

# 2SB647, 2SB647A

Silicon PNP Epitaxial

# HITACHI

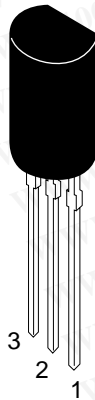
## Application

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

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
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## Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

## 2SB647, 2SB647A

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### 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	$T_j$	150	150	°C
Storage temperature	$T_{stg}$	-55 to +150	-55 to +150	°C

### Electrical Characteristics (Ta = 25°C)

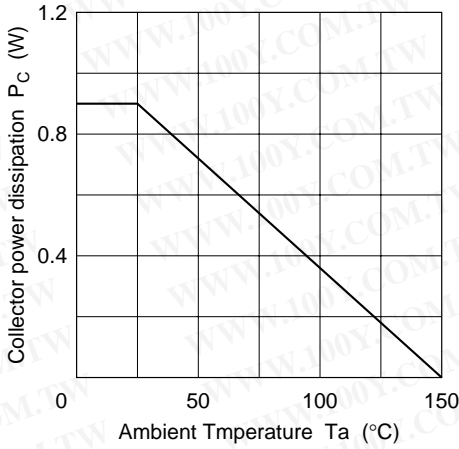
Item	Symbol	2SB647			2SB647A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-120	—	—	-120	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-80	—	—	-100	—	—	V	$I_C = -1 \text{ mA}, R_{BE} = \infty$
Emitter to base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

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

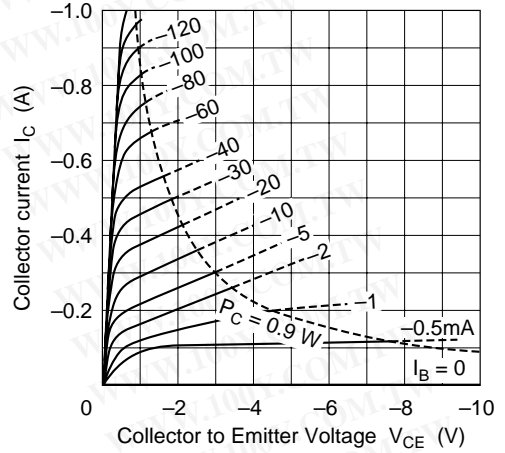
2. Pulse test

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

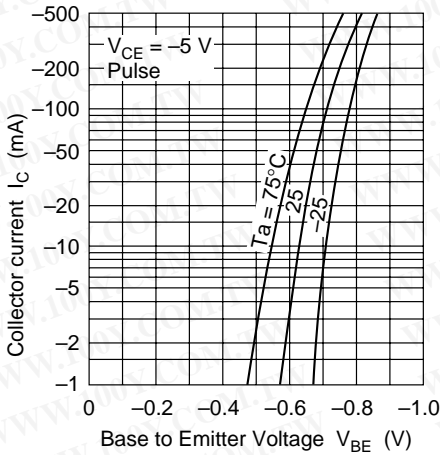
Maximum Collector Dissipation Curve



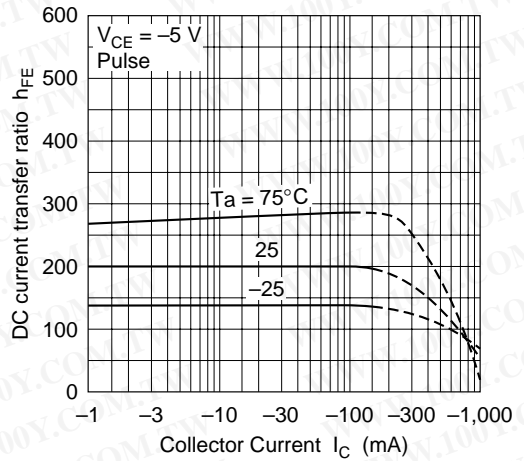
Typical Output Characteristics



Typical Transfer Characteristics

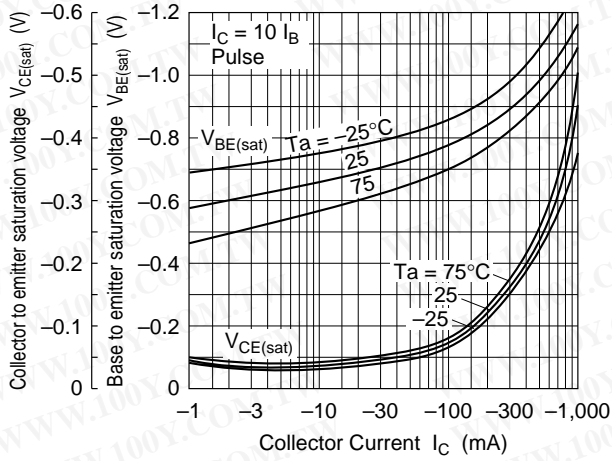


DC Current Transfer Ratio vs. Collector Current

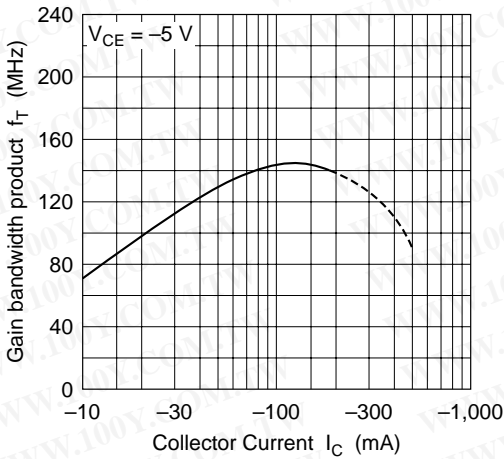


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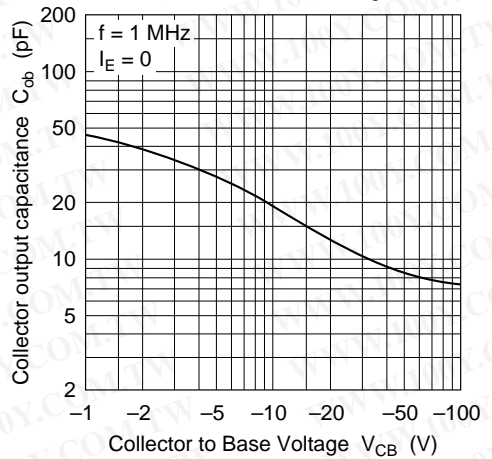
Saturation Voltage vs. Collector Current



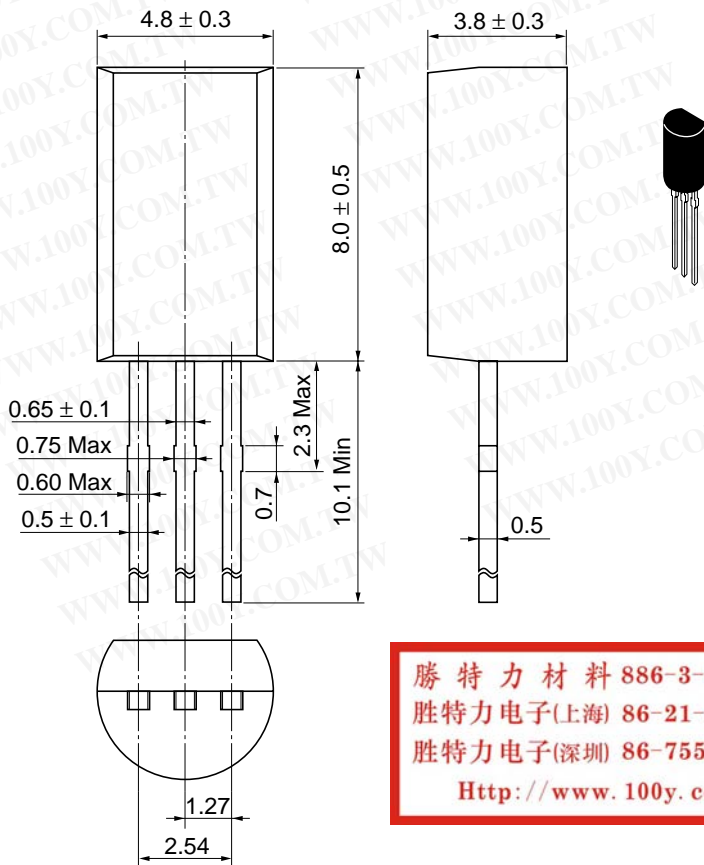
Gain Bandwidth Product vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage



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

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