2SB647, 2SB647A

Silicon PNP Epitaxial

HITACHI

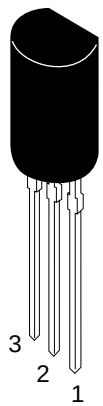
ADE-208-1025 (Z)
1st. Edition
Mar. 2001

Application

- Low frequency power amplifier
- Complementary pair with 2SD667/A

Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SB647	2SB647A	Unit
Collector to base voltage	V_{CBO}	–120	–120	V
Collector to emitter voltage	V_{CEO}	–80	–100	V
Emitter to base voltage	V_{EBO}	–5	–5	V
Collector current	I_C	–1	–1	A
Collector peak current	$i_{C(peak)}$	–2	–2	A
Collector power dissipation	P_C	0.9	0.9	W
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

Electrical Characteristics (Ta = 25°C)

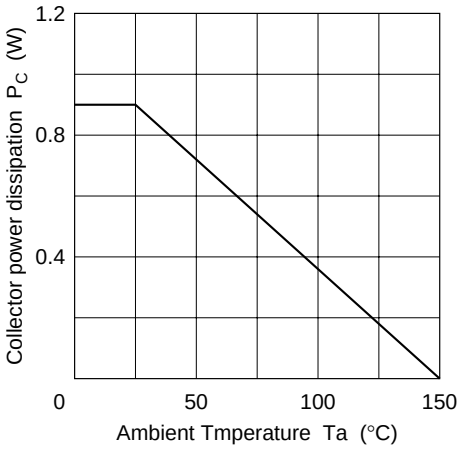
		2SB647			2SB647A				
Item	Symbol	Min	Typ	Max	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	–120	—	—	–120	—	—	V	I_C = –10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	–80	—	—	–100	—	—	V	I_C = –1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	–5	—	—	–5	—	—	V	I_E = –10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	–10	—	—	–10	µA	V_{CB} = –100 V, I_E = 0
DC current transfer ratio	h_{FE1}*[1]	60	—	320	60	—	200		V_{CE} = –5 V, I_C = –150 mA*[2]
	h_{FE2}	30	—	—	30	—	—		V_{CE} = –5 V, I_C = –500 mA*[2]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	–1	—	—	–1	V	I_C = –500 mA, I_B = –50 mA*[2]
Base to emitter voltage	V_{BE}	—	—	–1.5	—	—	–1.5	V	V_{CE} = –5 V, I_C = –150 mA*[2]
Gain bandwidth product	f_T	—	140	—	—	140	—	MHz	V_{CE} = –5 V, I_C = –150 mA
Collector output capacitance	Cob	—	20	—	—	20	—	pF	V_{CB} = –10 V, I_E = 0 f = 1 MHz

Notes: 1. The 2SB647 and 2SB647A are grouped by h_{FE1} as follows.

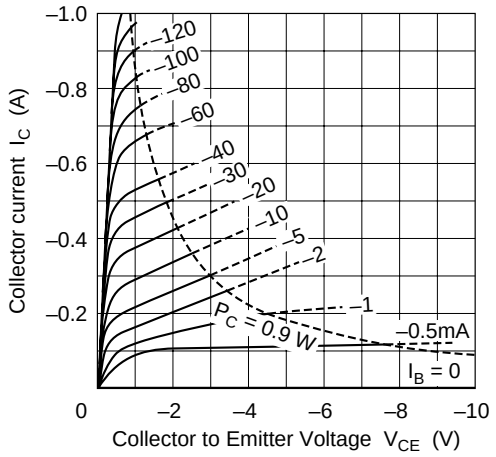
2. Pulse test

	B	C	D
2SB647	60 to 120	100 to 200	160 to 320
2SB647A	60 to 120	100 to 200	—

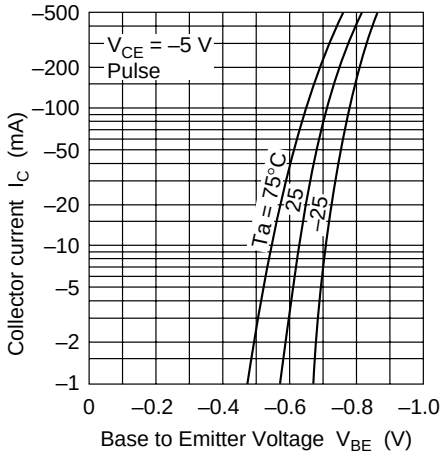
Maximum Collector Dissipation Curve



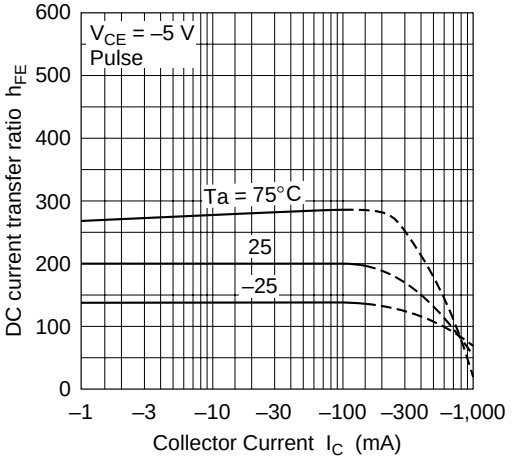
Typical Output Characteristics



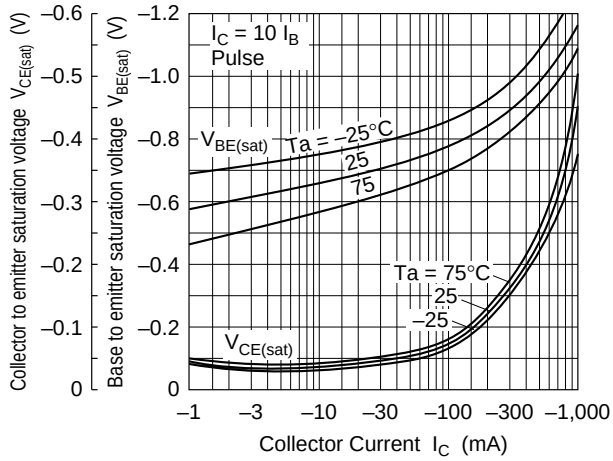
Typical Transfer Characteristics



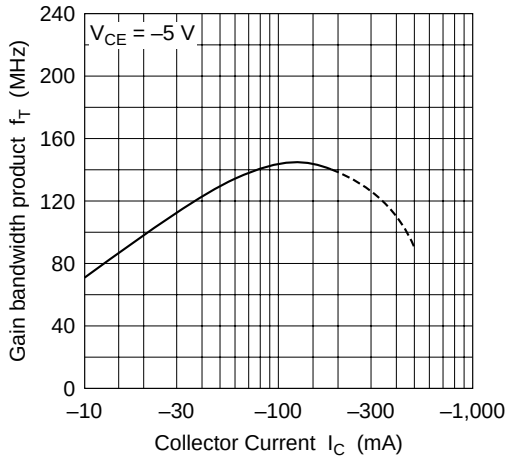
DC Current Transfer Ratio vs. Collector Current



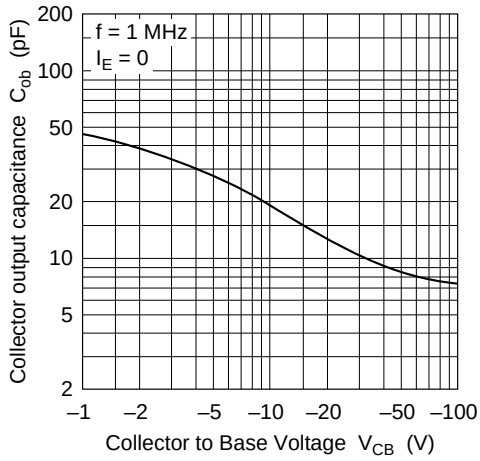
Saturation Voltage
vs. Collector Current



Gain Bandwidth Product
vs. Collector Current



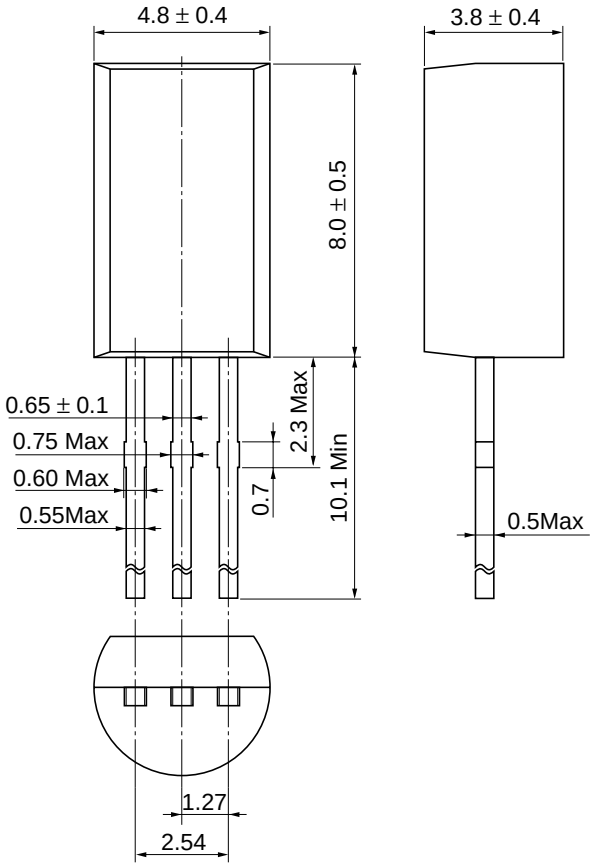
Collector Output Capacitance vs.
Collector to Base Voltage



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.35 g

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