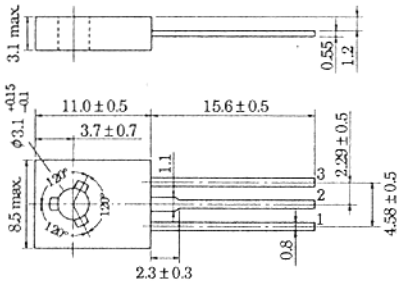
HITACHI

2SB649, 2SB649A

SILICON PNP EPITAXIAL

LOW FREQUENCY POWER AMPLIFIER
COMPLEMENTARY PAIR WITH 2SD669/A



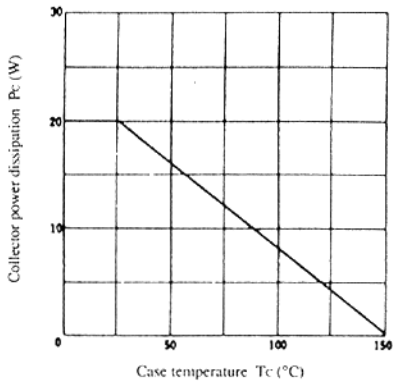
(JEDEC TO-126 MOD.)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SB649	2SB649A	Unit
Collector to base voltage	V_{CBO}	−180	−180	V
Collector to emitter voltage	V_{CEO}	−120	−160	V
Emitter to base voltage	V_{EBO}	−5	−5	V
Collector current	I_C	−1.5	−1.5	A
Collector peak current	$i_{C(peak)}$	−3	−3	A
Collector power dissipation	P_C	1	1	W
	P_C*	20	20	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	−55 to +150	−55 to +150	°C

* Value at Tc = 25°C

MAXIMUM COLLECTOR DISSIPATION CURVE



■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

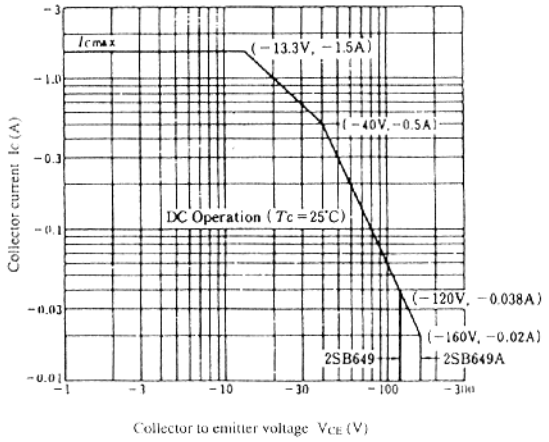
Item	Symbol	Test Condition	2SB649			2SB649A			Unit
			min.	typ.	max.	min.	typ.	max.	
Collector to base breakdown voltage	$V_{(BR)CBO}$	I_C = −1mA, I_E = 0	−180	—	—	−180	—	—	V
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	I_C = −10mA, R_{BE} = ∞	−120	—	—	−160	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	I_E = −1mA, I_C = 0	−5	—	—	−5	—	—	V
Collector cutoff current	I_{CBO}	V_{CB} = −160V, I_E = 0	—	—	−10	—	—	−10	μA
DC current transfer ratio	h_{FE1}*	V_{CE} = −5V, I_C = −150mA	60	—	320	60	—	200	
	h_{FE2}	V_{CE} = −5V, I_C = −500mA**	30	—	—	30	—	—	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = −500mA, I_B = −50mA	—	—	−1	—	—	−1	V
Base to emitter voltage	V_{BE}	V_{CE} = −5V, I_C = −150mA	—	—	−1.5	—	—	−1.5	V
Gain bandwidth product	f_T	V_{CE} = −5V, I_C = −150mA	—	140	—	—	140	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = −10V, I_E = 0, f=1MHz	—	27	—	—	27	—	pF

* The 2SB649 and 2SB649A are grouped by h_{FE1} as follows.

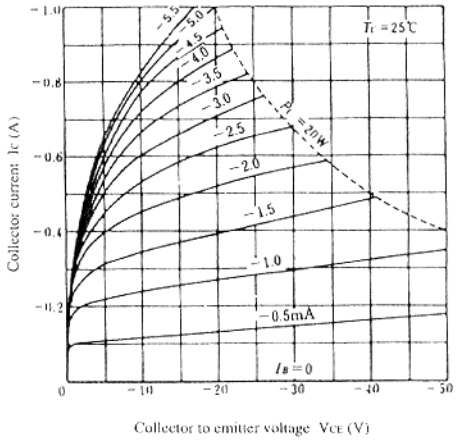
	B	C	D
2SB649	60 to 120	100 to 200	160 to 320
2SB649A	60 to 120	100 to 200	—

** Pulse Test

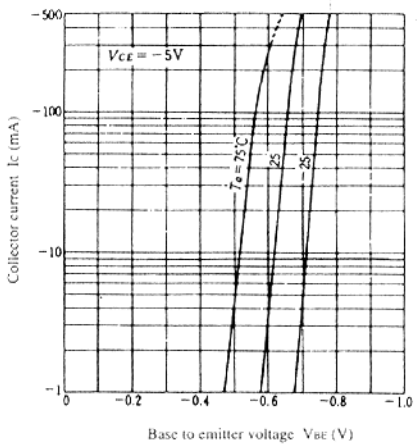
AREA OF SAFE OPERATION



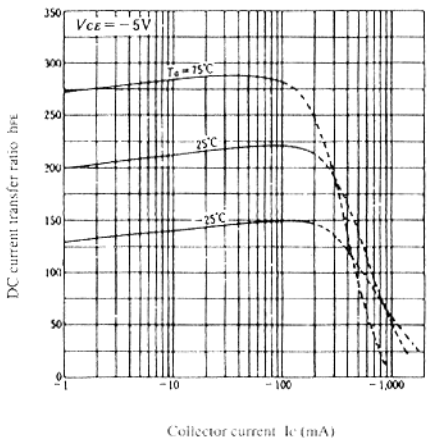
TYPICAL OUTPUT CHARACTERISTICS



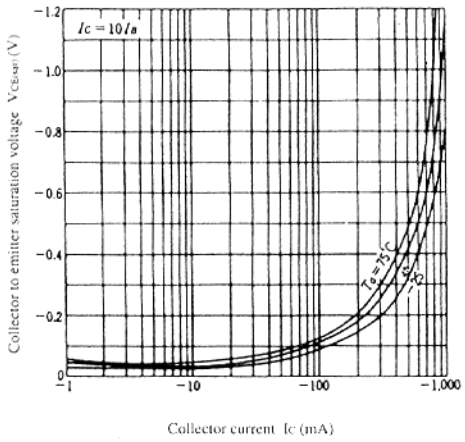
TYPICAL TRANSFER CHARACTERISTICS



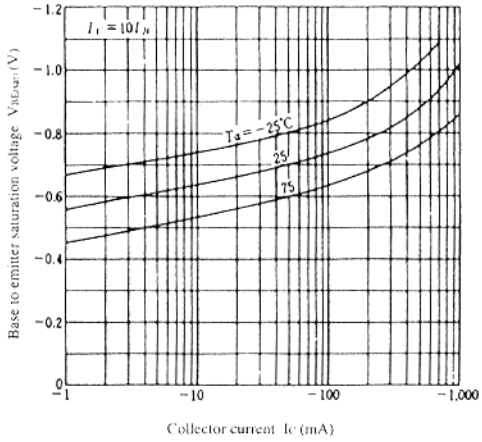
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



COLLECTOR TO EMITTER SATURATION VOLTAGE VS. COLLECTOR CURRENT

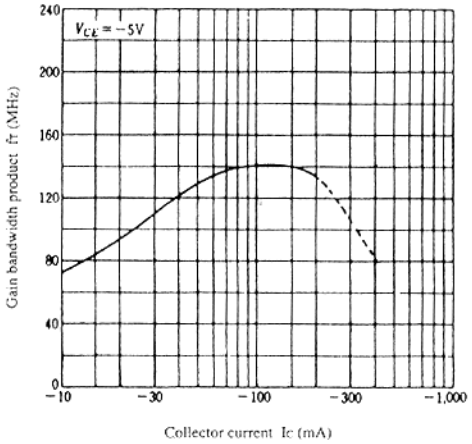


BASE TO EMITTER SATURATION VOLTAGE VS. COLLECTOR CURRENT



2SB649, 2SB649A

GAIN BANDWIDTH PRODUCT VS. COLLECTOR CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE