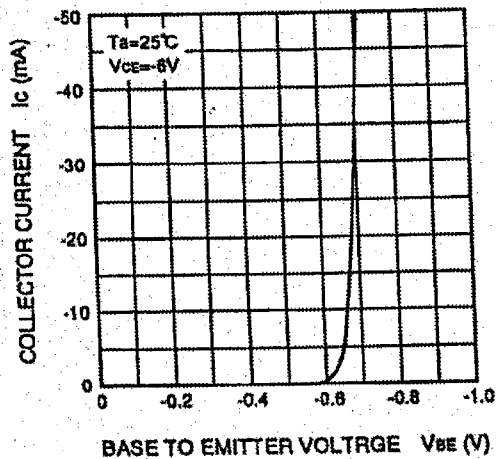
### COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



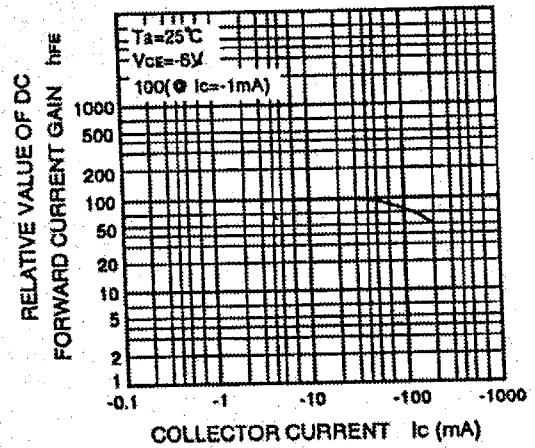
### COMMON EMITTER OUTPUT



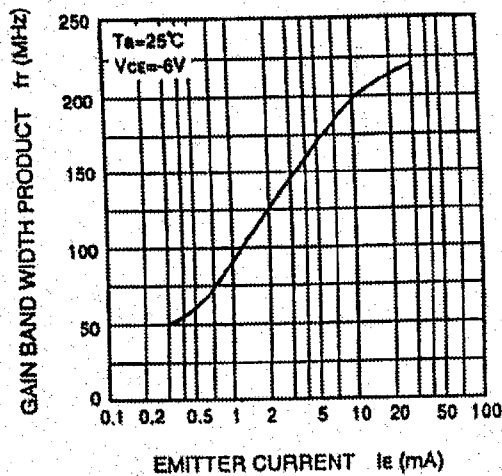
### COMMON EMITTER TRANSFER



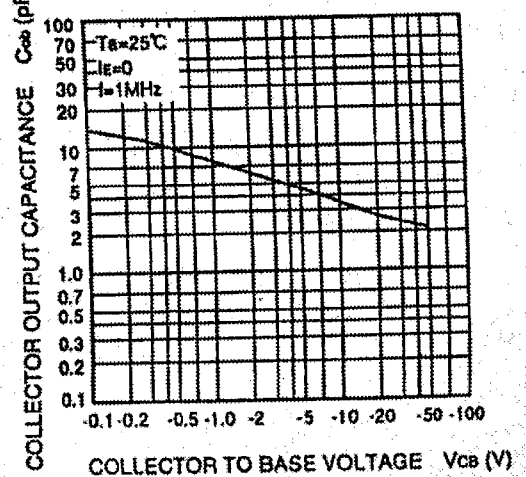
### DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



### GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT



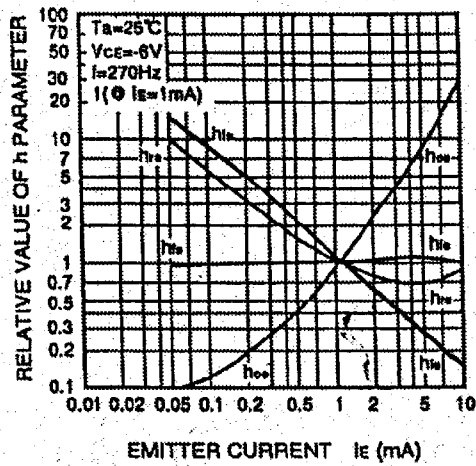
### COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



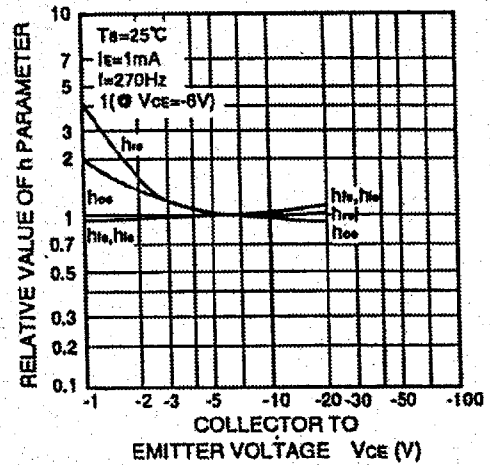
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Silicon PNP Epitaxial Type (Super Mini type)

**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	$T_a=25^\circ\text{C}$ $V_{ce}=-6\text{V}$ $I_e=1\text{mA}$ $f=270\text{Hz}$	7.0	$k\Omega$
$h_{re}$	Open loop small signal reverse voltage amplification factor		0.1	$\times 10^{-3}$
$h_{fe}$	Closed loop small signal forward current amplification factor		250	—
$h_{oe}$	Open loop small signal output admittance		18	$\mu\text{S}$



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