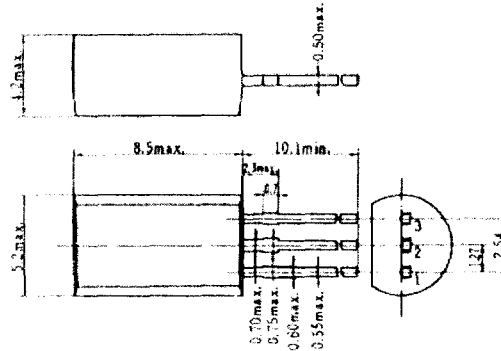


## 2SB646, 2SB646A

SILICON PNP EPITAXIAL

LOW FREQUENCY HIGH VOLTAGE AMPLIFIER

Complementary pair with 2SD666/A



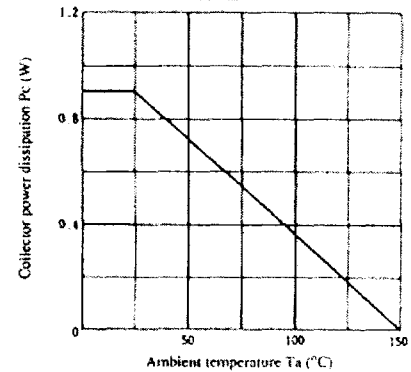
1. Emitter
  2. Collector
  3. Base
- (Dimensions in mm)

(JEDEC TO-92 MOD.)

### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SB646	2SB646A	Unit
Collector to base voltage	V <sub>CB0</sub>	-120	-120	V
Collector to emitter voltage	V <sub>CE0</sub>	-80	-100	V
Emitter to base voltage	V <sub>EB0</sub>	-5	-5	V
Collector current	I <sub>C</sub>	-50	-50	mA
Collector peak current	i <sub>C(peak)</sub>	-100	-100	mA
Collector power dissipation	P <sub>C</sub>	0.9	0.9	W
Junction temperature	T <sub>J</sub>	150	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	-55 to +150	°C

### MAXIMUM COLLECTOR DISSIPATION CURVE



### ■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

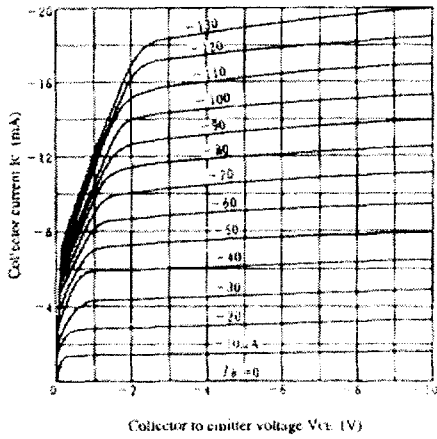
Item	Symbol	Test Condition	2SB646			2SB646A			Unit
			min.	typ.	max.	min.	typ.	max.	
Collector to base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -10μA, I <sub>E</sub> = 0	-120	—	—	-120	—	—	V
Collector to emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -1mA, R <sub>BE</sub> = ∞	-80	—	—	-100	—	—	V
Emitter to base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -10μA, I <sub>C</sub> = 0	-5	—	—	-5	—	—	V
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = -100V, I <sub>E</sub> = 0	—	—	-10	—	—	-10	μA
DC current transfer ratio	h <sub>FE1</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA	60	—	320	60	—	200	
	h <sub>FE2</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -1mA	30	—	—	30	—	—	
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -30mA, I <sub>B</sub> = -3mA	—	—	-2	—	—	-2	V
Base to emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA	—	—	-1.5	—	—	-1.5	V
Gain bandwidth product	f <sub>T</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA	—	140	—	—	140	—	MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -10V, I <sub>E</sub> = 0, f = 1MHz	—	4	—	—	4	—	pF

\* The 2SB646 and 2SB646A are grouped by h<sub>FE1</sub> as follows.

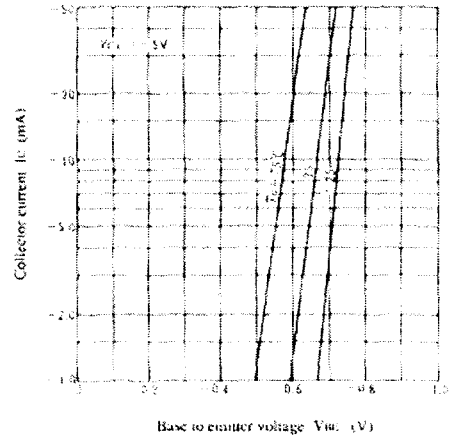
	B	C	D
2SB646	60 to 120	100 to 200	160 to 320
2SB646A	60 to 20	100 to 200	—

## 2SB646, 2SB646A

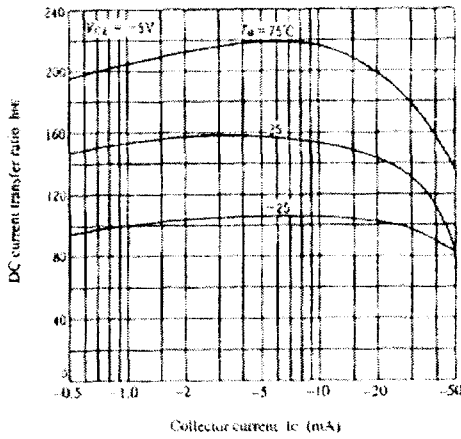
TYPICAL OUTPUT CHARACTERISTICS



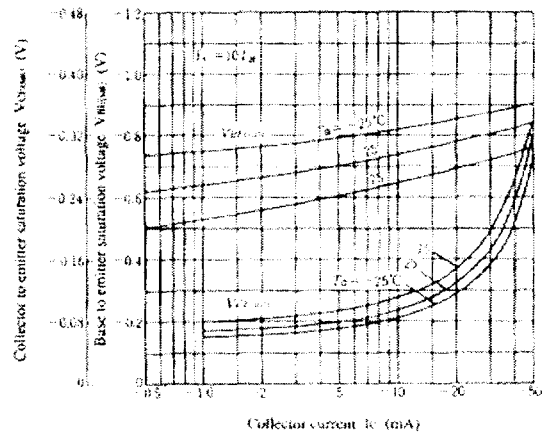
TYPICAL TRANSFER CHARACTERISTICS



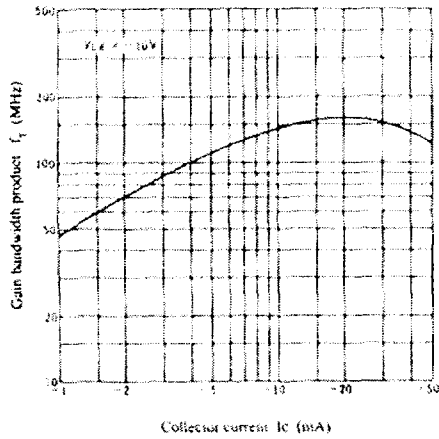
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



SATURATION VOLTAGE VS. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT VS. COLLECTOR CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE

